

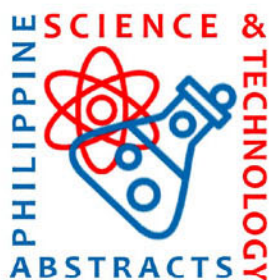
PHILIPPINE **SCIENCE & TECHNOLOGY** **ABSTRACTS**



SCIENCE AND TECHNOLOGY INFORMATION INSTITUTE
INFORMATION RESOURCES AND ANALYSIS DIVISION

Department of Science and Technology
Bicutan, Taguig City, Metro Manila
Philippines

DECEMBER 2018



PHILIPPINE SCIENCE AND TECHNOLOGY ABSTRACTS

DECEMBER 2018

**Information Resources and Analysis Division
SCIENCE AND TECHNOLOGY INFORMATION INSTITUTE
Department of Science and Technology
Bicutan, Taguig City, Metro Manila
Philippines**

PSTA Production Team:

**ALAN C. TAULE
ARJAY C. ESCONDO
MARIEVIC V. NARQUITA
JEFREY T. CENTENO
IRENE A. BRILLO
KHASIAN EUNICE M. ROMULO**

PHILIPPINE SCIENCE AND TECHNOLOGY ABSTRACTS

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|-----------------------------|-----------|
| AGRICULTURE | 0001-0178 |
| ANTHROPOLOGY | 0179-0180 |
| ARCHITECTURE | 0181-0185 |
| BIOLOGY | 0186-0227 |
| BOTANY | 0228 |
| CHEMISTRY | 0229-0247 |
| COMPUTER SCIENCE | 0248-0251 |
| ECOLOGY | 0252-0257 |
| EDUCATION | 0258-0288 |
| ENGINEERING | 0289-0311 |
| ENVIRONMENTAL SCIENCE | 0312-0315 |
| FISHERIES | 0316-0367 |
| FOOD SCIENCE AND TECHNOLOGY | 0368-0374 |
| FORESTRY | 0375-0378 |
| GEOLOGY | 0379 |
| HEALTH AND WELLNESS | 0380-0381 |
| INDUSTRY | 0382-0396 |
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| MARINE SCIENCE | 0408-0411 |
| MATHEMATICS | 0412-0416 |
| MEDICINE | 0417-0503 |
| NUTRITION | 0504-0521 |
| PHYSICS | 0522-0546 |
| SCIENCE AND TECHNOLOGY | 0547-0563 |
| SOCIAL SCIENCES | 0564-0599 |
| VETERINARY MEDICINE | 0600 |
| ZOOLOGY | 0601-0602 |

June to December 2018

Information Resources and Analysis Division
SCIENCE AND TECHNOLOGY INFORMATION INSTITUTE
Bicutan, Taguig, Metro Manila
Philippines

ACIAR-sponsored legume research*Wallis, E.S., Byth*

The research activities of the Australian Centre for International Agricultural Research on crop and forage legumes in Asia, plus related research projects in plant nutrition, rhizobiology, and soil science are summarized. The food legume program currently centers on soybean, mungbean, peanut, and pigeonpea. A project involving cowpea was completed recently. The countries now involved in the program are Indonesia, Thailand, India and Fiji.

Keywords: Legumes, Green manuring, Agriculture

Green Manure in Rice Farming, Volume No. Issue No. , pages 239-256

1988,

(Filipiniana Analytics)

Fil(B) SB191 R518 1988

Alkaline and Enzymatic treatments of Rice Hulls*Del Rosario, E.J., Ang, Angel*

Rice Hulls (48 mesh, variety IR-20) were shaken with 1,2,5, and 10% sodium hydroxide at 29 C for one hour. After neutralization and filtration of the rice hull suspension, the residue was oven dried and analyzed for protein, 34.2% crude fiber and 19.6% silica. Rice hulls treated with 1% NoAH had 3.5% protein, 31.4% crude fiber and 21.3% silica while hulls treated with 10% NoAH contained 1.6% protein, 42,5% crude fiber and 16.65 silica. The percentage values of these three components for rice hulls treated with 2% and 5% NoAH were roughly intermediate between those for hulls treated with 1% and 10 % NoAH. Commercial cellulose 'onozuka' and cellulose prepared in the laboratory from *Trichoderma viride* were used to extract rice hull protein and convert rice hull cellulose into dextrose. Rice hulls previously treated with 1% NoAH were treated with cellulose either in water bath-shaker at pH 5 and 50 C or in Diaflo ultrafiltere at pH 5 AND 30 C. Although the results varied over a wide range cellulose could extract approximately 13% of thge hull protein and convert about 5% of rice hulls mby weight into reducing sugars.

Keywords: Rice hulls, Alkaline, Agriculture

The Philippine Agriculturist, Volume No. 58 Issue No. 1/2, 24-29

1974,

(Filipiniana Analytics)

FIL S19 P53

Aloe vera Gel and Sulfur Dioxide Fumigation Extend Postharvest Storage Life of Peach*Shah, Abdul Sattar , Wahab, Said , Khattak, Khandazi Fatima*

Peach fruits cannot be stored for a desirable length of time due to chilling injury and the incidence of decay during cold storage. The effects of *Aloe vera* gel and sulfur dioxide fumigation on physicochemical contents, chilling injury, decay index, and sensory quality of peach fruits during cold storage were investigated. Fruits were harvested at physiological maturity and stored at $0\text{ }^{\circ}\text{C} \pm 1\text{ }^{\circ}\text{C}$ and $90\% \pm 5\%$ RH for 30 d. The results showed that the combination of *Aloe vera* gel and sulfur dioxide fumigation significantly affected moisture, total soluble solids (TSS), pH, acidity, sugar-acid ratio, reducing sugars, non-reducing sugars, vitamin C, firmness, chilling injury, decay index and sensory attributes of peach fruits. The untreated fruits showed high incidence of chilling injury. Generally, the results indicated that the combination of *Aloe vera* gel and sulfur dioxide fumigation has the potential for maintaining the quality of peach fruits and for extending their shelf life during cold storage. (**Author's abstract**)

Keywords: *Aloe vera*, Chilling injury, Fumigation, Physicochemical content, Sensory attribute, Sulfur dioxide, Agriculture

The Philippine Agricultural Scientist, Volume No. 100 Issue No. 3, 243-250
2017 September,
(Filipiniana Analytics)
Fil(S) S19 P53 100/3 2017

0004

Alternaria Leaf Spot of Crucifers in the Philippines *Lapis, Delfin B., Ricaforte, E*

The fungus grew and sporulated well on various agar media, such as potato dextrose agar, v-8 juice agar, pechay decoction, agar and Leonian agar. Temperature ranging from 16 to 32 C and pH 5 to 9 and intermittent light and darkness favored sporulation. The fungus remained viable within 12 to 14 months in infected leaves. Spores may be disseminated by wind, insects, water splashes and infected seeds. Cross-inoculations showed that lettuce (*Lactuca sativa* L) and weeds like *Cleoma ciliata* and *Portulaca oleracea* were relatively susceptible, and hence can serve as alternate hosts of the pathogen. The disease may be controlled by sanitation, seed selection, crop rotation and use of fungicides such as Fermate, Dithane Z-78 Zineb, Cuprox and nManeb at their recommended rates.

Keywords: *Crucifers, Alternaria Brassicae, Alternaria Leaf Spot, Agriculture*

The Philippine Agriculturist, Volume No. 58 Issue No. 1/2, 121-137
1974,
(Filipiniana Analytics)
FIL S19 P53

0005

Amounts of stubbles left in paddy fields: evaluation from the viewpoints of C sequestration and soil fertility *Liu, Jun-Jie , Zou, Ping , Wang, Guang-hua , Fu, Jian-rong , Ando, Ho , Kimura, Makoto*

Plant residues are the main source of organic materials maintaining soil fertility in Paddy fields, among which rice stubble has been disregarded of its importance so far. This study highlighted the great amount of rice stubbles retained in paddy fields in comparison with that of corn stubbles. Height of rice stubbles was measured in paddy fields under harvesting methods by hand and harvesters around Harbin and Shaoxing City, China. The height of stubbles above

the ground was 5.0 ± 1.7 cm, 10.1 ± 2.3 cm and 28.7 ± 8.4 cm for rice fields harvested by hand and harvesters that left rice straw in the fields without and with cutting it into segments, corresponding to 18-25%, 25-32% and 47-60% of total top-part biomass (excluding ears), respectively. These results suggested that the biomass of stubbles left in paddy fields by the second-type harvesters was larger than that of rice straw. -Mechanization in harvesting rice plants was 73% in 2014, and the estimated amount of stubbles left in paddy fields was at least 1514 to 1973 kg ha⁻¹. Comparable measurements of corn plants and stubbles in corn fields showed that the average height of corn stubbles harvested by hand was 9.1 ± 2.5 cm and the corresponding stubble biomass was only about 7-9% of the total top-part biomass (excluding ears) amounting to 413-639 kg ha⁻¹. This was the first study that quantitatively elucidated the importance of rice stubbles in C sequestration and soil fertility in paddy fields in recent China. (**Author's abstract**)

Keywords: Biomass, C sequestration, Corn stubble, Rice straw, Rice stubble, Agriculture

The Philippine Agricultural Scientist, Volume No. 100 Issue No. 1, 88-95
2017 March,
(Filipiniana Analytics)
Fil(S) S19 P53 100/1 2017

0006

Amphibians and Reptiles in the Vicinity of Bulusan Lake, Bulusan Volcano Natural Park, Sorsogon, Philippines

Binaday, Jake Wilson B. , Amarga, Ace Kevin S. , Barrameda, Jr., Ernesto S. , Bonagua, Bobet Jan M.

A preliminary inventory of amphibians and reptiles from the vicinity of Bulusan Lake, Bulusan Volcano Natural Park is presented. So far, there is no existing account documenting the herpetofauna of this unique protected area. With this report, the researchers aim to provide baseline data on the identities of species of amphibians and reptiles existing in the natural park. A survey was conducted by employing visual encounter surveys. Specimens were identified *in situ* and were recorded by photographic documentation. The study resulted in the documentation of 26 species belonging to 24 genera in 14 families. This includes eight species of frogs, ten lizards, and eight snakes. The survey provides the first record of *Aplopeltura boa* (Blunthead Slug-eating Snake) from Luzon Island, and clarifies a previous point of confusion regarding species identification and use of the names *Boiga drapiezii* (White-spotted Cat Snake) and *Boiga angulata* (Philippine Blunt-headed Cat Snake) on Luzon. A novel account of a white-iris *Tropidolaemus subannulatus* (Northern Temple Pit Viper) is also presented. Considering the limited time and the confined area where the survey was conducted, a significant increase in this species list is expected as more surveys are conducted in the natural park focusing on different elevations and microhabitats. If future studies are permitted by the protected area managers, there is a high possibility of discovering several novel and endemic species. (**Author's abstract**)

Keywords: Amphibians, *Aplopeltura boa*, *Boiga drapiezii*, Bulusan Volcano, Reptiles, White iris, Agriculture

Philippine Journal of Science, Volume No. 146 Issue No. 3, 339-351
2017 September,
(Filipiniana Analytics)
Fil(S) Q1 P55 146/3 2017

0007

Analysis of genetic diversity of Safflower (*Carthamus tinctorius* L.) genotypes using Agro-morphological traits and molecular markers

Safavi, Seyed Mehdi , Pourdad, Seyyed Saeid , Safavi, Seyed Afshin

In spite of being one of the major oilseed crops, little is known about genetic diversity and relationships between species of safflower. Genetic variation in twenty safflower (*Carthamus tinctorius* L.) accessions was characterized by means of agro-morphological traits, random amplified polymorphic DNA (RAPD) and inter-simple sequence repeats (ISSR) markers. A field trial was conducted to evaluate 17 agro-morphological traits. To study RAPD and ISSR, initially, 53 primers were screened, of which 22 produced reproducible amplification products. Using 13 selected RAPD primers 74 markers were generated of which 60 were polymorphic (81.08%). The number of amplified bands varied from three to nine, with size range from 250 to 2,500 bp. The nine selected ISSR primers produced 50 bands across 20 genotypes, of which 48 were polymorphic (96.00%). The number of amplified fragments with ISSR primers ranged from three to eight and varied in size from 250 to 1,450 bp. By all primers (RAPD + ISSR), a total of 124 bands were detected, of which 108 bands (87%) were polymorphic with an average of 5.63 bands per primer. High percentage of polymorphism (87%) observed with combined markers data revealed high level of genetic variation existing among the accessions. Genetic relationship estimated using similarity coefficients (Jaccard's) values between different pair of accessions varied from 0.26 - 0.84 in RAPD, 0.28 - 0.86 in ISSR and 0.29 to 0.78 with combined markers suggested a variation (dissimilarity) ranging from 16 to 74%, 14 - 72% and 22 - 71% respectively. ISSR markers were relatively more efficient than the RAPD assay. The Mantel matrix correspondence test between two Jaccard's similarity matrices, showing statistically significant correlation between ISSR- and RAPD-based similarities. Cluster analysis based on combined data of both molecular markers (ISSR+RAPD) separated the accessions into 5 groups and based on morphological traits, RAPD and ISSR data accessions formed in four distinct groups. Classification schemes generated by morphologic and molecular markers data did not coincide. The grouping of accessions was supported by principal coordinate analyses (PCoA). It is suggested that ISSR and RAPD are effective markers system for detecting variation among safflower genotypes. (**Author's abstract**)

Keywords: *Agro-morphological trait, Genetic variation, ISSR, RAPD, Safflower, Agriculture*

Philippine Journal of Crop Science (PJCS), Volume No. 42 Issue No. 2, 48-60
2017 August,
(Filipiniana Analytics)
Fil(S) SB189 P5 42/2 2017

0008

Analysis of genotype by environment interaction in irrigated lowland rice (*Oryza sativa* L.) varieties under diverse agroclimatic environments

Makahiya, Hazel Anne F. , Perdiguerra, Kim Nyka C. , Marajas, Ivy Rose M. , Edaiio, Ma. Lourdes S. , Hernandez, Jose E. , Sta Cruz, Pompe C.

Determining the factors involved in yield variability due to genotype by environment (G x E) can be helpful when looking for sites with contrasting environments for effective multi-environment trials. In rice multi-environment trials however, limited information is available on the agroclimatic factors that can describe the yield variation due to G x E. Field experiments were conducted for two cropping seasons each in selected major rice growing areas in the Philippines. Rice varieties tested were NSIC Rc222, PSS Rc18 and Mestiso 19. Agroclimatic parameters such as the cumulative daily rainfall, solar radiation, minimum and maximum temperatures, and indigenous nitrogen supply in each environments were determined. Grain yield and agronomic parameters were obtained. Environment accounted for the largest variability in grain yield of the three rice varieties. Environmental differences can greatly contribute to the varying yield performance of genotypes across cropping seasons and locations, as shown by the G x E effect being more than twice that of genotype effect. Among agroclimatic factors, only cumulative daily rainfall had significant positive correlation with IPCA1 environmental scores but not on environmental mean yield. Interaction between

genotype and cumulative rainfall accounted for 54.6% of the total yield variation due to G x E. The differences in rainfall patterns among the environments contributed to a considerable proportion of yield variation due to G x E. The use of environmental variables to interpret the large variation due to G x E is important, such as identifying the traits that respond to rainfall variability. Aside from rainfall, the cumulative solar radiation during the reproductive and grain filling stages could have favourable contribution on good y ield performance. It will be helpful in developing varieties that have stable productivity across environments with high rainfall variations. (**Author's abstract**)

Keywords: *Agroclimatic parameters, Environments, G x E interaction, Yield, Agriculture*

Philippine Journal of Crop Science (PJCS), Volume No. 42 Issue No. 2, 28-36
2017 August,
(Filipiniana Analytics)
Fil(S) SB189 P5 42/2 2017

0009

New and re-emerging phytoplasma diseases: potential threat to crop production in the Philippines

Retuta, Yron M. , Dolores, Lol

Phytoplasma is a wall-less phytopathogenic bacteria which are transmitted by insects and via infected seedlings, capable of causing numerous diseases and devastating yield losses in economically important crops. Owing to its being unculturable, phytoplasma diseases are difficult to identify and have not been fully recognized or studied in the early years. Disease identification has just relied on symptoms and microscopic examinations which were not always sensitive to detect bacterium in low titer plants. The most recently detected phytoplasma disease is the cassava witches broom (CWB) that plagued the cassava production in the Eastern Visayas and some areas of Mindanao. Infected cassava plants were stunted and showed excessive proliferation of branches. The CBW was efficiently detected using the polymerase chain reaction (PCR) and the nested PCR techniques. Universal primers that amplified the 16S rDNA, and part of 23S rDNA were synthesized and used in this test. With PCR, other phytoplasma diseases including the re-emerging ampalaya little leaf, and newly detected patola little leaf, malunggay little leaf and the "die back" of papaya have also been detected and identified. Today, more diseases exhibiting the typical symptoms suspected of phytoplasma infection are being observed and yet to be identified. The discovery of these new phytoplasma hosts, increases diversity of the potential reservoir of these diseases and poses considerable risk in the disease epidemiology. Hence, early detection of the disease is needed for a sound and practical management approach. (**Author's abstract**)

Keywords: *Phytoplasma, Cassava witches broom, PCR, Agriculture*

Transactions of the National Academy of Science and Technology, Volume No. 39 Issue No. 1, 13
2017 July,
(Filipiniana Analytics)
NP

0010

Asexual and sexual propagation of elephant foot yam

Apiag, Cle

Elephant foot yam (EFY) is one of the underutilized crops in the country but cultivated as food crop in Surigao. Its germplasm are valuable for crop improvement which requires sufficient seed for evaluation. This study aimed generally to propagate different EFY accessions and specifically to develop propagation techniques and evaluate the seed yield from sexual and asexual propagation. True seeds were used for sexual propagation and corm sett for the asexual propagation. Three sett sizes, 100g, 200g, and 300g depending on the accession's corm size were studied at CMU-AES from May 2015 to September 2016. Direct seeding in furrows was adopted for sexual propagation while vertical planting of sett in furrows was done among three sett sizes for asexual propagation. The accessions were arranged systematically in separated block for each sett size. Descriptive statistical tool was used. Results revealed that using different accessions propagated by corm division, the highest percent survival and average number of cormels were obtained from 300g sett size while the 100g sett size gave the highest seed yield and heaviest corm weight. The 200g sett size gave an intermediate result. However, using similar accessions across three sizes, the 200g sett size exhibited a slight variation on seed corm size and percent survival. Sexual propagation thru direct seeding gave poor results as affected by adverse drought condition. (**Author's abstract**)

Keywords: *Elephant foot yam, Propagation, Technique, Agriculture*

Transactions of the National Academy of Science and Technology, Volume No. 39 Issue No. 1, 39
2017 July,
(Filipiniana Analytics)
NP

0011

Assessment of Distillery Spent Wash Water as a Potential Bionutrient Supplement for Spring-Planted Sugarcane (*Saccharum officinarum* L.)

Nawaz, Muhammad, Chattha, Muhammad Umer, Khan, Sadia, Chattha, Muhammad Bilal, Ijaz, Muhammad, Khan, Shahbaz, Munir, Hassan, Hassan, Muhammad Umair, Chattha, Muhammad Usman

The study was conducted to evaluate the effect of the combined application of the sugar industry byproduct spent wash water (SWW) and inorganic fertilizers on the growth, yield and quality of spring planted sugarcane. The experiment was conducted for two consecutive years (2013 and 2014) in a randomized complete block design with three replications. The combined application of spent wash water (80 t ha⁻¹) + NPK (84:56:56 kg ha⁻¹) markedly increased the leaf area index, crop growth rate, net assimilation rate and total dry matter of millable canes, cane length (cm), weight per stripped cane (kg), and yield of unstripped and stripped cane compared with the other treatments. Moreover, the reduction in spent wash water and NPK rate substantially decreased the quantitative attributes of the crop. Owing to the increase in growth and quantitative traits, the application of spent wash water and NPK considerably increased the quality parameters such as brix (%), sucrose content in cane juice (%), sugar recovery (%) and total sugar yield. Moreover, the maximum improvement for quality parameters was obtained in the spent wash (80 t ha⁻¹) + NPK (84:56:56 kg ha⁻¹) treatment. Results of the study showed that application of spent wash (80 t ha⁻¹) + NPK (84:56:56 kg ha⁻¹) can effectively improve the growth, yield and quality of spring-planted sugarcane. (**Author's abstract**)

Keywords: *Sugarcane, Spent wash water, NPK, Agriculture*

The Philippine Agricultural Scientist, Volume No. 100 Issue No. 4, pages 437-443
2017 December,
(Filipiniana Analytics)
Fil(S) S19 P53 100/4 2017

Assessment of loop-mediated isothermal amplification in rice tungro viruses
Paraguison-Alili, Rubigilda , Duque, Ma. Johna C. , Truong, Xuan Hoai , Tiongco, Emmanuel R.

Loop-mediated isothermal amplification (LAMP), a recent and simple nucleic acid amplification technique, was optimized and applied to detect the rice tungro bacilliform virus (RTBV) and/or the rice tungro spherical virus (RTSV) in greenhouse inoculated rice seedlings and in field collected rice plants from the Philippine Rice Research Institute branch stations. RTBV was the target virus in the greenhouse trials and field samples taken during the 2014 and 2016 wet season (WS) while RTBV and RTSV in 2015 dry season (DS) cropping. LAMP detected RTBV in rice seedlings a day after inoculation in the greenhouse by the insect vector *Nephotettix virescens* while symptoms of slight stunting and pale yellowing of the second youngest leaf were evident three days later. Rice plants taken in 3x3 hill arrangement or randomly sampled during the 2014 DS and 2016 OS cropping that were noted with yellow leaves and stunted (Y,St) and yellow leaves with slight stunting (Y,SSt) were infected with RTBV while those with green leaves and stunted (G,St), green leaves and slightly stunted (G,SSt), yellow leaves but not stunted (Y,NSt), and healthy-looking (H) were uninfected, including those sampled exhibiting uniform plant height and yellowish leaves from farmer's fields.

During the 2015 DS cropping, plants noted as Y,St, Y,SSt, Y,NSt, G,St, G,SSt, and H were infected with either RTSV or RTBV or both RTBV and RTSV or uninfected. During this period, RTSV alone was the prevalent tungro virus infection at 41.67%. The combined infection of RTSV alone in H and G,SSt plants with no obvious tungro symptoms of leaf yellowing and plant stunting amounted to 77.15%. When compared to the 80.00% negative reaction in other H plants, these revealed convincing evidence for providing an estimation of the real positives and negatives; a critical criteria for specificity. The above results also point to the benefits of using assay for RTBV alone to detect the early stage of tungro infection when symptoms are not yet fully expressed. In this instance, RTSV is plausibly present because RTBV alone is not transmissible. On the other hand, RTSV assay will reinforce the information on the presence of infected plants prior to symptom expression while visual diagnosis of leaf yellowing and plant stunting symptoms and that of sporadic disease spread features in the rice field are likely enough to confirm the infection to save on assay time and resources.

Promising results of this pilot undertaking on the use of molecular tool for tungro field diagnosis were obtained. But more trials and plant samples are suggested so that the predictive values target data will be established to credibly prove that LAMP assay can serve as a high through put support diagnostic tool for field diagnosis of tungro viruses. **(Authors' abstract)**

Keywords: *LAMP, RTBV, RTSV, Tungro symptoms, Tungro virus detection, Agriculture*

Assessment of of the effectiveness of organic-based amendments against diseases of sweet pepper

Alovera, Reveli

Organic amendments such as animal manures and composts are used in agricultural systems to recycle nutrients and improve the soil conditions for the growth of the plants. The application of organic fertilizers provides a slow release of nutrients as microorganisms break the soil materials into organic forms. A study arranged in Randomized Complete Block Design with three replications was conducted to evaluate the diseases and determine the yield advantage of sweet pepper applied with organic-based amendments. The following treatments were used: T1- (Control -No inorganic fertilizers), T2- Inorganic fertilizer (60-40-150), T3- Vermicompost at 2 tons/ha, T4- Chicken dung at 2 tons/ha and T5- Vermicompost at 1 ton /ha + chicken dung at 1 ton/ha.

There were two diseases assessed, namely; anthracnose leaf spot which was caused by *Colletotrichum capsici* and Tomato Yellow Leaf Curl Virus (TYLCV), a virus infection. The percent severity of anthracnose leaf spot was very low throughout the duration of the study and was initially observed at 45 days after transplanting (DAT). However, significant differences were observed among the treatments. At 60 and 75 DAT, T1(Control-No inorganic fertilizers) showed the highest percent severity of 5.08 and 7.30, respectively. Plant height was significantly affected by the application of the different treatments. Tallest plants were observed on T4 (Chicken dung at 2tons/ha) while the shortest plants were exhibited on T1 (Control-No inorganic fertilizers). In terms of yield, application of chicken dung at the rate of 2 tons/ha (T4) had an advantage of 142% while the combination of chicken dung at 1 ton/ha and vermicompost at 1 ton/ha (T5) had 56.52%.

The findings suggest that the application of chicken dung and its combination with vermicompost produced higher yield and low disease severity which may encourage farmers to consider organic farming. (**Authors' abstract**)

Keywords: *Severity, Organic amendments,, Compost, Yield advantage, Agriculture*

Transactions of the National Academy of Science and Technology, Volume No. 39 Issue No. 1, 18
2017 July,
(Filipiniana Analytics)
NP

0014

Assessment of potential plant growth promoting compounds produced *in vitro* by endophytic bacteria associated with nipa palm (*Nypa fruticans*)

Cruz, Jayvee A. , Cadiente, Mea Katreena M.

The study determined the plant growth promoting compounds produced *in vitro* by endophytic microorganisms isolated from nipa palm (*Nypa fruticans*). These compounds include indoleacetic acid (IAA) production, 1-aminocyclopropane-1-carboxylic acid (ACC) deaminase activity, phosphate solubilization, siderophore production, nitrogen fixation, and starch hydrolysis. Nitrogen-free medium was used to isolate endophytic bacteria. Fifty-one isolates from nipa palm (roots, bark, leaves, etc.) taken in Bulacan, Quezon, and Agusan provinces were screened for the production of growth-promoting compounds. Forty-two isolates produced IAA, six were able to produce siderophore as shown by orange halo around the colonies, and 21 showed ACC deaminase activity. Of the 51 isolates, 37 dissolved precipitated tricalcium phosphate as shown by clearing zone around isolates grown in Pikovskaya's medium. Thirty-six isolates are nitrogen-fixing bacteria while 18 isolates were able to hydrolyzed starch. Five isolates were selected from among 51 isolates for further study. Selection was based on their growth rates, IAA production and phosphate solubilization. Endophytic bacteria associated with nipa palm produced growth-promoting compounds that may promote plant growth. However, assessment was done *in vitro* only. Evaluation of the selected isolates under

growth room and screenhouse conditions is recommended to determine its effectiveness as plant growth promoter. **(Author's abstract)**

Keywords: *ACC deaminase, Endophytic bacteria, Growth-promoting activities, Indole-3-acetic acid, Nipa palm, Agriculture*

Philippine Journal of Crop Science (PJCS), Volume No. 41 Issue No. 3, 74-82
2016 December,
(Filipiniana Analytics)
Fil(S) SB189 P5 41/3 2016

0015

Assessment on the Efficiency of a Papaya and Cantaloupe Fruit Peeling Machine *Thongsroy, Bandit , Klajring, Vinai*

A prototype papaya and cantaloupe peeling machine was designed, constructed, tested, and evaluated. The machine was designed to peel most of the outer husk to reduce production time and labor cost. The prototype was based on a lathe-peeling machine with a main frame, fruit holder module, blade set, programmable electronic controller and variable speed drive. Results from tests showed that the best settings for the machine were 350 rpm blade set speed, 200 rpm fruit holder rotational speed, as well as 2.45 and 6.07 mm peeled skin thicknesses of papaya and cantaloupe, respectively. The weights of peeled papaya and cantaloupe were 93.48% and 85.43% of the intact fruits; the peeling times were 17.95 and 16.42 fruits s⁻¹; and the peeling capacity was recorded at 201 and 219 fruits h⁻¹, respectively. The device can help solve the problem of manual labor shortage in the agricultural sector as the quality of the peeled fruit was found to be acceptable to a group of planters and merchants. **(Author's abstract)**

Keywords: *Cantaloupe, Papaya, Peeling machine, Two-way blade, Agriculture*

The Philippine Agricultural Scientist, Volume No. 100 Issue No. 3, 308-314
2017 September,
(Filipiniana Analytics)
Fil(S) S19 P53 100/3 2017

0016

Bacterial Leaf Stripe of Corn in the Philippines *Karganilla, Asuncion D., Cabauatan,*

Symptoms consist of narrow, irregular, elongate, and water soaked lesions. Later, these lesions became thin, papery, translucent and brown to straw colored. Shredding of leaves was observed in severe cases of infection. Based on its morphological, cultural and physiological characteristics, the causal bacterium is identified as *Pseudomonas alboprecipitans* Rosen.

Keywords: *Corn, Bacterial Leaf, Bacterium Andropogoni, Pseudomonas Andropogonis, Agriculture*

The Philippine Agriculturist, Volume No. 58 Issue No. 1/2, 105-114
1974,
(Filipiniana Analytics)

Carbon storage of corn-based cropping systems in Isabela, Philippines *Ocampo, Nemesis P. , Zamora, Oscar B.*

Total carbon (C) storage of three corn-based cropping systems: monocropping (M), legume in crop rotation (CR) and intercropping (I) of selected farmers in Isabela were evaluated. The total C stocks were estimated at fallow period and crop maturity. Carbon stocks at fallow period served as reference point to measure the change in C stocks in various C pools. Carbon stored in herbaceous vegetation of the monocropping system was significantly lower than the other two systems at fallow period. However, the reverse was true at crop maturity. Carbon stock in surface litter of the monocropping system at crop maturity was significantly lower than the legume in crop rotation and intercropping systems. Only the intercropping system increased C stored in surface litter, and this was attributed to high crop diversity at crop maturity. C stock stored in the roots decreased in legume in crop rotation but increased in the two other systems. Total soil organic carbon (SOC) at fallow period and crop maturity were ranked as follows: M (26.51 and 25.18 Mg ha⁻¹) >I (25.68 and 24.62 Mg ha⁻¹) >CR (25.28 and 24.59 Mg ha⁻¹). In general, there was a decrease in total SOC in the three cropping systems. The decrease in the total SOC was highest in the monocropping system (-1.33 Mg ha⁻¹), which was 1.25 (-1.06 Mg ha⁻¹) and 1.94 (-0.69 Mg ha⁻¹) times higher than the decrease in intercropping and legume in crop rotation, respectively. There was an increase in total system C stocks in monocropping (3.67 Mg ha⁻¹), intercropping system (2.36 Mg ha⁻¹) and the legume in crop rotation system (0.72 Mg ha⁻¹). Both monocropping and intercropping systems stored higher C than legume in crop rotation. However, the lower decrease in SOC and less chemical fertilizer input in the intercropping system contributed to C sequestration and less C emission than the monocropping system. (**Author's abstract**)

Keywords: *Carbon storage, Corn -base, Crop rotation, Cropping system, Intercropping, Monocropping, Agriculture*

Philippine Journal of Crop Science (PJCS), Volume No. 41 Issue No. 3, 20-29
2016 December,
(Filipiniana Analytics)
Fil(S) SB189 P5 41/3 2016

Cephalophora tropica thaxter: Cytology and conidial development *Visarathanonth,*

A philippine isolate of cephalophora tropica thaxt. was studied on agar blocks with emphasis on its cytology and conidial development. The hyphal and conidial cells were multinucleate. nuclear division was by simple fission. No distinct chromosome nor nuclear envelope were observe. Hyphal anastomosis was of common occurrence.

Keywords: *Cephalophora tropica thaxter, Helminthosporium turicum, Postrusion, obpyriform, Agriculture*

The Philippine Agriculturist, Volume No. 16 Issue No. 1-2, 77-85
1972,
(Filipiniana Analytics)
Fil S19 P53 56/1-2

Characteristics of Four Post *In Vitro*-Conserved Chrysanthemum [*Dendranthema grandiflora* (Ramat.) Kitam.] Varieties

Budiarto, Kumiawan , Rosario, Teresita L.

The vegetative and floral characteristics of chrysanthemum [*Dendranthema grandiflora* (Ramat.) Kitam.] plantlets that had survived after *in vitro* conservation at different periods and in different media were assessed after growing them *in vivo*. The surviving plantlets of varieties 'Pasopati', 'Padma Buana', 'Puspita Nusantara' and 'Tirta Ayuni' previously conserved under low-temperature conditions in Murashige and Skoog (MS)+ 2.5% dimethyl sulfoxide (DMSO), full, ½, and ¼ strengths Tsuchiya media for 2, 4, and 6 mo were acclimatized under protected house conditions with standard cultural maintenance until flowering stage.

The initial deviations in plant height, stem diameter, leaf length-width ratio and number of florets within certain culture media and within storage periods were not observed as the storage periods were increased. The size of the flowers, florets and discs, and the color of the adaxial and abaxial parts of all varieties were not affected by the conservation media and length of storage.

Cytological alterations in terms of chromosome number, chromosome classification, and grouping were not found within variety and within media. The study showed that *in vitro* conservation of chrysanthemums is an effective alternative method to replace the more expensive and risky maintenance of live and field-grown germplasm without sacrificing genetic stability.

(Authors' abstract)

Keywords: *Chrysanthemum (Dendranthema grandiflora), In vitro cconservation, Flower disc, Karyogram, Tsuchiya medium, Agriculture*

The Philippine Agricultural Scientist, Volume No. 100 Issue No. 4, 358-368
2017 December,
(Filipiniana Analytics)
Fil(S) S19 P53 100/4 2017

Characterization of Yellow-Fruited and Red-Fruited Strains of Miracle Fruit [*Synsepalum dulcificum* (Schum & Thonne) Daniell]

Angeles, Domingo E. , Nakamura, Kenji , Yasuma, Koji

Five strains of miracle fruit consisting of the yellow strain and four red-fruited strains grown in Mabacan, Calauan, Laguna, Philippines were characterized. All strains showed similar growth patterns, flowering and fruiting periods, and stages of reaching maturity. The plant is evergreen, grows slowly, and reaches gestation period in 2.5 yr. It grows intermittently through a cyclical pattern of vegetative and reproductive periods. The yellow-fruited strain is unique, or one of its kind. Its flushes and fruit skin are light yellow. The leaves are acuminate with acute apex and acuminate base, glabrous, and cluster in the terminal of the shoots. The leaf margin is slightly undulating. Each leaf weighs from 0.13- 0.17 g, and measures 4.9-7.0 cm long, 1.5-2.9 cm wide. The fruit is axillary, ellipsoid, weighs 0.9-1 .8 g and measures 17.5-19.8 mm long, 8.1-10.2 mm wide, and forms clusters with other fruits in the shoot terminal. The seed

weighs 0.3 g, and measures 13.1-15.1 mm long, 5.1 - 6.8 mm wide. The peel weighs 0.1-0.25 g, and the mucilage, 0.4-1.25 g. Of the total fruit weight, 14.8% is peel, 61.6% is mucilage, and 24.0% is seed. Among the red fruited strains, strains 2 and 4 are highly promising because of their larger fruits and resistance to cracking. Their leaves are glabrous, obovate, and entire, with sub-obtuse apex and acuminate base. Their flushes are reddish. The fruit of strain 2 is red and weighs 1.95 g; strain 4 is red and larger at 2.21 g. Of the total fruit weight of strain 2, 20.51% is peel, 18.92% is seed and 62.58% is mucilage, whereas the percentages in strain 4 are 19.46% peel, 19.46% seed and 61.09% mucilage. Strains 1 and 3 produce smaller fruits and crack easily after heavy rainfall during their development during the dry season. Among the fruit features, fruit width is a strong determinant of fruit size ($r = 0.91$) compared with length ($r = 0.71$). Mucilage content is strongly correlated with fruit weight ($r = 0.96$) but not seed weight ($r = 0.55$). (**Author's abstract**)

Keywords: *Glycoprotein, Miracle fruit, Miraculin, Synsepalum dulcificum, Agriculture*

The Philippine Agricultural Scientist, Volume No. 100 Issue No. 3, 251-257
2017 September,
(Filipiniana Analytics)
Fil(S) S19 P53 100/3 2017

0021

Chilling Differentially Affects Strawberries Grown under High-Temperature Conditions

Ledesma, Nadine A. , Ragay, Cyril S. , Delgado, Justin C. , Padua, Danilo P.

The strawberry is grown in the Philippines at high elevations where the relatively low-temperature conditions are more suitable for its growth and development. There have been attempts to grow the crop under warmer, lowland conditions but fruit quality and yield have remained very low. The strawberry requires a chilling treatment to break a dormancy period and enhance reproductive growth. In the strawberry-producing areas of the Philippines, the plants are exposed to some form of natural chilling in the field, but there have been no efforts to study how artificial chilling can further improve growth and fruit production. Under high-temperature conditions, artificial chilling may improve the productivity of strawberry.

This study was conducted to determine if artificial chilling can enhance the growth and productivity of four strawberry cultivars under high-temperature conditions. Rooted runners from each cultivar were chilled at 4 °C for 6 d prior to planting in open-field plots. The cultivars responded differently to chilling. 'TFT' and 'BSU Pierre' had good vegetative growth such as longer and more leaves compared with their unchilled counterparts. Chilled 'FSF' did not show any improvement in vegetative growth. Chilled plants from all cultivars had lower fruit set than their unchilled counterparts, with "Hawaiian" not producing any flowers at all. Only 'BSU Pierre' fruits benefited from chilling by having bigger fruits in terms of size and weight. These results show that artificial chilling enhanced the growth and fruit quality of one cultivar under high temperatures, but the duration of chilling treatment may not have been optimum in the other cultivars. (**Authors' abstract**)

Keywords: *Chilling treatment, Fragaria x ananassa Duch., High temperature stress, Strawberry, Temperate fruits in the tropics, Agriculture*

The Philippine Agricultural Scientist, Volume No. 100 Issue No. 2, pages 211-221
2017 June,
(Filipiniana Analytics)
Fil(S) S19 P53 100/2 2017

Cloning and molecular characterization of chalcone synthase gene from mulberry (*Marus alba* L.)

Calumpang, Carla Lenore F., Laurena, Antonio C.

Two members of the chalcone synthase (CHS) enzyme superfamily of type III polyketide synthases (PKSs) are CHS and resveratrol synthase, which synthesize flavonoids and resveratrol, respectively, and exhibit health and anti-fungal properties. This study aimed to clone, sequence and analyze partial CHS gene sequences from mulberry (*M. alba* L.) leaves using designed and published primers. CHS genes were isolated and cloned from mulberry genomic DNA through PCR-based methods using primers based on conserved regions of members of the CHS superfamily of type III PKSs. The 584-bp PCR amplicon generated two CHS clones having high sequence identity (>80 %) with CHS sequences from other plant sources. Phylogenetic analysis with other plant sources exhibited clustering of both sequences together with other angiosperm CHS sequences, specifically with dicots, which is consistent with mulberry classification. The CHS partial sequence corresponded to a 195 amino acid deduced protein, which exhibited several predicted conserved domains, including enzyme active site and dimer interface. Catalytic and conserved amino acid residues among CHS enzymes were present. Three-dimensional homology modeling predicted a homodimeric protein with high homology to alfalfa CHS crystal structure. (**Author's abstract**)

Keywords: *Chalcone synthase, Gene cloning, Marus alba L., Agriculture*

Philippine Journal of Crop Science (PJCS), Volume No. 42 Issue No. 2, 1-9
2017 August,
(Filipiniana Analytics)
Fil(S) SB189 P5 42/2 2017

A comparative chromosome study of rattus rattus mindanensis and rattus argentiventer

Wurster, Doris H., Atwell, G

Rtus argentiventer and *Rattus rattus mindanensis* are important agricultural pest species in the Philippines. Comparative chromosome studies have been performed on these species to further clarify their taxonomic status and gain insight into their cytogenic relationship. the two forms can be consistently identified by differences in their sex chromosome.

Keywords: *Rattus rattus umbriventer, Rattus, Chromosome, Pest, Agriculture*

The Philippine Agriculturist, Volume No. 16 Issue No. 1-2, 243-250
1972,
(Filipiniana Analytics)
Fil S19 P53 56/1-2

Comparative Evaluation of 2,2-Diphenyl-1-Picryl Hydrazylhydrate (DPPH) Free Radical and Oxygen Radical Absorbance Capacity (ORAC) Assays in Measuring the Antioxidant Capacities of Pigmented Rice Varieties

Chen, Xiaoqiong , Irifune, Kohei , Yang, Dingqian , Nagao, Norio , Chikawa, Yuuki , Wu, Xianjun , Itani, Tomio

This study aimed to compare different experimental approaches for measuring antioxidant capacities of pigmented rice varieties. Samples of red, black, and white rice varieties were analyzed. The anti-oxidative activities of the rice samples were assessed by the 2,2-diphenyl- 1-picryl-hydrazylhydrate (DPPH) free radical and oxygen radical absorbance capacity (ORAC) assays, respectively. The total phenolic contents and the extraction efficiencies of the methanol and ethanol solvents were compared. Although the DPPH free radical and ORAC assays yielded different results, the same trends were observed with regard to their antioxidant capacities, with ranges of 1492.7-2065.8 (highest value), 713.7-1587.4, and 23.9- 92.5 $\mu\text{mol Trolox } 100 \text{ mg}^{-1}$ corresponding to red, black, and white varieties, respectively. The most efficient extraction solvent was 1 % HCl in methanol, which yielded extracts with the highest antioxidant capacity and total phenolic content. Extraction with 1 % HCl in methanol was found to be suitable for analyzing antioxidant compounds and total phenolic contents. (**Author's abstract**)

Keywords: *Antioxidant capacity, DPPH, Phenolic content, Pigmented rice, Solvent extraction, Agriculture*

The Philippine Agricultural Scientist, Volume No. 100 Issue No. 2, pages 190-199
2017 June,
(Filipiniana Analytics)
Fil(S) S19 P53 100/2 2017

0025

Comparative Evaluation of Direct Dry-Seeded and Transplanted Rice in the Dry Zone of Karnataka, India

Gowda, Jnanasha A.C. , Sawargaonkar, Gajanan L. , Rao, Adusumilli N. , Wani, Suhas P. , Soriano, Ju

Sustaining yield and economic stability of direct dry-seeded rice needs to be considered before setting into large scale adoption of the emerging rice production system in the dry zone areas of Karnataka state, India. The study was aimed at comparing direct dry-seeded and transplanted systems of rice cultivation with the participation of farmers concerning rice growth, yield, water productivity, and economic returns. Samba Mahsuri (BPT 5204) rice cultivar was used in the two-year farmer participatory field study conducted at Raichur district of Karnataka. The rice grain yield, harvest index, 1,000-grain weight, and above-ground biomass did not differ among direct dry-seeded and transplanted rice systems. Results of this study indicated that higher grain yield with direct dry-seeded rice can be achieved by using rice cultivars that can produce more productive tillers plus longer panicles and not necessarily high biomass. Irrigation water use for direct dry-seeded rice is lesser by around 46% compared with transplanted rice due to dry cultivation during land preparation and flush irrigation at early crop growth stages. Grain yield of direct dry-seeded rice, which was comparable to that of transplanted rice and with higher water productivity, indicates that this system can be more attractive to rice farmers in the dry zones. Slight reduction in grain yield (5%) with direct dry-seeded rice compared to transplanted rice was compensated by 44-48% lower production cost, resulting in significantly higher net returns by US\$ 230 ha⁻¹ (23%) compared to transplanted rice. The benefit-cost ratio was significantly higher in direct dry-seeded rice by 69%. Considering usual drought and unstable water supply situations in the dry zones, it is anticipated that farmer adoption of direct dry-seeded rice system will be increased due to the benefits of greater profitability, better grain yield of improved cultivars, and higher water productivity. (**Author's abstract**)

Keywords: *Direct dry-seeded rice, Dry zone, Economic returns, Grain yield, Transplanted rice, Water productivity, Agriculture*

Philippine Journal of Science, Volume No. 147 Issue No. 1, 165-174
2018 March,
(Filipiniana Analytics)
NP

0026

Comparative Virulence and Gross Morphology of Isolates of *Sclerospora philippinensis* Weston on Corn *Titatarn, S., Exconde*

Conidia of seven isolates of *Sclerospora philippinensis* collected from different places in the Philippines were inoculated of five inbreds and synthetic variety of corn. The virulence and gross morphology of the isolates were compared under controlled condition. The Musuan, Bukidnon isolate was the most virulent with 85% systemic infection on the six test materials used while the Lemery, Batangas isolate was the least virulent with 49% infection. Six different virulence patterns were observed. Isolates from Impasugong, Bukidnon and Lemery, Batangas gave identical virulence patterns, while the five other isolates showed virulence patterns distinct from each other. There is no relationship between canidiophore and conidial sizes and percentage of infection, although the most virulent isolate showed the longest conidiophores.

Keywords: *Sclerospora philippinensis, Corn, Morphology, Conidiophore, Agriculture*

The Philippine Agriculturist, Volume No. 58 Issue No. 1/2, 90-104
1974,
(Filipiniana Analytics)
FIL S19 P53

0027

Composition of the Main Dominant Pigments from Potential Two Edible Seaweeds *Indrawat, Renny, Heriyanto, Shioi, Yuzo, Indriatmoko, Adhiwibawa, Marcelinus Alfasisurya Setya, Brotosudarmo, Tatas Hardo Panintingjati, Limantara, Leenawat*

Two seaweed species – *Kappaphycus alvarezii* (Rhodophyta) and *Padina australis* (Phaeophyta) – have been commercially viable raw materials for the food industry. Despite their usefulness as sources of carrageenan and alginate, there is little information concerning their chlorophylls and carotenoids. Composition and quantification of the chlorophylls and carotenoids in *K. alvarezii* var. brown and *P. australis* were studied using reverse-phase high-performance liquid chromatography (RP-HPLC) with a recently developed 3D-multi-chromatogram analysis method. Identification of the most dominant pigments was confirmed by mass spectrometry using positive electron spray ionization. Samples were collected from three different locations in Indonesia (Jepara, Madura, and Maluku). A total of 39 pigments were found from the crude extracts of *K. alvarezii* and *P. australis*, and the four main dominant pigments (chlorophyll a, β -carotene, fucoxanthin, and zeaxanthin) were quantified by recently developed 3D-multichromatogram analysis method. Both seaweeds in three locations had almost similar pigment composition and only a small variation on minor pigments, except for the Maluku Island samples. The relationship between pigment concentration and environmental factor of solar irradiation was investigated using the pigment ratio

between chlorophyll a and main carotenoids. The effect of solar irradiance on pigment formation is discussed.
(Author's abstract)

Keywords: *3D-multi-chromatogram, Carotenoid, Chlorophyll, Kappaphycus alvarezii, Padina australis, Agriculture*

Philippine Journal of Science, Volume No. 147 Issue No. 1, 47-55
2018 March,
(Filipiniana Analytics)
NP

0028

Content analysis of the front pages of Philippine newspapers published before and during Martial Law *Brizuela, Rolade C.*

The front pages of 72 issues of Bulletin Today, The Reporter, and Morning Times, representing the national, regional and local newspapers published in the Philippines, respectively, were content analyzed to determine the variations in prominence given to development and non-development news and photographs before and during martial law. The newspapers were chosen through random sampling. Results showed that newspapers published during martial law allocated more space to textual matters and contained more development news, but had lesser space for photographs than those published before martial law. There were 61 development news and 272 non-development news stories published in the pre-martial law issues of sample newspapers, while those published during martial law carried a total of 160 development and 271 non-development news. Business and economics news ranked first among the commonly published development news. News on elections and politics predominated among the non-development news. There was a highly significant difference in the number of development news stories published in the different newspaper categories before and during martial law.

Keywords: *Newspaper, Content analysis, Bulletin Today, The Reporter, Morning Times, Agriculture*

Annals of Tropical Research, Volume No. 2 Issue No. 4, 254-258
1980 October - December,
(Filipiniana Analytics)
Fil(S) S19 A73

0029

Correlations, Path Coefficient Analysis and Heritability for Quantitative Traits in Finger Millet Landraces *Eric, Manyasa Okuku, Pangiray, Tongoona, Paul, Shanahan, Mwang, Githiri, Abhishek, Rathore*

Knowledge of association between traits and heritability is important in breeding for purposes of effective trait selection. Such information on finger millet in east Africa is very limited. This study was intended to determine the association and heritability for 19 quantitative traits of 340 finger millet landraces from Kenya, Tanzania and Uganda and 80 global minicore accessions from ICRISAT Genebank in India. There were inherent strong genetic relationships among most traits as evidenced by the higher genotypic than phenotypic correlations. Grain yield had high, positive correlations with finger width ($r_g = 0.876$), grains per spikelet ($r_g = 0.623$), threshing percent ($r_g = 0.677$), peduncle length ($r_g = 0.517$) and panicle exertion ($r_g = 0.571$). These traits could be considered for grain yield selection. Path

coefficient analysis revealed that productive tillers per plant (0.473), 1000 grain mass (0.136), grains per spikelet (0.131) and threshing percent (0.118) had positive, direct effects on grain yield. Due consideration should be placed on these traits when selecting for grain yield improvement in finger millet. There were also strong, positive indirect effects contributed to grain yield by finger width, peduncle length, panicle exertion and leaf sheath width. It will be necessary to simultaneously select for these traits together with those with strong positive, direct effects on grain yield in order to improve grain yield in finger millet. High broad-sense heritability estimates were recorded for fingers per panicle, flag leaf blade length, 1000 grain mass, productive tillers per plant, finger length, peduncle length and panicle exertion indicating the potential for their improvement through selection. (**Author's abstract**)

Keywords: correlations, finger millet, heritability, path analysis, Agriculture

Philippine Journal of Science, Volume No. 145 Issue No. 2, 197-208
2016 June,
(Filipiniana Analytics)
Fil(S) Q1 P55 145/2 2016

0030

DArT marker-based genetic diversity analysis of selected sugarcane varieties

Lalusin, Antonio G. , Dela Cueva, Fe M. , Sendon, Pamella Marie D. , Rasco, Jhun Laurence S. , Bello, Erin B., Laurena, Antoni

Sugarcane is an economically important crop grown for sugar and bioethanol. Commercial varieties are hybrids of the noble cane *Saccharum officinarum* and its wild relative *S. spontaneum*. Sugarcane breeding in the Philippines is focused on the development of new varieties with higher sucrose content and resistance to major fungal diseases. Evaluation of parents for crossing depends on the knowledge of the genetic diversity of available sugarcane germplasm. In this study, the forty-eight sugarcane varieties selected by breeders from Philippine Sugar Research Institute

(PHILSURIN) and Sugar Regulatory Administration (SRA) were analysed thru genotyping-by-sequencing using Diversity Arrays Technology (DArT). Varieties were selected based on their sucrose content and resistance to downy mildew and smut diseases. Single Nucleotide Polymorphisms (SNPs) and Silico-DArT (presence/absence) dominant markers were developed using DArT-Seq. DArT-Seq employs genome complexity reduction method using methylation-sensitive restriction enzymes and Next-Generation Sequencing (NGS). Two dendrograms were constructed based on the SNP and Silico-DArT marker scoring data. Both dendrograms showed nine low-sucrose varieties grouping separately from commercial hybrids developed in the Philippines. High-throughput genotyping by DArT-Seq can be used in the genetic diversity analysis of available germplasm for breeding of more superior sugarcane varieties. (**Author's abstract**)

Keywords: Sugarcane, Single nucleotide polymorphisms, Silico-DArT, Diversity Arrays Technology, Genotyping-by-sequencing, Agriculture

Transactions of the National Academy of Science and Technology, Volume No. 39 Issue No. 1, 24
2017 July,
(Filipiniana Analytics)
NP

0031

Decision making of female rice workers in selected barangays of Malaybalay City, Bukidnon, Philippines

Abao, Gretchen G. , Salarda, Chzarlicet

The study generally evaluates the decision making of female rice workers in three selected barangays of Malaybalay City, Bukidnon. Specifically, the study determines why women engage in rice production, to identify farm activities where they are mostly involved in decision making, to determine factors affecting their decision making and identify problems encountered by female rice workers in decision making.

A structured questionnaire was used to gather the data. The data collected include the socio-economic profile of the respondents, involvement in the farm decision making and problems usually meet in decision making. Descriptive statistics and logistic regression were employed to analyze the data.

Results showed that women engaged in rice production primarily to provide for the basic needs to the family such as food and clothing. Secondly is to lessen labor cost of working in their own farm. Female respondents were found to do the decision making on areas in land preparation, planting, nutrient management, pest management, weed management and other activities like number of laborers needed and their wages, time of harvest, manner and venue of product disposal. In the logistic regression analysis, age and family size were found to significantly affect farm decision making of women at five percent and ten percent levels of significance, respectively. Furthermore, this means that younger women and those who belong to bigger families have higher probabilities of getting involved in farm decision making. However, problems such as :financial constraints in farm production would likely influence their decision making. Most of them claimed that working in the farm is dangerous, do not have safety equipment to do different farm activities, and finally lack of marketing facilities and marketing outlets. **(Authors' abstract)**

Keywords: *Socio-economic, Production, Decision making, Worker , Agriculture*

Transactions of the National Academy of Science and Technology, Volume No. 39 Issue No. 1, 28
2017 July,
(Filipiniana Analytics)
NP

0032

Determination of Fruit Ripeness Degree of 'Carabao' Mango (*Mangifera indica* L.) using Digital Photometry

del Rosario, Ernesto J. , Mendoza, Hervin Errol T. , Serrano, Edralina P. , Sabulars, Veronica C. , Abarra, Maja Sierh

Color photographs of 'Carabao' mango fruits at different color index (CI) values or stages of ripeness were computer analyzed based on RGB, HSV, and L*a*b* color spaces. Plots of R, B, V, and L* versus CI had correlation coefficients (R^2) of 0.874, 0.915, 0.931 and 0.948, respectively. Titratable acidity (TA) and fruit firmness decreased with CI. Values of R^2 for TA were 0.917, 0.915, 0.948, and 0.977 for R, B, V, and L*, respectively; corresponding values for firmness were 0.941, 0.933, 0.941, and 0.968. R^2 of the binary and ternary color functions for TA were 0.924 and 0.947, respectively; corresponding values for firmness were 0.905 and 0.948, respectively. The results show

that digital photometry – using a simple digital camera and free-access software for color analysis based on RGB, HSV, or L*a*b* systems – is a promising laboratory method for determining the ripeness degree of ‘Carabao’ mango fruits. **(Author's abstract)**

Keywords: Carabao mango, Digital photometry, HSV, L*a*b*, RGB, Ripeness indicator, Agriculture

Philippine Journal of Science, Volume No. 147 Issue No. 2, 249-253
2018 June,
(Filipiniana Analytics)
NP

0033

***Dillenia philippinensis* R. (KATMON): harnessing its potential for food**
Omafta, Michelle E. , Tamisin, Jr., Leonardo L. , Artes, Leonisa , Wagan, Amparo M. , Ombico, Mar

Dillenia philippinensis R. is one the endemic yet underutilized tree species that abound in the country. It is wild-crafted and can be seen naturally-growing in Philippine forests or along river banks in some distant municipalities of Quezon province thus unknown to many is the nutritional value of its fruits for food and even for livelihood. This paper aims to highlight the products that can be made from Kattnon fruits, their nutritional content and consumer acceptability among urban consumers. Product development was carried out through a hands-on training of rural women's

groups from three municipalities of Quezon province, on processing Kattnon fruits using UPLB-developed procedures. Nutrient content of the products were analyzed. Consumer acceptability of the products was done through a sensory evaluation of at least 50 potential urban consumers per product. Products that can be developed from Katmon fruits include among others juice, jam, jelly, pickles, candy roll and dried powder for soursoup. Fresh katmon fruits contain 4mg vitamin C per 100 grams edible portion while every 250ml bottle of processed kattnon juice contains 5 mg of Vitamin C. Sensory evaluation by potential urban consumers showed very high acceptability of 56% for kattnon juice, 67% for Katmon jelly and 60% Kannan candy roll. In conclusion, kattnon fruits can be developed into a variety of nutritious and potentially-sellable food products. The nutritional and economic benefits that maybe gained from developing Katmon food products should be harnessed to its full potential especially in areas where the fruits abound yet remain a wasted resource. **(Author's abstract)**

Keywords: *Dillenia philippinensis* Rolfe, Katmon, Consumer acceptability, Agriculture

Transactions of the National Academy of Science and Technology, Volume No. 39 Issue No. 1, 29
2017 July,
(Filipiniana Analytics)
NP

0034

Dry Matter Accumulation Characteristics of Maize Cultivars Released from the 1950s to the 2010s in China

Ma, D. L. , Xie, R. Z. , Ming, B. , Lu, Y. L. , Li, S. K., Ren, Q.

Dry matter accumulation (DMA) is the basis of maize (*Zea mays* L) grain production. In order to investigate the traits related to DMA before and after flowering of maize, experiments were conducted on maize cultivars released from the 1950s to the 2010s, which were grown at densities of 37,500 and 82,500 plants ha⁻¹. In improved cultivars, the

contribution of total DMA (54-88%) to grain yield gain was greater than the contribution of harvest index (HI) (12-46%). A significant increase in total DMA for maize cultivars resulted from increase in DMA during the reproductive stage (DMA_R) and DMA_R rates. Leaf area index at anthesis or dent stage and the staygreen index significantly increased.

Leaf area duration was greater for new cultivars than for old ones, both before and after anthesis. These traits could be selected for by maize breeders to improve DMA, and thus increase maize grain yield in China. **(Author's abstract)**

Keywords: *Dry matter accumulation, Dry matter accumulation rate, Dry matter accumulation traits, Harvest index, Leaf area duration, Maize cultivars, Staygreen index, Agriculture*

The Philippine Agricultural Scientist, Volume No. 100 Issue No. 4, 337-346
2017 December,
(Filipiniana Analytics)
Fil(S) S19 P53 100/4 2017

0035

Drying Model of Sliced Apple and Effect of Vacuum Impregnation on Its Physiochemical Properties

Izli, Nazmi, Tamer, Canan Ece, Copur, Omer Utku, Isik, Esref, Yildiz, Berivan

This study presents the effects of convective (50 and 75 °C), microwave (90 and 160 W) and combined microwave-convective (90 W-50 °C, 90 W-75 °C, 160 W-50 °C and 160 W-75 °C) drying methods and vacuum impregnation pretreatment on the drying characteristics, titratable acidity, ash, total sugar, color, total phenolic content and antioxidant activity of sliced apple samples. The experiments were conducted with sliced apple samples, with and without vacuum impregnation pretreatment. To select the best thin-layer drying models for the drying treatments, nine mathematical models were fitted to the experimental data and based on the statistical tests used for evaluation, the Midilli et al. model was found to be the best fitted model to describe the drying behaviors of the apple samples. While L^* and b^* values decreased, a^* value increased in dried sliced apple samples compared with fresh samples. In addition, the highest total sugar and antioxidant activity values were obtained when the samples were dried using 90 W microwave power and vacuum impregnation pretreatment. **(Author's abstract)**

Keywords: *Antioxidant activity, Apple, Drying characteristics, Total phenolic content, Total sugar, Agriculture*

The Philippine Agricultural Scientist, Volume No. 100 Issue No. 3, 315-323
2017 September,
(Filipiniana Analytics)
Fil(S) S19 P53 100/3 2017

0036

Economic feasibility of green manure in rice-based cropping systems

Rosegrant, M.W., Roumasset,

Analysis of the economic feasibility of azolla growth model linked to a rice paddy water balance model, which permits determination of the expected nitrogen contribution for the different qualities of irrigation. The production costs of azolla are estimated from a detailed breakdown of the inputs used in the azolla nursery bed, multiplication bed, and ricefield. The expected nitrogen contribution and production costs together determine the costs per unit of hydrogen

supplied by azolla. The results indicate that in most environments, azolla is not a cost-effective substitute for urea fertilizer. High labor costs, high opportunity costs of land, and poor water control are major constraints to the economic feasibility of green manure. Given the current stage of azolla technology and its relatively poor economic feasibility, policy support of widespread investment in technology dissemination is not appropriate. Instead, strong support should be given a research program designed to overcome the constraints to economic feasibility. Improvements in azolla technology that increase nitrogen yield and pest resistance or reduce the opportunity costs of labor and land could make azolla economically feasible in a greater number of environments.

Keywords: *Field crops, Cropping systems, Agriculture*

Green Manure in Rice Farming, Volume No. Issue No. , pages 11-27
(Filipiniana Analytics)
Fil(B) SB191 R518 1988

0037

The Effect of Chitosan-Based Nanocomposite Coating on the Postharvest Life of Papaya (*Carica papaya* L.) Fruits

Allanigue, Dianne Krizzia A. , Sabularse, Veronica C. , Hernandez, Hidelisa P. , Serrano, Edralina P.

Nanochitosan, which was prepared by ionotropic gelation of chitosan and polyphosphate ions, had an average particle size of 112 nm. The nanochitosan was incorporated in formulations for chitosan-based nanocomposite (Ch-NCh) films and coatings. The 80% nanochitosan (v/v) containing film (Ch80NCh + Add) was the most compact and thinnest, followed by the 40% nanochitosan (v/v) containing film (Ch40NCh + Add) and the 1% chitosan-plus-additives film (Ch+ Add) which was highly porous and the thickest. The capability of the coating formulations to extend the postharvest life of cv. Sinta papaya fruits, which were stored at 14.6 °C and 79% relative humidity, was evaluated. Control (uncoated) and blank (additives only, Add only) coated fruits reached the limit of marketability on the 7th and 10th days of storage, respectively. The Ch + Add coated fruits reached the limit of marketability on the 14th day of storage. The Ch-NCh coated fruits did not reach the limit of marketability at the end of the 26-d storage period. The Ch-NCh coatings retarded peel color change, minimized disease incidence, shriveling and weight loss, and maintained pulp firmness. Titratable acidity of the Ch80NCh + Add coated fruits peaked later (19th day) than that of the other fruit samples which peaked on the 14th day of storage. Total soluble solids (TSS) content generally increased during storage with the Ch-NCh coated fruits generally having lower TSS readings. Results indicate that chitosan-based nanocomposite coatings retard fruit ripening in papaya cv. Sinta. (**Author's abstract**)

Keywords: *Chitosan, Nanochitosan, Nanocomposite coating, Nanoparticles, Papaya, Postharvest life, Agriculture*

The Philippine Agricultural Scientist, Volume No. 100 Issue No. 3, 233-242
2017 September,
(Filipiniana Analytics)
Fil(S) S19 P53 100/3 2017

0038

Effect of Gamma Irradiation on Egg Hatchability, Adult Survival and Longevity of the Mango Pulp Weevil, *Sternochetus frigidus* (Fabr.)

Obra, Glenda B. , Resilva, Sotero S. , Lorenzana, Louella Rowena J.

The effect of irradiation on egg hatchability, adult survival and longevity of *Sternochetus frigidus* (Fabr.) was studied using different doses of gamma radiation. Irradiation lowered egg hatchability, longevity and survival rates of *S. frigidus*. Response of males and females in terms of longevity and survival rates differed at sub-efficacious and efficacious doses. The study shows that the use of phytosanitary irradiation against *S. frigidus* results in a lowered risk that adults would be detected by survey programs as irradiation at doses resulting from commercial phytosanitation reduces longevity drastically, and that use of radiation induced sterility for SIT may not possibly work on this pest. (**Author's abstract**)

Keywords: *Curculionidae, Egg hatch, Ionizing radiation, Life span, Phytosanitation, SIT, Agriculture*

Philippine Journal of Science, Volume No. 146 Issue No. 3, 299-303
2017 September,
(Filipiniana Analytics)
Fil(S) Q1 P55 146/3 2017

0039

Effect of green manure on physicochemical properties of irrigated rice soils *Qixiao, Wen, Tianr*

The effect of green manure on some physicochemical properties of irrigated rice soils is discussed. Because they contain abundant, easily decomposable components, green manure crops can promote development of soil reduction processes, leading to changes in redox potential, acidity, ion exchange, complexes, and surfaces properties. Many of these changes in soil properties are of practical significance in plant growth.

Keywords: *Green manuring, Green manure crops, Agriculture*

Green Manure in Rice Farming, Volume No. Issue No. , pages 275-287
1988,
(Filipiniana Analytics)
Fil(B) SB191 R518 1988

0040

Effect of green manure on rice soil fertility in the United States *Westcott, M. P., Mikkelsen,*

Use of green manure crops in United States rice production is limited; it has declined from about 21% of the planted area in 1955 to less than 5% in 1987. The high costs of producing green manure N, the need to supplement it with fertilizer N, uncertain green manure performance from year to year, and loss of management flexibility in rice cropping are current constraints. Various leguminous green manure crops, including annual clovers, vetches, lespedeza, winter peas, and fava beans, have been used in areas where they are adapted. Green manure crops can supply rice with significant amounts of available N, but the contribution depends on the quality and quantity of green manure applied, the time and method of application, soil fertility status of the treated area, the kind of crops grown and cropping methods. In general, leguminous green manure crops can supply 30-50% of the N required for high-yielding rice varieties.

Keywords: *Green manure crops, Soil fertility, Agriculture*

Green Manure in Rice Farming, Volume No. Issue No. , pages 257-274
1988,
(Filipiniana Analytics)
Fil(B) SB191 R518 1988

0041

Effect of green manure on soil organic matter content and nitrogen availability
Bouldin

Many green manure crops furnish a succeeding rice crop with N equivalent of 50 to more than 100kg fertilizer N/ha. In several experiments, green manure had important effects on soil properties other than ability to supply N. In the long run, those effects may be economically more important than the value of green manure as N source. As a first approximation, green manure contains two fractions: one decomposes during the first rice crop, the other decomposes slowly over several years. With most green manure crops, the first fraction is 50-80% of the total N.

Keywords: *Green manure crops, Organic products , Agriculture*

Green Manure in Rice Farming, Volume No. Issue No. , pages 151-163
1988,
(Filipiniana Analytics)
Fil(B) SB191 R518 1988

0042

The effect of inoculum level and plant age on then severity of fusarium wilt of tomato
Padua, Leodegario E., Quebra

Plant growth was substantially reduced and a clear indication of a heightened tempo of disease development was observed upon increasing the levels of inoculum from 30% to 50%. Wilt symptoms appeared subsequently at all inoculum levels and the plant succumbed within a period of 2 and 1/2 weeks. It was apparent that inoculum levels from 30% to 50% are most effective in causing a quick outset of the disease. It was also observed that a period of 5 weeks was needed before complete death of then plant occurs. It appeared that a ratio of 20% inoculum and 80% sterilized soil.(Treatment II0 was required to cause the death of the plant. There were instances, however where plants recovered from the disease and assumed a disease index of 1 which is healthy. This could be explained by the fact that the virulence of the pathogen was decreased in the process of pathogeneses and this brought about a development of resistance in the plant. It might also be due to the fact that as the plant matures its tissue harden.

Keywords: *Plant, Tomato, Fusarium, Inoculum, Agriculture*

The Philippine Agriculturist, Volume No. 16 Issue No. 1-2, 190-197
1972,
(Filipiniana Analytics)
Fil S19 P53 56/1-2

The Effect of Methyl Jasmonate Phenylalanine Ammonia Lyase on and the Expression of Eugenol-o-Methyl Transferase Genes in Basil

Milan, Ebrahim Brouki, Mandoulakani, Babak Abdollahi, Kheradmand, Fatemeh

Basil (*Ocimum basilicum* L.) is one of the important medicinal plants belonging to the Lamiaceae family, used as fresh herb. Methyl jasmonate (MeJa) is a hormone signal and endogenous growth regulator involved in the regulation of defense responses, which induces a broad range of physiological pathways in many plant species. In this study, a completely randomized design (CRD) with three replications was conducted in a greenhouse to evaluate the effect of MeJa on the expression of eugenol-o-methyl transferase (*EOMT*) and phenylalanine ammonia lyase (*PAL*) genes (key genes involved in the biosynthesis of phenylpropanoids) in basil. Two concentrations of MeJa (0 and 0.5 mM) were sprayed on healthy plants at pre-flowering stage. Plant leaves were sampled at 0, 24, 48 and 72 h after MeJa application, and the expression of the *EOMT* and *PAL* genes was studied using real time polymerase chain reaction (PCR). Results showed that MeJa with 0.5 mM concentration significantly increased the expression of both genes. The expression of both genes reached its maximum amount 48 h after MeJa application, but the expression of the *PAL* gene significantly declined after that. In conclusion, it was demonstrated that the external application of MeJa could significantly induce the expression of *EOMT* and *PAL* genes in basil. (Author's abstract)

Keywords: *Ocimum basilicum* L., Phenylalanine ammonia lyase, Pre-flowering, Real time PCR, Agriculture

The Philippine Agricultural Scientist, Volume No. 100 Issue No. 2, pages 163-167
2017 June,
(Filipiniana Analytics)
Fil(S) S19 P53 100/2 2017

Effect of Plant Growth Regulators on *Leymus chinensis* (Trin.) Tzvel. in the Xilin Gol Grassland of Inner Mongolia

Jun, Lv, Xue-feng, Zong, Anjum, Shakeel Ahmad, Ji-xuan, Song, Yan, Zhang, Yu-feng, Dong, Zohaib, Ali, Ali, Iftikhar, Yu, Zu, Xiu-juan, He, San-gen, Wang

Plant growth regulators (PGRs) are used to manipulate growth and development of cereal, horticultural and forage crops in most parts of the world. The present study was conducted to ascertain the effect of different PGRs at varying concentrations on growth and biomass production of *Leymus chinensis* (Trin.) in the Xilin Gol grasslands of Inner Mongolia, China. The PGRs which were applied exogenously included naphthalene acetic acid (NAA) at 20 mg L⁻¹, 100 mg L⁻¹, and 200 mg L⁻¹; 6-benzylaminopurine (6-BA) at 5 mg L⁻¹, 25 mg L⁻¹, and 50 mg L⁻¹; brassinosteroid (BR) at 0.02 mg L⁻¹, 0.2 mg L⁻¹, and 2 mg L⁻¹; sodium nitrophenolate (SNP) and forchlorfenuron at SNP 10 mg + forchlorfenuron 0.5 mg L⁻¹, SNP 50 mg+ forchlorfenuron 2.5 mg L⁻¹, and SNP 100 mg+ forchlorfenuron 5 mg L⁻¹; and gibberellic acid (GA3) at 10 mg L⁻¹, 50 mg L⁻¹, and 100 mg L⁻¹. A water-sprayed plot for each replicate was included to serve as control.

Results showed that PGR treatments improved growth, biomass and physiological and biochemical traits of *L. chinensis* plants. The maximum increase in plant height was noted in the treatment with 100 mg L⁻¹ NAA, while 50 mg L⁻¹ GA3 and 100 mg L⁻¹ NAA treatments increased plant fresh and dry weights compared with their respective controls. Based on the combined interactions of morphological, physiological and biochemical traits, the results

confirmed that NAA and GA3 can be used to enhance grassland productivity. (**Author's abstract**)

Keywords: *Biomass production, Leymus chinensis, Plant growth regulator, Xilin Gol grassland, Agriculture*

The Philippine Agricultural Scientist, Volume No. 100 Issue No. 4, 387-394
2017 December,
(Filipiniana Analytics)
Fil(S) S19 P53 100/4 2017

0045

Effect of season of calving on the levels of plasma calcium and inorganic phosphorus in buffaloes

Capitan, S.S, Bahga, C,S, Takkar O.P, gangw

Twelve (120 Murrah/graded Murrah buffaloes that calved in summer and twelve (12) that calved in winter were used to determine the seasonal variations in the levels of plasma calcium and inorganic phosphorus buffaloes. Levels of plasma calcium and inorganic phosphorus were significantly (P

Keywords: *Plasma Calcium, Buffaloes, Calving, Agriculture*

The Philippine Agriculturist, Volume No. 71 Issue No. 1, 31-45
1988,
(Filipiniana Analytics)
Fil S19 P53 71/1

0046

Effect of soil depth on the degree of sweet potato weevil infestation

Burdeos, A.T.

Soil depth affected the degree of sweet potato weevil infestation. Highest weight of infested tubers was obtained at 26cm soil depth. weevil population in tubers showed a similar trend. No infestation was recorded at 29 cm depth. Results show that soil depth significantly affected the non-infested tuber yield and the degree of sweet potato weevil infestation. The greater the depth, the fewer the infested tubers. This implies that burying tubers deeper, such as hilling up at the base of sweet potato during tuber formation, can reduce weevil infestation.

Keywords: *Soil depth, Sweet potato, Weevil infestation, Agriculture*

Annals of Tropical Research, Volume No. 2 Issue No. 4, 224-231
1980 October - December,
(Filipiniana Analytics)
Fil(S) S19 A73

0047

Effect of various plant extracts and organic emulsifiers on acaricidal activity of two-spotted spider mite (*Tetranychus urticae*)

Jang, Se Ji , Yun, Young Beom , Kuk, Yong In

The objective of this research was to determine acaricidal activity (AA) on the two-spotted spider mite (*Tetranychus urticae*; TSSM) in persimmon trees by (1) using plant extracts (PEs) and different extraction methods (water, boiling water, fermentation, and ethanol) from various plant parts (leaves, stems, fruits, and roots) in 46 species from 28 families, (2) using mixers of various PEs and organic emulsifiers (OEs), and (3) using selected PEs and OEs. Boiling water extracts of *Chrysanthemum zawadskii* and *Mentha arvensis* all parts above ground, and *Rehmannia glutinosa* and *Coptis japonica* roots among 46 plant species from 28 families were found to be more effective on AA of TSSM, and TSSM was 57-75% controlled by 10% of the PEs in a laboratory test. The order of AA on TSSM by OEs at 5% concentration was powder soap (100%; PS) > natural emulsifier-B (98%; NEB) > loess sulphur (89%; LS) > natural emulsifier-A (51%; NEA) > brown rice vinegar (45%; BRV). In the treatment by PEs alone, TSSM was 60.4% and 44.0% controlled by 5% extracts of *Chrysanthemum zawadskii* and *Rehmannia glutinosa*, respectively, in an organically produced persimmon tree field. However, in the combination treatments by PEs and OEs, TSSM was 55.5-77.9% controlled by *Chrysanthemum zawadskii* extract (5%) + NEB (1%), *Rehmannia glutinosa* extract (5%) + NEB (1%), *Chrysanthemum zawadskii* extract (5%) + PS (1%), and *Rehmannia glutinosa* extract (5%) + PS (1%) when compared with non-treated controls. Persimmon leaf injuries did not show after treatments by 10% *Chrysanthemum zawadskii* and *Rehmannia glutinosa* extracts, and 5% NEB and PS. Thus, the PEs and OEs may be used for controlling TSSM in organically produced crop fields. (Author's abstract)

Keywords: Emulsifiers, Persimmon tree, Plant extract, *Tetranychus urticae*, Two-spotted spider mite, Agriculture

The Philippine Agricultural Scientist, Volume No. 100 Issue No. 1, 62-68
2017 March,
(Filipiniana Analytics)
Fil(S) S19 P53 100/1 2017

0048

Effects of alternate wetting and drying on rice farming in Bohol, Philippines

Valdivia, Chella Marie D. , Sumalde, Zenaida M. , Palis, Florencia G. , Lampayan, Ruben , Umali, Christian , Singleton, Grant R.

This paper examined how alternate-wetting and drying (AWD), a water saving technology, affected the economic aspect of lowland rice farming in Bohol. AWD was introduced in the Bohol Irrigation System (BIS) 1 in 2006. The changes in the area cultivated, yield, and mean net income of rice farmers were assessed using household panel data for 2005 and 2010. Descriptive statistics, comparison of means, and regression models were used to characterize the changes between the two periods. The mean and total rice areas cultivated were higher in 2010 compared to 2005. There were significant increases in the mean yield and net income of farmers, especially among those from the downstream areas. Regression analyses indicated that AWD might have had a significant contribution to changes in profit but not to yield. It was further confirmed that AWD did not cause yield penalty. Farmers, particularly those from the downstream areas, had a more reliable water supply after AWD implementation, resulting in a closing of the yield gap between upstream and downstream farmers. (Author's abstract)

Keywords: Alternate wetting and drying, Economic impact assessment, Irrigation, Rice production, Water-saving, Agriculture

Philippine Journal of Crop Science (PJCS), Volume No. 41 Issue No. 3, 50-56
2016 December,
(Filipiniana Analytics)
Fil(S) SB189 P5 41/3 2016

Effects of novel synthetic pyrazolopyrimidine compounds against Pepper Mild Mottle Virus infecting vegetable crops and human pathogens

Elbeshehy, Essam K. F. , AL-Jaddawi, Abdullah A. , Al-Bogami, Abdullah S.

Pepper mild mottle virus (PMMoV) was obtained from naturally infected pepper (*Capsicum annum L.*). Plants with mosaic, puckering and mottling yellow or light green symptoms on the upper developing leaves were collected from the Mecca regions, Kingdom of Saudi Arabia. Infected samples were carefully tested by direct enzyme-linked immunosorbent assay (ELISA) with antiserum to *Tobacco mosaic virus* (TMV), *Cucumber mosaic virus* (CMV), *Potato virus Y* (PVY), *Tobacco etch virus* (TEV), *Tomato spotted wilt virus* (TSWV) and Pepper mild mottle virus and confirmed by electron microscopy and reverse transcription-polymerase chain reaction (RT-PCR) assay. On the other hand, we studied inhibitory effects of the novel synthetic chemical compounds from Pyrazolopyrimidine against PMMoV and important human pathogens. We found that the efficacy of the antiviral agent depends on the capability of the virus to replicate itself by stopping the viral messenger RNA replicate and thus prevent the spread of the virus in infected pepper plants when plants were treated with Pyrazolopyrimidine compounds after 24 h from PMMoV inoculation. (**Author's abstract**)

Keywords: *Pepper mild mottle virus, PMMoV, Pyrazolopyrimidine, Antimicrobial, Antiviral, Agriculture*

The Philippine Agricultural Scientist, Volume No. 100 Issue No. 1, pages 47-54
2017 March,
(Filipiniana Analytics)
Fil(S) S19 P53 100/1 2017

The effects of packeting materials and storage conditions of the vigor and viability of squash (*Cucurbita maxima duch.*) Patola (*Luffa acutangula linn.*) and Upo (*Lageneria siceraria mol.*) seeds

Villareal, R.L., Balagedan, J.B, Castr

Squash (*Cucurbita maxima duch*) patola (*Luffa acutangula linn*) and upo (*Lageneria siceraria (Mol. Standl)*) are sold in [philippines markets in small paper packets or envelopes. Since the envelopes are not moisture proof, the seeds are exposed to the warm humid air in the philippines. The seeds therefore, absorb moisture and deteriorate rapidly resulting in poor germination. Castro and Villareal who worked on repacking and seeds storage of beans, cabbage, tomatoes, lettuce, onions, and sweet corn, recommended that these seeds should be repacked in moisture-resistant packeting matyerials and stored in a cool dry place to maitain their viability. Studies on the storage of squash, patola and upo seeds are limited .results of this study will hopefully give basic information to be used in packeting these seeds for more efficient maintenance of their vigor and viability. This study was conducted therefore to determine the effects of packeting materials and storage conditions on the vigor and grmination of upo, squash and patola seeds.

Keywords: *Cucurbita maxima duch., (Luffa acutangula linn, Lageneria siceraria mol, seeds, Agriculture*

Journal of the marine Biological association of the United KIngdom, Volume No. 16 Issue No. 1-2, 59-76
1972,

Effects of Red Raspberry Crude Extracts (RCE) on Biomarkers of Oxidative Stress and Inflammation in Human Umbilical Vein Endothelial Cell (HUVEC) Induced by Glucose

Atienza, Liezl M. , Yu, Gracia Fe B. , Hurtada, Wilma A. , Yee, Maritess G. , Dizon, Erlinda I.

Oxidative stress and inflammation are known to play key roles in both pathogenesis and progression of diabetes mellitus (DM). The study was conducted to determine the effects of red raspberry (*Rubus idaeus* L.) crude extracts (RCE) on biomarkers of oxidative stress and inflammation that mimic hyperglycemia in OM in glucose-induced hyperglycemia in human umbilical vein endothelial cells (HUVECs). The results showed that the red raspberries contained polyphenols such as quercetin and flavonoids known to exert strong antioxidant capacity. An *in vitro* study showed that RCE can attenuate oxidative stress by significantly inhibiting reactive oxygen species (ROS) ($p < 0.05$) and lipid peroxidation ($P < 0.05$). However, at higher concentration {20 $\mu\text{g/ml}$ }, RCE acted as pro-oxidant and significantly decreased cell proliferation ($p < 0.05$). RCE interacted with molecular signaling pathways involved in oxidative stress and inflammation, and significantly up-regulated the expression of transcription factors Nrf2 and PPAR- γ in a non-dose-dependent manner. RCE also significantly downregulated the expression of the pro-inflammatory transcription factor NF- κB and the inflammatory IL-6 in a dose-dependent manner. **(Author's abstract)**

Keywords: *Diabetes mellitus, Hyperglycemia, Inflammation, Oxidative stress, Red raspberries, Agriculture*

The Philippine Agricultural Scientist, Volume No. 100 Issue No. 4, 395-408
2017 December,
(Filipiniana Analytics)
Fil(S) S19 P53 100/4 2017

Endemic orchids of Mt. Kiamo, Bukidnon

Buonavista, Dave P. , Fabrigar, John M. , Opiso, Jenni

This study aimed to inventory the endemic orchid species of Mt. Kiamo, Bukidnon and classify its local status. Data gathering were done on the montane forest and an exhaustive sampling (alpha taxonomy) was done from base to peak of the mountain. Assessment of the endemism was based on Cootes (2011) and Fernando et al. (2008) while local status was based on Panal et al. (2015). The study recorded 21 endemic orchid species belonging to 12 genera. Among the 12 genera, *Bulbophyllum*, *Ceratostylis*, *Dendrobium* and *Mycarthes* were the most speciose with 3 species each, followed by *Dendrochilum* with two species, and the rest were represented only by a single species. Locally, most of the observed species are rare, out of 21 species 15 (71.43%) are rare, 2 (9.52%) species are common and only 4 (19.05%) species are abundant. This result provides an insight for conservation of the orchid flora on this mountain and to the other remaining forested mountains in Bukidnon. It is further recommended to have survey at different seasons of the year, increase sampling effort to catch any as-of-now unidentified species. It is also highly recommended that the results of this study be made known to the community and concerned stakeholders to design strategies to conserve, preserve, protect and manage Mt. Kiamo forest resources particularly the orchids. **(Author's abstract)**

Keywords: Endemic, Orchid, Mt. Kiama, Bukidnon, Agriculture

Transactions of the National Academy of Science and Technology, Volume No. 39 Issue No. 1, 23
2017 July,
(Filipiniana Analytics)
NP

0053

An Enhanced Root System Developmental Responses to Drought by Inoculation of Rhizobacteria (*Streptomyces mutabilis*) Contributed to the Improvement of Growth in Rice
Niones, Jonathan M. , Cabral, Maria Corazon J. , Siping, Angela Joyce O. , Cruz, Jayvee A. , Patungan, Joeffrey U. , Lucas, Katreen Mae D. , Lagunilla, Vincent H. , Caparas, Lance M. , Bello, Justine Camille T. , Batungbakal, Ma. Ysabera T. , Suralta, R

Drought limits rice production under upland conditions. This study quantified the effect of rhizobacteria inoculation on root system development during germination stage under laboratory conditions and in early vegetative stage in soil subjected to drought, as well as their contribution to soil water uptake and dry matter production using NSIC Rc192 variety. The source of inoculant was *Streptomyces mutabilis*, a bacterium capable of producing plant growth promoting compounds such as ACC deaminase, indole-3-acetic acid, and phosphatase. In the first experiment, pre-germination inoculation of seeds by *S. mutabilis* significantly increased the shoot and seminal root length as well as root hair lengths, relative to the uninoculated control. In the second experiment, inoculation of *S. mutabilis* generally had longer total root length under drought – regardless of the timing of inoculations – relative to the uninoculated control. Consequently, improved root system development contributed to the increase in soil water uptake under drought and thus, resulted in the increase in dry matter production. Among inoculation treatments, one-time inoculation of *S. mutabilis* either at pre-germination or pre-drought stress at 14 days after sowing (DAS) had significantly greater shoot dry matter production than threetime inoculation at pre-germination, thinning (3 DAS), and pre-drought stress (14 DAS). This study demonstrated the effectiveness of rhizobacteria (*S. mutabilis*) containing growth promoting compounds for enhancing drought dehydration avoidance root traits and improving the growth of rice plants under drought conditions. (Author's abstract)

Keywords: Drought, Dry matter production, Rhizobacteria, Root system development, Upland rice, Water use, Agriculture

Philippine Journal of Science, Volume No. 147 Issue No. 1, 113-122
2018 March,
(Filipiniana Analytics)
NP

0054

Environmental performance of cacao (*Theobroma cacao* L.) production and primary processing
Leyte, James Elwyn D., Pacardo, Enrique P. , Rebanco, Carmelita M. , Protacio, Calixto M. , Alcantara, Antonio J.

An attributional life cycle assessment (LCA) was conducted to provide a comprehensive picture of the environmental burdens associated with cacao production and primary processing in the Philippines. The analysis considered the entire system, from agricultural operations in the field until storage of the dried beans, required to produce and process 1 ton of dried cacao beans.

The inputs include fertilizer, pesticides, diesel, electricity and biodegradable plastics while the outputs include the dried beans, emissions of lambda-cyhalothrin, mancozeb, CO₂, SO₂, CH₄, N₂O, NO and CO, and solid wastes. The following impacts were found to be associated with the production of 1 ton dried cacao beans-0.163 kg 1,4-DB-eq. (human toxicity), 0.180 kg 1,4-DB-eq. (terrestrial ecotoxicity), 0.796 kg SO₂ eq. (atmospheric acidification) and 629.93 kg CO₂ eq. (climate change). Transportation, harvesting, pest management, and nutrient management contributed the most to the environmental impact categories considered in the study. As such, it is suggested that improvement measures be focused on the reduction of fossil fuel consumption and judicious application of fertilizers and pesticides to minimize the adverse environmental impacts of cacao production and primary processing.

The amount of harmful emissions released and the impact scores of cacao production and primary processing are generally low. This may be an indication of the cleaner production and eco-efficiency of the system. The results of this LCA study serves as a feedback mechanism that will assist the Philippine cacao industry in identifying the options for improving the environmental management of its production and primary processing system. (**Authors' abstract**)

Keywords: *Cacao, Environmental performance, Life cycle analysis, Agriculture*

Philippine Journal of Crop Science (PJCS), Volume No. 42 Issue No. 1, 51-58
2017 April,
(Filipiniana Analytics)
Fil(S) SB189 P5 42/1 2017

0055

Evaluation of forage production using maize-legume intercropping and biofertilizer low-input conditions

Javanmard, Abdollah , Majdi, Mitra , Hamzepour, Nikoo , Nasiri, Yousef

Intercropping as a low-input cropping system has been associated with higher forage yield in comparison with sole crops. This study compared the forage yield of sole maize and intercrops of maize with legumes grown under biofertilizer application, and examined the different competition indices in these intercropping patterns. The field assay was conducted during the 2013 growing season at the University of Maragheh in the East Azerbaijan province of Iran. The study was carried out in randomized complete block design (RCBD) with 14 treatments and 3 replications. Experimental treatments included intercropping of maize (inoculation with nitroxin as biological fertilizer) with hairy vetch (*Vicia villosa* Roth.), maize (no inoculation)-grass pea (*Lathyrus sativus* L.), maize (no inoculation)sainfoin (*Onobrychis vicifolia* Scop.), maize (inoculated)-berseem clover (*Trifolium alexandrinum* L.), maize (no inoculation)-vetch, maize (inoculated)-vetch, maize (inoculated)-sainfoin, maize (no inoculation) + berseem clover, and monoculture of maize (no inoculation), maize (inoculation), clover, vetch, grass pea, and sainfoin. Results showed that the maize (inoculation)-vetch intercropping pattern had the highest

forage production and the lowest yield production was in.- sainfotn and grass pea sole crops. Intercropping inoculated maize with vetch also had the highest amounts'of;land equivalent ratio (LER) and monetary advantage index (MAI). The higher relative crowding coefficient (RCC) of maize (K =1.08) compared with those of legumes (k = 0.93) indicated that maize was more competitive than legumes as intercrops. However, among all intercrops, maize (inoculation)-vetch was found to be most profitable. The results obtained from competition and economic indices indicated superior advantage of this intercrop in terms of more efficient land use and more economic benefits than those of other evaluated intercrops. (**Author's abstract**)

Keywords: *Biofertilizer, Forage yield, Hairy vetch, Monetary advantage, Nitroxin, Agriculture*

The Philippine Agricultural Scientist, Volume No. 100 Issue No. 1, 79-87
2017 March,
(Filipiniana Analytics)
Fil(S) S19 P53 100/1 2017

0056

Evaluation of Pre-slaughter and Slaughter Data from *Lechon*-size Black Tiaong and Kalinga Native Pigs (Organic Farm) and Landrace, Large White and their F₁ Crosses (Conventional Farm)

Bondoc, Orville L. , Dominguez, Jorge Michael D. , Bueno, Cristy M. , Abanto, Oliver D.

This study aimed to compare pre-slaughter and slaughter data from 40 *lechon*-size pigs belonging to native breeds (i.e., Black Tiaong and Kalinga) raised in an organic production system and commercial breeds (i.e., Landrace, Large White, and their F₁ crosses) obtained from a conventional swine breeding farm. Native breeds had significantly ($p<0.01$) longer head and snout, shorter ears and body length, wider shoulders but narrower rump width, lower rump height, and larger neck circumference than commercial breeds. Native breeds had significantly lower live weight ($p<0.05$)

but were older at slaughter ($p<0.01$) than commercial breeds. Hot carcass weight including the head, hot dressing percentage, and % chilled carcass yield were lower in native breeds. Weight of head, stomach, female reproductive organs, and blood were significantly heavier ($p<0.01$) in native breeds than commercial breeds. Weight of liver, kidneys, spleen, and small intestines were however, significantly heavier ($p<0.01$) in commercial breeds. The % edible internal organs and body parts in native breeds was significantly higher in terms of head, ears, stomach, visceral fats, and female reproductive organs but significantly lower ($p<0.05$) in terms of the liver, kidneys, and small intestines compared to commercial breeds. The slaughter parameters above may have direct implications on production targets of those involved in our country's *lechon* value chain. No significant differences ($p>0.05$) were found between types of production system in terms of weight loss during transit, tail length, wither height, heart girth, midriff girth, and flank girth, chilled carcass weight and drip loss percentage, and weight of ears, tail, heart, lungs, large intestines, and visceral fats. (**Author's abstract**)

Keywords: *Lechon-size pigs, native/commercial breeds, organic/conventional pig production systems, slaughter data, Agriculture*

Philippine Journal of Science, Volume No. 146 Issue No. 4, 411-423
2017 December,
(Filipiniana Analytics)
Fil(S) Q1 P55 146/4 2017

0057

Evaluation of Tobacco Cultivars for Resistance to *Rhizoctonia solani* AG-3, Causal Agent of Target Spot Disease: The Philippine Agricultural Scientist

Zhang, Chong , Fang, Dunhuang , Dong, Hang , Wu, Yuanhua

Target spot disease, caused by *Rhizoctonia solani* (Kuhn) (teleomorph *Thanatephorus cucumeris* (Frank) Donk), significantly reduces tobacco yield and quality. In recent years, the spread of target spot has become a threat to tobacco production in China. However, researches on the isolation of highly resistant or immune tobacco cultivars to target spot are limited. In this study, 600 tobacco cultivars representing diverse genetic sources from different countries were evaluated for their resistance to tobacco target spot under greenhouse conditions. During screening at a temperature range of 19-26 °C , two immune cultivars and 11 resistant cultivars were found. The remaining cultivars produced symptoms that designated them as susceptible or highly susceptible at these same temperatures. Since a relatively higher temperature is conducive to *R. solani* AG-3 infection, which indicates a severe target spot symptom, the response of two immune cultivars and 11 resistant cultivars was further tested at a temperature range of 23-32 °C. Results indicated that two immune cultivars isolated in a relatively lower temperature range exhibited characteristics that could designate them as resistant, while three resistant cultivars were maintained phenotype among 11 lines tested . Taken together, our analyses tested a large number of tobacco cultivars with different ranges of temperature for response to *R. solani* AG-3 infection, and resistant lines Reams 51 , OF 485, and KY 171 were identified as valuable sources to defend against *R. solani* AG-3 within a wide range of temperatures. (**Author's abstract**)

Keywords: Resistance, *Rhizoctonia solani* AG-3, Target spot, Tobacco cultivars, Agriculture

, Volume No. 100 Issue No. 4, 369-376
2017 December,
(Filipiniana Analytics)
Fil(S) S19 P53 100/4 2017

0058

Factors affecting the credit requirements of Agrarian Reform beneficiaries in Leyte

Salundaguit_Parrilla, Leonila T.

A total of 120 agrarian reform beneficiaries from 10 municipalities in Leyte was selected through proportional sampling to determine their credit needs. The average farm loan requirements of the respondents were P1003, P1035 and P2038 per hectare for wet, dry, and both seasons, respectively. Farm size was directly and significantly related to credit requirement. Household size, educational attainment and farming experience were positively but not significantly related to farm credit requirement. provision of irrigation water had a significant effect on credit requirement while net family income was negatively related to credit requirement.

Keywords: Agrarian Reform, Presidential Decree 717, Agriculture

Annals of Tropical Research, Volume No. 2 Issue No. 4, 250-253
1980 October - December,
(Filipiniana Analytics)
Fil(S) S19 A73

0059

Factors Affecting the Spatial Distribution of Black Shama *Copsychus cebuensis* Steere, 1890 in Argao Watershed Reserve

Racelis, Diomedes A. , Bantayan, Nathaniel C. , Cruz, Rex Victor O. , Malaki, Archiebald Baltazar B., Buot, Jr., Inocencio E. , Florece, Leonard

Point count method was used to determine the microclimate and microhabitat factors affecting the population density and distribution of Black Shamas (*Copsychus cebuensis*) in Argao watershed (AWR) – a key biodiversity area on the island of Cebu and a top priority for conservation initiatives. Estimated population densities of *C. cebuensis* were 52 and 53 individuals per hectare in mixed and natural forests. There were only three and four predictors at habitat and sampling site level have able to explain the behavior of the population density of *C. cebuensis*. Relative humidity and canopy cover have high positive significant correlations, while tree basal area has high negative correlation (at the habitat level). Elevation and canopy cover have positive significant correlation, while slope and shrub cover have negative significant correlation with *C. cebuensis* population density (sampling site level). The adjusted R^2 values were 0.345 and 0.212 (at landscape and sampling site). These suggest that about 34.5% of the variations of the population density of *C. cebuensis* have been accounted for by the former and only 21.2% by the later. Preservation and protection of remaining forest fragments within AWR is paramount especially the four sampling sites being sampled. **(Author's abstract)**

Keywords: *Argao Watershed Reserve, Copsychus cebuensis, Microclimate and microhabitat variables, Point count survey method, Spatial distribution, Agriculture*

Philippine Journal of Science, Volume No. 147 Issue No. 1, 175-189
2018,
(Filipiniana Analytics)
NP

0060

Farmers' participation in integrated pest management under the *Palayamanan* program in Camarines Sur, Philippines

Oliver, Pedro F. , Dizon, Josefina T.

The study was conducted to analyze farmers' participation in the Integrated Pest Management (IPM) under the *Palayamanan* Program in three municipalities in Camarines Sur, Philippines, namely, Buhi, Ocampo and San Fernando. A correlation analysis was done to determine the relationship between the farmers' socio-economic and psychological characteristics, and institutional factors and IPM practice. The level of farmers' participation in IPM showed that respondents in Buhi were at the partnership level, those in Ocampo were at the consulting level, while those in San Fernando were at the informing level. Based on chi-square analysis, the factors that were significantly correlated with participation in IPM were monthly income; knowledge about IPM; and trainings, technical assistance, and financial/credit availability. The major recommendations of farmer-respondents in the IPM practice were to encourage other farmers to continuously practice IPM to lessen pesticides usage and reduce expenses on farm inputs, and further increase technical, financial assistance and trainings to IPM farmers under the *Palayamanan* Program. **(Author's abstract)**

Keywords: *Farmer's participation, Integrated pest management, Palayamanan program, Local government unit, Agriculture*

Philippine Journal of Crop Science (PJCS), Volume No. 41 Issue No. 3, 40-49
2016 December,
(Filipiniana Analytics)
Fil(S) SB189 P5 41/3 2016

The Fertilizer Industry and Philippine Agriculture: Policies, Problems, and Priorities
Briones, Roehlano M.

The fertilizer policy in the country has evolved from pervasive interventionism in the 1970s to today's market-oriented regime. Government has abandoned price policies and subsidies, focusing rather on standard setting, quality regulation, and training. Over the same period, domestic demand for fertilizer has continually increased, though recently, resurgent fertilizer prices have reduced total utilization. Evidence suggests that farmers (at least in the case of rice) are underapplying fertilizer, forfeiting efficiency gains at the margin. On the supply side, imports have in the past few decades emerged as the main source of fertilizer, as domestic production has dwindled. With deregulation, numerous private sector players have taken over its distribution; analysis of the supply chain points to low marketing margins. Integration analysis fails to find systematic arbitrage opportunities between the domestic and world markets. Within the domestic market, however, there remain large disparities in prices across regions. Priorities for research and policy are therefore understanding the behavior of farmers in terms of fertilizer application, and addressing internal price disparities, perhaps by improved transport infrastructure and logistics. (**Author's abstract**)

Keywords: *Fertilizer, Product quality, Product standard, Agriculture*

Philippine Journal of Development, Volume No. 43 Issue No. 1, 29-50
 2016,
 (Filipiniana Analytics)
 Fil(S) HD85 J821p 43/1 2016

**Field measurement of net carbon dioxide exchange on cogon (*Imperata cylindrica* (L)
 beauty.)**
Sajise, P.E., Musgrave

Net carbon dioxide measurements on intact leaves of cogon (*Imperata cylindrica* (L) Beauty) was obtained using a specially designed, well illuminated, adequately ventilated and temperature-regulated chamber. Highest net photosynthesis among leaves in a tiller was obtained from leaf No. # (young fully expanded leaf) Net photosynthesis of different cogon transplant were significantly different. Batangas clone has the highest net photosynthesis (48.03 mg Co₂ /dm²/hr). Plants with high net photosynthesis have also significantly higher dark respiration. Light saturation was attained at 80,000 lux by plants with high, intermediate and low net photosynthesis was always lower at all light intensity levels than the clone with higher net photosynthesis. A significant positive correlation between net photosynthesis and total tillers produced was also observed.

Keywords: *Carbon dioxide, Cogon, Imperata cylindrica, Agriculture*

The Philippine Agriculturist, Volume No. 16 Issue No. 1-2, 155-167
 1972,
 (Filipiniana Analytics)
 Fil S19 P53 56/1-2

Field performance of mungbean germplasm (*Vigna radiata* (L.) WILCZEK] under organic production system

Maghirang, Rodel G. , Bartolome, Maria Cielo Paola L. , Sabanal, Alvin Qu

The versatility of mungbean in intercropping, crop rotation, and nitrogen fixation can be very valuable in organic production systems. Identifying potential mungbean varieties for organic production system can contribute to the optimization of organic agriculture. Thus, mungbean accessions and Pag-asa check varieties were evaluated under organic condition focusing on yield performance, pest and disease reactions and seed characteristics. "Pag-asa 17" showed consistent high yield (1.7 t/ha) during the dry and wet seasons in comparison with the varieties tested. 27 accessions were selected from a total of 521 germplasm evaluated, Yield performance of these entries ranged from the targeted 1-2 t/ha and an average of 30% yield advantage over the highest yielding check varieties. Reactions to pests were moderately susceptible for aphids, *cercospora* leaf spot, and cutworms. The number of seeds per pod ranged from 11 to 13 with medium to large sizes. Among the top selections adaptable to organic crop production system were 151913, 152412, 152378, 163018, 163012. These selections shall be subjected to further evaluation and hybridization to specifically identify and design an organic mungbean ideotype. (**Author's abstract**)

Keywords: *Mungbean, Organic plant breeding, Agriculture*

Transactions of the National Academy of Science and Technology, Volume No. 39 Issue No. 1, 40
2017 July,
(Filipiniana Analytics)
NP

Field Studies of Insect Visitation and Notes on the Population Ecology of Nipa Palm [*Nypa fruticans* (Wurmb.) Thunberg]

Panabang, Bernard B. , Yap, Sheryl A. , Jessamyn R. Adorada

The generalization that palms mainly exhibit anemophily has been disregarded and the idea that palm species are serviced by a specific group of pollinating insects has been accepted. The alternative concept that palm pollination is through more than one group of insects was tested by studying the diversity and ecological role of insects visiting the flowers of nipa palm (*Nypa fruticans*) to address the question whether or not nipa palm has a specialized pollination syndrome or whether pollination occurs via a group of insects or not. At least 25 families from the orders Diptera, Coleoptera, Dermaptera, Hymenoptera and Hemiptera were recorded visiting the flowers of nipa. Results showed that insects from the families Drosophilidae {Diptera} and Nitidulidae {Coleoptera} and Curculionidae {Coleoptera} are the main insect visitors of nipa inflorescence and are the likely pollinators. Moreover, the absence of insect-specificity in the pollen vector of nipa supports the concept that pollination is likely to be in the general sense "entomophilous" with the predominance of cantharophily. (**Author's abstract**)

Keywords: *Nypa fruticans, Pollination ecology, Insect diversity, Animal-plant interaction, Palm pollination, Agriculture*

The Philippine Agricultural Scientist, Volume No. 100 Issue No. 4, 377-386
2017 December,
(Filipiniana Analytics)
Fil(S) S19 P53 100/4 2017

Flower visitors and potential major pollinator of *Diospyros blancoi* A. DC. in Taiwan

Hung, Sheng-Feng, Chang, Tsu-Liang, King, Hen-Biau, Chen, Iou-Zen

At least eight arthropod species belonging to five taxa as flower visitors of *Diospyros blancoi* A. DC. were investigated in terms of their visiting frequency, activities on the flowers and pollen-bearing capacity. The main results of this study are as follows: First, thrips particularly *Thrips hawaiiensis* (Morgan) (Thysanoptera: Thripidae), and ants showed the highest visiting frequency. Second, the long pollination distance and the fruit-set on single female trees isolated by water barriers indicate that arboreal ants were not pollinators. Third, thrips species other than *T. hawaiiensis* were not observed in this study. Fourth, male flowers provided shelter (flower tube) and food (pollen) for *T. hawaiiensis*. Fifth, *T. hawaiiensis* visited both blooming and non-blooming female flowers. Finally, pollen was found only on thrips visiting either male or female flowers. Our results suggest that *T. hawaiiensis* is the major pollinator of *D. blancoi* in Taiwan. (Author's abstract)

Keywords: *Diospyros blancoi* A. DC., Entomophily, Flower-dwelling thrips, Flower visitor, Mabolo, Pollination, *Thrips hawaiiensis* (Morgan) (Thysanoptera: Thripidae), Agriculture

The Philippine Agricultural Scientist, Volume No. 100 Issue No. 1, 37-46

2017 March,

(Filipiniana Analytics)

Fil(S) S19 P53 100/1 2017

Fungicidal efficacy of chemically-produced copper nanoparticles against *Penicillium digitatum* and *Fusarium solani* on citrus fruit

Khamis, Youssef, Hashim, Ayat F., Margarita, Rubina, Alghuthaymi, Mousa A., Abd-Elsalam, Kamel A.

The environmental problems caused by fungicides cannot be ignored. New eco-friendly and effective nano-agrochemicals as alternative chemical fungicides need to be explored. The fungicidal activity of copper nanoparticles (CuNPs) was tested against *Penicillium digitatum* (green mold) and *Fusarium solani* (Fusarium rot) *in vitro* and *in vivo*. Fungal growth inhibition was observed in the presence of different concentrations of CuNPs. *In vitro*, a complete growth inhibition was recorded at 20 and 60 $\mu\text{g mL}^{-1}$ for *P. digitatum* and *F. solani*, respectively. *In vivo*, CuNPs at 20 and 40 $\mu\text{g mL}^{-1}$ were tested as direct and indirect action against green mold and Fusarium rot, respectively. These two concentrations completely inhibited the decay caused by both pathogens when the pathogen and CuNPs were applied to the same wound (direct action). Fourier transform infrared (FTIR) spectroscopy identified the possible functional groups involved in the reduction and stabilization of CuNPs and the chemical composition of Cu. From the energy dispersive X-ray spectroscopy (EDX) spectrum, the formation of CuNPs was confirmed. The average particle size and distribution size were characterized by biophysical techniques such as Dynamic Light Scattering (DLS), Scanning Electron Microscopy (SEM) and Transmission Electron Microscopy (TEM). TEM revealed the presence of spherical CuNPs with size ranging from 45 to 48 nm in diameter. Also, the genotoxicity exhibited by CuNPs was demonstrated by degradation of fungal DNA post-treatment even with concentrations at 20 and 40 $\mu\text{g mL}^{-1}$ of the nanoparticles against *P. digitatum* and *F. solani*, respectively. CuNPs are low-cost effective and less toxic to humans and animals. Thus, they may be a very promising alternative to synthetic fungicides offering a protection against green mold and Fusarium rot of citrus fruit. (Author's abstract)

Keywords: *Copper nanoparticles, Fusarium rot, Green mold, Nano-agrochemicals, Agriculture*

The Philippine Agricultural Scientist, Volume No. 100 Issue No. 1, 69-78
2017 March,
(Filipiniana Analytics)
Fil(S) S19 P53 100/1 2017

0067

Genetic Diversity among Yellow Cattle Populations (*Bos taurus*) in the Loess Plateau of Western China

Zhao, Shengguo, Liu, Li, Cai, Yuan, Wu, Jianping

Maternally inherited mitochondrial DNA (mtDNA) has been used extensively to determine genetic diversity and to guide genetic resource conservation. It is hypothesized that local populations of Chinese Yellow Cattle (*Bos taurus*) in the Loess Plateau of Western China were produced from Zaosheng cattle, and estimates of genetic diversity in Zaosheng and other derived populations are needed to assist in getting more detailed information about genetic resource conservation. Samples from Qinchuan cattle (QC, n = 171), Zaosheng cattle (ZS, n = 184), Pingliang native cattle (PL, n = 112), and Guyuan native cattle (GY, n = 75) were analyzed using mtDNA D-loop analytical techniques. A total of 140 variable sites and 244 haplotypes were identified. Among the QC, ZS, PL and GY populations, the diversity of haplotypes (0.946 ± 0.012 , 0.976 ± 0.005 , 0.966 ± 0.010 , and 0.975 ± 0.009 , respectively), the average number of nucleotide differences (16.312, 13.685, 14.503, and 13.778, respectively) and nucleotide diversity (0.02661, 0.02236, 0.02370, and 0.02248, respectively) were determined. There were 202 unique haplotypes found in four populations: 56 in QC, 71 in ZS, 42 in PL, and 33 in GY. Results from this research indicated that the genetic diversity of QC was lower than that of ZS, PL and GY. Results also suggested that, based on number of shared haplotypes, Qinchuan, Pingliang, and Guyuan cattle were descended from Zaosheng cattle and gradually formed three distinct maternal branches with Pingliang and Guyuan apparently maintaining the genetic diversity of Zaosheng. Identification of unique haplotypes within these populations provided a basis for further cattle genetic resource assessment of diversity and conservation of native cattle populations in the Loess Plateau region of western China. (**Author's abstract**)

Keywords: *Chinese Yellow Cattle, Genetic diversity, Genetic resource conservation, mtDNA D-loop, Agriculture*

The Philippine Agricultural Scientist, Volume No. 100 Issue No. 2, pages 150-155
2017 June,
(Filipiniana Analytics)
Fil(S) S19 P53 100/2 2017

0068

Genetic diversity analysis and DNA fingerprinting of Pili (*Canarium ovatum* Engl.) using microsatellite markers

Sandoval, Carlo Miguel C., Tecson-Mendoza, Evelyn Mae, Garcia, Roberta N.

Six microsatellite markers obtained from *Canarium album* and *Carica papaya* detected eight loci in the pili (*Canarium ovatum* Engl.) accessions with two markers, CasC120 and SSR38, each amplifying two loci. A total of 43 alleles (5.38 alleles per locus) were detected in the 79 pili accessions assayed, while only 3.25 alleles per locus were obtained in *Canarium luzonicum* and in seven pili varieties registered with the National Seed Industry Council (NSIC).

Polymorphism information content (PIC) values of the markers were relatively high across accessions (0.57) and varieties (0.45), indicating the ability of the markers to detect genetic diversity in the population assayed. Gene diversity was relatively high in the pili varieties (0.50) and in the 79 pili accessions (0.62) analyzed in the study, indicating recombination by cross pollination. Cluster analysis grouped the pili accessions and the seven varieties into two clusters. Group I was composed of accessions PDF65 and PDF20, while the other 77 accessions, including the seven pili varieties, clustered together forming Group II. Six of the varieties ('Katutubo', 'Lanuza', 'Magayon', 'Magnaye', 'Mayon I', and 'Orolfo') formed one sub-cluster under Group II, while 'Laysa' formed a different sub-cluster. Moreover, cluster analysis of the pili varieties and *C. luzonicum* showed the same trend wherein the six varieties formed one cluster, while 'Laysa' diverged from the group. DNA fingerprints of the pili accessions were generated from the banding patterns observed across the eight loci. The pili varieties gave unique DNA fingerprints, demonstrating the utility of the markers for varietal identification. This is the first report of a study in the Philippines on the molecular characterization of *C. ovatum* using DNA markers. (**Author's abstract**)

Keywords: *Pili, Genetic diversity, DNA fingerprinting, Microsatellites, SSRs, Agriculture*

The Philippine Agricultural Scientist, Volume No. 100 Issue No. 1, 7-15
2017 March,
(Filipiniana Analytics)
Fil(S) S19 P53 100/1 2017

0069

Genomic selection in maize (*Zea mays* L.) population improvement for waterlogging tolerance

Paril, Jefferson F. , Sanchez, Maria Alma B. , Salazar, Artemio M. , Lalusin, Antonio G. , Sta. Cruz, Pompe , Ocampo, Eureka Teresa M.

Excess soil moisture stress or waterlogging in maize is increasingly becoming a serious problem in the Philippines as a result of climate change. Waterlogging tolerance is best expressed in terms of yield reduction. Yield is a quantitative and polygenic trait. Genomic selection promises a more efficient way of improving quantitative traits in crop plants. Genomic selection is a type of marker assisted selection which uses all available marker data, phenotype data and statistical models to predict performance. High variability was found in a population of 390 S₁ families extracted from 39 Philippine traditional maize varieties in terms of yield under normal and excess soil moisture conditions. Genotyping-by-sequencing was implemented on 92 families sampled from the 390 S₁ families tested for waterlogging tolerance. Genotype and phenotype data from the 92 lines were used to gauge the feasibility of using genomic selection in these traditional maize varieties and to perform a preliminary genome-wide association study. The prediction accuracies of the three genomic selection models RR-BLUP, Bayesian RR and Bayesian LASSO were close to zero for crop yield susceptibility index and ranged 0.16-0.44 for yield per se under normal and stressed conditions. Larger population size should be used to improve prediction accuracies in maize genomic selection. Genome-wide association study detected 14 putative QTL for crop yield susceptibility index and two for yield under excess soil moisture stress, with significance level of 9.7×10^{-5} to 1.4×10^{-5} , and power of 0.71 to 0.92. All the protein coding regions within 15kb upstream and downstream of the QTL are not yet characterized, except for GRMZM2G179270 (putative S-locus receptor-like protein kinase family protein), GRMZM2G071986 (tetratricopeptide repeat-like superfamily) and GRMZM2G093705 (ATPase) . (**Author's abstract**)

Keywords: *Corn, Excess soil moisture stress, Genome-wide association mapping, Genomic selection, Maize, Traditional maize varieties, Waterlogging tolerance, Agriculture*

Philippine Journal of Crop Science (PJCS), Volume No. 42 Issue No. 1, 15-26
2017 April,

Germination and seedling growth of corn (*Zea mays*) and some weed species in response to treatment with common vetch (*Vicia sativa*) and Rye (*Secale cereale*) extracts

Mohammadi, G. R. , Noroozi, N. , Nosratti, I.

Allelopathy is a biological process including interactions between two plants through the production of chemical compounds (allelochemicals) which can diminish weed problems. Both common vetch (*Vicia sativa*) and rye (*Secale cereale*) have shown strong allelopathic effects on many weed species. In order to assess the phytotoxic potential of rye and common vetch water extracts on corn and some weed species, an experiment was conducted in the Seed Research Laboratory of Razi University, Kermanshah, Iran in 2012. Water extracts of common vetch and rye were used as pure or mixed. Plant species under study consisted of corn and some weed species including green foxtail, redroot pigweed, lamb's quarters, barnyard grass and common cocklebur which are commonly dominant weeds of corn fields in the region. The results showed that the germination of weed species were completely inhibited by water extracts of rye and common vetch in pure or mixed treatment. Vetch extract did not significantly affect corn germination percentage, whereas, this trait was significantly influenced by rye and mixed treatments as compared with control. (**Author's abstract**)

Keywords: *Allelopathy, Common vetch, Corn, Germination, Rye, Weed, Agriculture*

Philippine Journal of Crop Science (PJCS), Volume No. 41 Issue No. 3, 83-87
2016 December,
(Filipiniana Analytics)
Fil(S) SB189 P5 41/3 2016

Green manure crops in irrigated and rainfed lowland rice-based cropping systems in South Asia

Abrol, I. P., Palaniappan,

Future increases in food production must come through increased productivity and crop intensification. Adequate nutrient supplies will be crucial in realizing the full potential of high-yielding varieties grown in intensive cropping systems. Escalating prices for inorganic fertilizers, the wide occurrence of multinutrient deficiencies in intensively cropped soils, and overall reductions in soil productivity demand a fresh look at the role of organic manure. Green manuring is a cheap and feasible alternative to inorganic N sources. Several plant species have been used for green manuring in different regions. Dhaincha *sesbania aculeata*, a species widely used for green manuring, can be grown on a variety of soils with varying pH. Rice based cropping systems are particularly amenable to green manuring. Research shows almost universal beneficial effects of green manuring on rice yields. Green manure can substitute for up to 60-100 kg fertilizer N/ha. Many studies have shown it can enhance the availability of native or applied P and of micronutrients. Green manuring hastens the reclamation of alkali soils, largely because increased CO₂ production during decomposition of the green manure crop enhances the solubility of lime. Recent research has attempted to optimize green manuring benefits by defining growth period, time of incorporation, etc. An alternative to growing a crop exclusively for green manure is to grow a short-duration pulse (e.g., mungbean *vigna radiata*, cowpea *v. sinensis*, pillipesera *phaseolus trilobus* for a green pod harvest, with straw incorporation. Strategies to optimize nutrient use for crop production must recognize the huge potential offered by green manuring.

Keywords: *Green manure crops, Green manuring, Agriculture*

Green Manure in Rice Farming, Volume No. Issue No. , pages 71-82
(Filipiniana Analytics)
Fil(B) SB191 R518 1988

0072

Green manure cultivation and use for rice in China

Lizhi

This paper consists of three parts. Part 1 illustrated the yield-increasing effect of green manure and its role in maintaining and increasing soil organic matter and improving soil structure and physical characteristics. Part 2 deals with the place of green manure crops. Part 3 discusses the effects of crop choice, fertilizer application, and inoculation on green manure production.

Keywords: *Green manure crops, Rice, Agriculture*

Green Manure in Rice Farming, Volume No. Issue No. , pages 63-70
(Filipiniana Analytics)
Fil(B) SB191 R518 1988

0073

Green manure in rice: the Japan experience

Ishika

The are planted to green manure crops in Japan increased under government recommendation between 1868 and 1934, then gradually declined to today's low levels. The primary green manure crops were milk vetch and green soybean. Milk vetch fresh weight reaches about 45 t/ha, with about 0.4%N and 2% carbohydrate. N efficiency of milk vetch nearly equals that of ammonium sulfate. Annual application of milk vetch over time increases soil organic matter and rice yields, but excessive application cause rice root injury and soil mineral leaching. Moderate application is proposed to increase N efficiency and to prevent rice crop damage.

Keywords: *Green manuring, Rice, Agriculture*

Green Manure in Rice Farming, Volume No. Issue No. , pages 45-61
(Filipiniana Analytics)
Fil(B) SB191 R518 1988

0074

Green manure management in rice-based cropping systems

Meelu, O.P., Morris

When green manure crops are used in rice-based farming systems, the green manure commonly is applied to the rice crop. Green manure species vary in their environmental adaptation, and therefore in their ability to accumulate N in different agroecological niches. In several environments, some green manure species accumulated more than 150kg N/ha in less than 2 months.

Keywords: *Green manure crops, Cropping systems, Agriculture*

Green Manure in Rice Farming, Volume No. Issue No. , pages 209-222
1988,
(Filipiniana Analytics)
Fil(B) SB191 R518 1988

0075

Growth of some Rice Varieties in NaCl- Salinated Soils as Effected by the Season

Mercado, B.T., Malabayabas, C.A., Gumasing

The vegetative and yield performance of five improved rice varieties grown in sodium chloride- salinated soils under simulated lowland condition during the dry and wet were seasons compared. Vegetative growth was much better during the wet season, with all the varieties surviving the applied NaCl level of 0.4% as against the 0.3% NaCl level for the dry season. Likewise, all varieties responded favorably to the application of 0.1% NaCl during the wet season. Salinity caused delay in the flower emergence in almost all varieties tested. This delay was more marked during the dry season. IR-8 and IR 22 were two varieties found to tolerate a higher level of NaCl during the dry season with yields comparable or slightly better than the control plants.

Keywords: *Rice Varieties, NaCl Salinated, Soils, Affected by the Season, Agriculture*

The Philippine Agriculturist, Volume No. 58 Issue No. 1/2, 40-49
1974,
(Filipiniana Analytics)
FIL S19 P53

0076

Horticultural diversity of *Solanum lasiocarpum* dunal in Adams, Ilocos Norte

Pascua, Gliceria S. , Gabriel, Maura Luisa S. , Antonio, Menisa A. , Abian, Crisa

Solanum lasiocarpum ("balbalosa") is a wild vegetable growing in the mountainous town of Adams in Ilocos Norte. The fruits are cooked into the Ilocano dish pinakbet, and now gaining popularity as an exotic vegetable dish. No formal characterization is done yet on the species. Hence, this study characterized, assessed variability and identified accessions with outstanding plant characteristics and good eating qualities. Phenotypic diversity was estimated using the standardized Shannon Weaver's diversity index (H') and clustering was done in NTSYS.

Variations in the plant and fruit characteristics were observed. The qualitative and quantitative characters registered a mean H' of 0.47, suggesting moderate variability. The 30 accessions studied are grouped into 11 distinct clusters. Sixteen accessions appeared to be a duplicate of one and/or the other in the dendrogram for qualitative characters.

Four accessions were identified promising for having good eating qualities. These have fruits with smooth peel, 5.5-5.7 °Brix and are yellow green and shiny. These are growing in Purok 3 (Accn 2 and 4), Buwaw (Accn 22) and Cadisan (Accn 29). Two more years of evaluation is required to consider them fit for recommendation as outstanding mother plants for crop improvement. Research results are necessary for subsequent varietal development, conservation and protection initiatives on the species. **(Authors' abstract)**

Keywords: *Solanum lasiocarpum*, Phenotypic diversity, Cluster analysis, Eating qualities, Morphological characteristics, Agriculture

Transactions of the National Academy of Science and Technology, Volume No. 39 Issue No. 1, 41
2017 July,
(Filipiniana Analytics)
NP

0077

Hybridity Testing of Eggplant F₁ Progenies Derived from Parents with Varying Response to Drought Using SSR Markers

Maravilla, Ana Mikaela B. , Ocampo, Eureka Teresa M. , Canama, Alma O. , Delfin, Evelyn F.

Eggplant (*Solanum melongena* L.) production is highly affected by drought stress, with effects including reduction in plant height, dry matter and fruit yield. However, some eggplant varieties were found to have tolerance to drought and can be used to confer drought tolerance to other varieties. Commercial eggplant varieties Mara and Mistisa were crossed with drought-tolerant eggplant accessions PHL 2789 and PHL 4841, respectively. To confirm that the F₁ progenies indeed came from the cross made between the two selected parents, analysis was done at the molecular level using simple sequence repeat (SSR) markers. Out of 65 SSR markers screened for polymorphism, six markers (EM141, eme05B09, EM133, emh11O01, emf21I02 and EM117) were able to discriminate between Mistisa and PHL 4841 and four markers (CSM20, eme09E09, EM131 and EES063) were able to distinguish Mara from PHL 2789. These markers were used to determine the hybridity of the 30 progenies from each cross. Based on marker data, all progenies except for progeny number 13 were identified as hybrids for the cross Mistisa x PHL 4841 while all the 30 progenies from the cross Mara x PHL 2789 were confirmed as hybrids. **(Author's abstract)**

Keywords: *Drought, Eggplant, Hybridity testing, Hybrids, SSRs, Agriculture*

Philippine Journal of Science, Volume No. 146 Issue No. 3, 277-286
2017 September,
(Filipiniana Analytics)
Fil(S) Q1 P55 146/3 2017

0078

Hybridity testing of Eggplant (*Solanum melongena* L.) F₁ progenies derived from parentals with varying response to moisture stress using SSR markers

Canama, Alma O. , Maravilla, Ana Mikaela B., Delfin, Evelyn

In a breeding program aimed at producing eggplant hybrids, it is essential to confirm that the F₁ progenies are indeed products of the cross made between the two selected parents especially since eggplants are self-pollinating. This study focused on the hybridity testing of F₁ progenies derived from drought tolerant eggplant accession PHL 2778 and drought susceptible PHL 1602 in our effort to improve drought tolerance in eggplant. SSR markers were utilized in the determination of true F₁ hybrids. Genomic DNA was extracted from leaf samples; DNA quantity and quality were checked by agarose gel electrophoresis. DNA of the parental lines was amplified in PCR using SSR primers to facilitate polymorphism survey. PCR products were separated using non-denaturing polyacrylamide gel electrophoresis. SSR markers were considered polymorphic when each of the parents is represented by a distinct allele. These bands from both parents must be present in the progenies in order to be considered as true hybrids. Two hundred fifty SSR markers representing the 12 chromosomes of eggplant were screened, resulting in the selection of 7 markers that were able to discriminate between PHL 1602 and PHL 2789. These markers were used in hybridity testing of 35 F₁ progenies.

Of the 35 progenies tested, 37% were confirmed to be true hybrids, with % hybridity ranging from 71.43 to 100% attributed to the difference of results among markers. The seven polymorphic SSR markers were proven effective in hybrid identification, with efficiency ranging from 42.86 to 100%. **(Authors' abstract)**

Keywords: *Eggplant, Drought, Hybridity testing, SSR, Agriculture*

Transactions of the National Academy of Science and Technology, Volume No. 39 Issue No. 1, 25
2017 July,
(Filipiniana Analytics)
NP

0079

Identification of Variety-Specific Alleles and Loci in Philippine Citrus Collection Using Simple Sequence Repeat (SSR) Markers *Tonogbanua, Karen A. , Espino, Rene Rafael C.*

DNA profiles of 44 citrus varieties from nine species were constructed using 44 polymorphic simple sequence repeat (SSR) markers to characterize and efficiently identify citrus species and varieties in the Philippines. The SSR-derived similarity coefficients of the collection ranged from 0.43 to 0.77, which was deemed sufficient to delineate the varieties. SSR polymorphism information content (PIC) values were moderate to high, ranging from 0.31 to 0.98, thus proving that SSR is a robust marker for variety identification. Variety-specific markers were identified to systematize and hasten variety identification and authentication. This is the first study using molecular markers to develop an identification key for citrus in the Philippines for faster breeding for commercial purposes. **(Author's abstract)**

Keywords: *Citrus, DNA profiles, Polymorphism, SSR markers, Agriculture*

The Philippine Agricultural Scientist, Volume No. 100 Issue No. 3, 296-307
2017 September,
(Filipiniana Analytics)
Fil(S) S19 P53 100/3 2017

Identities, Characteristics, and Assemblages of Dematiaceous-Endophytic Fungi Isolated from Tissues of Barnyard Grass Weed

Donayre, Dindo King M. , Dalisay, Teresita U.

Barnyard grass weed (*Echinochloa glabrescens*) in ricefields of Nueva Ecija, Philippines had been reported to harbor different isolates of endophytic fungi. Despite the discovery that its tissues are hosts to diverse endophytic fungi, the identities, characteristics, and assemblages, particularly of the dematiaceous-endophytic fungi, are still unknown. This paper, thus, aimed to identify, and describe the characteristics and assemblages of the different dematiaceous-endophytic fungi that were isolated from tissues of barnyard grass weed of Nueva Ecija, Philippines. Microscopic examination revealed that there were eight common genera of dematiaceous-endophytic fungi residing in tissues of barnyard grass weed namely, *Alternaria*, *Arthrinium*, *Bipolaris*, *Curvularia*, *Nigrospora*, and *Stemphyllium* along with the two unidentified coded genera. Further examination of the taxonomic characteristics and assemblages showed that there were two species in the genus of *Alternaria* (*A. alternate* and *A. tenuissima*) while four for *Bipolaris* (*B. australienses*, *Bipolaris* sp. EF-ds102, *B. avenacea*, and *Bipolaris rostrata*), four for *Curvularia* (*C. lunata*, *C. prasidii*, *C. pallescens*, and *Curvularia* sp. EF-ds427), and two for *Nigrospora* (*N. oryzae* and *Nigrospora* sp. EF-ds180). (**Author's abstract**)

Keywords: *Barnyard grass, Dematiaceae, Echinochloa glabrescens, endophytic fungi, Nueva Ecija, rice, Oryza sativa, Agriculture*

Philippine Journal of Science, Volume No. 145 Issue No. 2, 153-164
2016 June,
(Filipiniana Analytics)
Fil(S) Q1 P55 145/2 2016

Improvement of Philippine "Carabao" Mango by pairing and clipping method of hybridization with marker-assisted selection

Rosuman, Kristoffer Karel , Ocampo, Eureka Theresa , Valencia, Lolita , Alcasid, Carolyn , Hernandez

'Carabao' mango (*Mangifera indica* L.) is one of the most important commodities in the Philippines. It is the country's only export variety, is one of the best varieties in the world. The export potential of this variety is hampered by its short shelf life, susceptibility to pests and diseases and preference of European and Asian countries in mangoes with red-blushed skin. This study was undertaken to produce improved mango varieties with thicker peel and red blush color of skin and resistance to insect pests and diseases through conventional breeding by pairing and clipping method of hybridization with marker-assisted selection method. Potential mango trees were sprayed with calcium nitrate (CaNO_3) to induce flowering of mango tree. Thirty (30) trees were sprayed with a mixture of 5% CaNO_3 , Dithane and Tween 20 using a power sprayer. Flowers/panicles of 'Carabao' mango strains and selections were used mainly as female parents while 'Carabao' mangoes and other mango varieties with the desired characteristics like thick peel, red blush and or resistance to anthracnose and fruit fly were used as male parents. Thirty four (34) F1 seedlings were produced from 710 crosses, 132 of which were reciprocal crosses. The first batch, comprising of 17 F1 seedlings, underwent hybridity testing using Min-221 and Min-253 simple sequence repeats (SSR) markers. Four were identified as hybrids and currently being maintained and evaluated at the Fruits Breeding Nursery IPB, UPLB. The improvement or development of hybrids will boost the Philippine mango export industry and consumer acceptability. (**Author's abstract**)

Keywords: *Carabao mango, Conventional breeding, Hybrids, Red blush, Agriculture*

0082

Improving the storage and shelf-life of quality protein maize (QPM) thru proper treatment and packaging

Berayon, Eric A. , Tumapon, Amee S. , Ballentes, Myrna G. , Arnper, Carolina D. , Baldo, Nen

QPM is a type of com claimed to be better animal feed than normal com because of its high lysine and tryptophan contents. It is used as component for swine and poultry diet. Com as feeds usually are stored for six months before it will be consumed to have readily available supply when needed. In this case poor storage condition may reduce the shelf-life of QPM into half and may result to earlier deterioration than normal com. There was limited data on prolonging the storage life of QPM when compared to normal com. Hence, this study was conducted to improve the shelf-life of QPM through appropriate treatment and packaging materials popularly used in normal com storage. Specifically the study aimed to 1) assess the extent of insect damage and the incidence and severity of fungal infestation on stored QPM grains; 2) determine the most appropriate treatment and packaging materials for QPM grains. Four QPM hybrid varieties and non-QPM (check) varieties were used as tests crops. The study was arranged in 5 x 3 factorial in RCBD replicated three times Result revealed that SMQ 5050 incurred highest weight and viability loss under inoculated condition become tolerant under normal storage condition and slowly lost its viability compared to USM Var. 5 (non-QPM). Application of non-toxic seed treatment pirimiphos-methyl (Actellic®) and Diatomaceous Earth were successful in minimizing the occurrence of storage insects and aflatoxin level. SMQ 5007 and SMQ 5050 were less contaminated by aflatoxin while in storage under untreated condition. Laminated sack and plastic drum were found effective in lengthening the shelf-life of QPM and non-QPM seeds in storage. **(Author's abstract)**

Keywords: *QPM, Storage, Diatomaceous Earth, Pirimiphos-methyl, Seed treatment, Agriculture*

0083

The incidence of eurytrema pancreaticum (looss, 1907) in dairy cattle at the DTRI farm

Marti

Eurytrema pancreaticum was recorded in 41 dairy animals at the Dairy Training and Research Institute (DTRI) Farm. There 3 cases of mixed liver and pancreatic flukes infection. Pathology and morphology of the parasite were described.

Keywords: *Eurytrema pancreaticum, Daji, Parvun, Coelomaticum, Agriculture*

The influence of age at the first farrowing and litter sequence of the reproductive performance of sows.

Arganosa, V.G, Rodill

The records of 1,097 litters farrowed by 306 crossbred sows from 1963 to 1968 in the Dimayuga farms, Nagcarlan, Laguna were used in this study. The age at first farrowing had significant effects on the litter size at birth and at weaning. Sows which first farrowed at less than 350 days old farrowed and weaned significantly smaller litters than older sows. The age at first farrowing did not have any influence on weaning percentage and number of stillborn pigs. The litter size was significantly smaller than the second litter at birth and at weaning tended to increase from the second to the tenth litter. The litter size tended to increase from the first to the third litter, leveled off up to the fifth and then decreased. Highly significant correlations were found between any two consecutive litters from the first to the eighth litter. Generally, the correlation of the first litter size at subsequent between the first and second, and the first and fourth litter.

Keywords: *Farrowing, Gilt, Sow, reproductive, Agriculture*

Journal of the marine Biological association of the United Kingdom, Volume No. 16 Issue No. 1-2, 86-97
1972,
(Filipiniana Analytics)
Fil S19 P53 56/1-2

Influence of high temperature on chlorophyll fluorescence and its varietal variation in rice

Phyo, Aung Kyaw, Chung, Nam-Jin

This study was carried out to find varietal response to heat stress by chlorophyll fluorescence. Chlorophyll fluorescence is closely correlated with photosynthetic rate. Field-grown rice were dug up at the grain filling stage, and moved to the plant growth chamber, where temperatures were set up one after another starting from low to high temperature (25-45°C). F_o , F_m and F_v/F_m were measured after the first dark-adaptation, and OJIP transient was measured after the second dark-adaptation. Results showed that, in all cultivars, maximum quantum efficiency of PSII photochemistry (F_v/F_m) and the area above the fluorescence transient decreased as temperature increased, and both dropped abruptly at 45°C indicating the damage occurred in the PSII center. Among rice cultivars, damages to photosynthetic apparatus of Donjin2 and Anda seemed to be lower than the others even under elevated temperature as suggested by maximum quantum efficiency of PSII photochemistry and OJIP transient curves, which imply the presence of varietal variation in heat tolerance of rice photosynthesis. (**Author's abstract**)

Keywords: *Chlorophyll fluorescence, Elevated temperature, Heat resistance, Photosynthesis, Rice, Agriculture*

Philippine Journal of Crop Science (PJCS), Volume No. 42 Issue No. 1, 59-68
2017 April,
(Filipiniana Analytics)
Fil(S) SB189 P5 42/1 2017

Influence of soil amendments and biospark trichoderma on the control of *Sclerotium rolfsii* sacc. on peanut

Soria, Sheryl Mae A. , Marin, Mellpr

Sclerotium rolfsii Sacc., is a fungal organism causing stem and root rot, damping off and wilting on peanut and incurring yield losses on the crop .A complementary approach for managing *S. rolfsii* is through biological control. Hence, a study using Completely Randomized Design was laid out with eight treatments and three replications to evaluate the influence of soil amendments and Biospark Trichoderma on the control of *S. rolfsii* as well as to evaluate the agronomic and yield performance of peanut. The treatments were: Control (T₁), Banguard Fungicide (T₂), Malunggay + Biospark (T₃), Madrede Cacao + Biospark (T₄), Malunggay + Madre de Cacao+ Biospark (T₅), Malunggay alone (T₆), Madre de Cacao alone (T₇) and Inorganic Fertilizer: 16 - 20 - 0 and 0 - 0 - 60 (T₈).

On disease incidence, Sclerotium wilt was observed to have the highest mean of 60.00% in plants applied with Madre de Cacao alone (T₇). On the contrary, the disease was not observed in treatments T₂ (Fungicide), T₃ (Malunggay + Biospark), T₅ (Malunggay + Madre de Cacao+ Biospark) and T₆ (Malunggay alone). It is evident that the application of Malunggay alone or in combination with Biospark and Madre de Cacao showed no incidence of Sclerotium wilt.

On yield parameters, significant differences were observed on pod yield, weight of seeds and adjusted grain yield. However, adjusted grain yield on plants applied with Fungicide Banguard (T₂) obtained the highest mean of 12.97 kg/ha but had comparable means with Malunggay alone (T₆) and Malunggay + Madre de Cacao + Biospark (T₅) with 11.78 kg/ha and 11.52 kg/ha, respectively. The lowest was noted in Madre de cacao alone (T₇) with a mean of 5.58 kg/ha. **(Author's abstract)**

Keywords: *Agriculture, S. rolfsii, In vitro, Biospark Trichoderma,, Soil amendments*

Transactions of the National Academy of Science and Technology, Volume No. 39 Issue No. 1, 19
2017 July,
(Filipiniana Analytics)
NP

Influence of some Morphological Leaf Characters and Photosynthesis on Yield of Rice

Pushpavesa, R., Escuro, P.B., Pantastico,

Two varieties and seven new selection of rice were planted in 1971 dry season to determine how flag leaf characters and photosynthesis contribute to grain yield and dry matter production. Photosynthesis of attached flag .leaves was measured at flowering stage by infrared gas analyzer using the leaf chamber technique. Angle, length, width, area and thickness of the flag leaves of the selections were measured. Grain yield was strongly dependent upon flag leaf width and leaf area index at flowering stage. It was, however, only weakly associated with flag leaf angle and area and was independent of leaf length and thickness. Dry matter production was not correlated with any of the flag leaf character. Photosynthetic rate differed significantly among the selections. It was strongly associated with leaf thickness. However, it was not related to grain yield nor to dry matter production. The results suggest that leaf area index at flowering stage and flag leaf width are the most important indicators of grain yield. Leaf thickness could also be used as a criterion in selecting high photosynthesizing plants.

Keywords: *Morphological Leaf, Leaf, Agriculture*

The Philippine Agriculturist, Volume No. 58 Issue No. 1/2, 30-39
1974,
(Filipiniana Analytics)
FIL S19 P53

0088

Influence of sunflower residue incorporation on growth and yield of wheat and subsequent rice crop

Bashir, Uzma , Javaid, Arshad , Bajwa, Rukhsana

Some farmers in Pakistan incorporate sunflower (*Helianthus annuus* L.) residue in the soil to enhance fertility and organic matter without considering its allelopathic activities on subsequent crops. Field experiments were carried out to assess the effects of sunflower (*Helianthus annuus* L.) residue incorporation on growth and yield of two wheat (*Triticum aestivum* L.) varieties and two varieties of rice (*Oryza sativa* L.) as subsequent crop. There were four treatments, viz. i) control (without residue and fertilizers), ii) residue incorporation (RI), iii) NPK fertilizers, and iv) NPK + RI. After the wheat harvest, the rice crop was cultivated in the same plots with no additional application of sunflower residue and NPK fertilizers. Plant height, number of tillers, shoot dry biomass, spike dry biomass and grain yield were significantly reduced by residue incorporation in wheat varieties in both treatments with and without NPK fertilizers. There was a significant reduction of 27% and 20% in grain yield of wheat due to sunflower residue application with and without application of NPK fertilizers compared with NPK and control treatments, respectively. Sunflower residue incorporation significantly suppressed the number of tillers in rice in treatments with and without NPK fertilizers. However, the adverse effect of sunflower residue on plant height, panicle dry weight and grain yield was significant in the absence of NPK fertilizers. In terms of grain yield, Pak Basmati was more tolerant to sunflower allelopathy than Super Basmati. Sunflower residues produced adverse effects on wheat in the first season, which were carried over to the subsequent rice crop. (**Author's abstract**)

Keywords: *Allelopathy, Residue incorporation, Rice, Sunflower, Wheat, Agriculture*

The Philippine Agricultural Scientist, Volume No. 100 Issue No. 1, 96-102
2017 March,
(Filipiniana Analytics)
Fil(S) S19 P53 100/1 2017

0089

Influence of temperature and gas composition of the development of senescent spotting in banana (*Musa sapientum* L. cv. Bungulan)

Valdez, E.R.T., Jr. Mendo

The incidence of spotting in bananas cv. Bungulan became severe with increasing stage of ripeness. Senescent spotting also increased in number and intensity with time and temperature with least spotting at 15 C. The degree of spotting in the controlled atmosphere test were maintained in the

Keywords: *Banana, Bungulan, Ripeness of the fruits, Bungulan Banana, Agriculture*

Insecticidal Activity of Crude Ethanolic Extracts of Five Philippine Plants against Cabbage Worm, *Crocidolomia pavonana* Fabricius (Lepidoptera: Crambidae)

Javier, Abigaile Mia V. , Ocampo, Virginia R. , Ceballo, Flor A. , Javier, Pio A.

Plant substances play a major role in insect pest management by exhibiting their insecticidal activity through toxicity, antifeedant activity, repellency, and growth regulatory activity. Ethanolic extracts from five plant species – “lantana”, *Lantana camara* (Linnaeus); oregano, *Coleus amboinicus* (Loureiro); “langkauas”, *Alpinia pyramidata* (Blume); “luyang dilaw”, *Curcuma longa* (Linnaeus); and “chichirica”, *Catharanthus roseus* (Linn.) – were evaluated for their insecticidal activities including contact and residual toxicity, antifeedant activity, and growth regulator activity against third larval instar of cabbage worm, *Crocidolomia pavonana* (Lepidoptera). Among the five ethanolic extracts, *Cu. longa* was the most toxic to cabbage worm when applied topically ($LD_{50}=51.00 \mu\text{g/g}$) and through leaf residue film method ($LC_{50}=116.73 \mu\text{g/mL}$) at 72 h after treatment. *L. camara* ranked second in providing contact toxicity and leaf residue film method. Ethanolic extract from *Co. amboinicus* showed high antifeedant activity against cabbage worm at 500 $\mu\text{g/mL}$. All the ethanolic extracts showed insect growth regulatory activities expressed in high larval and pupal mortalities for *Co. amboinicus* and *Cu. longa*; high number of abnormal adults for *Ca. roseus*; and shortened lifespan of adults in *L. camara* and *A. pyramidata*. In view of the overall pesticidal properties of the plants, ethanolic extracts from *Cu. longa* and *L. camara* can be exploited as botanical insecticides for cabbage worm management. (**Author's abstract**)

Keywords: *Antifeedant, Botanical insecticide, Curcuma longa, Lantana camara, Topical toxicity, Agriculture*

Insecticidal Activity of Selected Essential Oil Extracts Against Common Cutworm, *Spodoptera litura* Fabricius (Lepidoptera: Noctuidae)

Javier, Abigaile Mia V. , Ocampo, Virginia R. , Ceballo, Flor A. , Javier, Pio A.

Essential oils from *Alpinia pyramidata* (Blume), *Lantana camara* (Linnaeus), *Coleus amboinicus* (Loureiro) and *Curcuma longa* (Linn.) were evaluated in the laboratory for their insecticidal activities against third instar larval of common cutworm, *Spodoptera litura* Fabricius (Lepidoptera: Noctuidae). Among the four essential oils, *Cu. longa* was the most toxic to cutworm ($LC_{50} = 5.93 \text{ mg/mL}$) when applied through leaf residue film method. When applied topically, essential oil from *A. pyramidata* was the most toxic ($LD_{50} = 693.86 \mu\text{g/g}$ insect) which also provided the highest antifeedant activity against cutworm at 16 mg/mL acetone. Essential oil from *L. camara* ranked second in providing contact toxicity both through topical application and leaf residue film method. Essential oil from *Cu. longa* showed the highest repellency against cutworm at 16 mg/mL acetone. Essential oil from *L. camara* showed remarkable insect growth regulatory activities against cutworm expressed by a high number of larval-pupal intermediates.

Meanwhile, essential oil from *Cu. longa* showed high abnormalities among the pupae and adults produced. Both the latter essential oils also provided short life span of seven to eight days when applied on cutworm larvae; a normal adult lived for about nine days when provided with 10% honey solution as food. In view of their overall pesticidal properties, essential oils from *L. camara* and *Cu. longa* have potential to be exploited as botanical insecticides for cutworm management. **(Author's abstract)**

Keywords: *Alpinia pyramidata*, Botanical insecticide, *Coleus amboinicus*, *Curcuma longa*, *Lantana camara*, *Spodoptera litura*, Agriculture

Philippine Journal of Science, Volume No. 146 Issue No. 3, 247-256
2017 September,
(Filipiniana Analytics)
Fil(S) Q1 P55 146/3 2017

0092

Intravarietal variability assessment of *Cosmos sulphureus* in region IVA *Alcasid, Carolyn, Valencia, Lo*

Cosmos sulphureus, also known as "Sulfur Cosmos or Yellow Cosmos", is an annual half-hardy herb belonging to the family *Asteraceae* which usually bears yellow, pink, or orange ray florets. The richness in the antimicrobial and antioxidant activities of this plant can be a potential source for antioxidant drugs and cure to some infectious and chronic diseases. Aside from its biopesticidal properties to control different pathogen strains and insect pests, this plant can be used as borders or potted plants in landscaping. The aesthetic value of this crop has not been fully explored in the Philippines therefore there is a need to characterize *C. sulphureus* accessions. Seven selected cosmos accessions collected in Region IVA were evaluated on the basis of 27 morphological traits, 16 of which are qualitative traits. Most cosmos accessions had medium stem pubescence and leaf color intensity, upwards head attitude, daisy disc type, ligulate and weakly incurved ray floret with medium apex incision. The plant height ranged from 70.47 to 111.66mm with accession 5 being the tallest. Only accession 1 collected from Laguna exhibited an upright growth habit and had collar segments in their flower head. Moreover, its yellow ray florets were curved along its entire length with deep incision in the apex. The height of this accession makes it more desirable for use as bush type plants in landscaping. Two collections from Tagaytay City, Cavite were observed to have longer peduncle length and wider floral diameter as compared to those accessions collected from Laguna. Assessment of variability will be very useful in enriching the cosmos germplasm and utilizing these valuable accessions for beautification and creation of diversity. **(Author's abstract)**

Keywords: *Aesthetic, Accessions, Cosmos sulphureus, Variability, Agriculture*

Transactions of the National Academy of Science and Technology, Volume No. 39 Issue No. 1, 42
2017 July,
(Filipiniana Analytics)
NP

0093

Isolation and identification of bacteria from root nodules of Philippine legumes using 16S rRNA gene sequencing

Bautista, Vemans V. , Barcellano, Emerson V. , Monsalud, Rosario G. , Yokota, Akira

A total of 39 different species of leguminous and nodule-forming plants were collected from different places in the Philippines. From this total, 364 bacterial colonies were isolated using rhizobium medium amended with Congo red and Kabcidin™. Rhizobial colonies were selected, purified and partially sequenced (620-710 base pairs, bp) using universal primers (BF and 1510R) for the 16S rRNA gene. Basic local alignment search tool (BLAST) similarities revealed that majority (92%) of the bacterial isolates and the six probable novel species were identified as members of the order *Rhizobiales* of the class *Alphaproteobacteria* and few as members of the classes *Betaproteobacteria* and *Gammaproteobacteria*.

Majority (95%) of the leguminous plants were associated with the bacterial genera that are considered as nodulating and nitrogen-fixing or "true" rhizobia. About 85% of the plants were associated with *Rhizobium*, *Bradyrhizobium* (62%), *Ensifer* (18%), *Mesorhizobium* (10%), and *Burkholderia* (3%). On the other hand, few (3-13%) leguminous plants were found to have minor associations with free-living nitrogen fixers such as *Pleomorphomonas*, *Crabtreeella*, *Herbaspirillum* and *Labrys*. These free-living nitrogen fixers had been reported in previous studies as plant root endophytes incapable of inducing nodulation (Baldani et al. 1986; Elbeltagy et al. 2001; Valverde et al. 2003; Xie and Yokota 2005a, 2005b, 2006; Chou et al. 2007; Madhaiyan et al. 2013).

Among the collected leguminous plants, root nodules of *L. leucocephala* and *D. scorpiurus* were found to host several genera of rhizobia. *Rhizobium*, *Bradyrhizobium*, *Mesorhizobium* and *Ensifer* were isolated from their root nodules obtained from different regions in the Philippines. Leguminous plants, like *S. sesban* and different species of *Mimosa*, hosted the species of *Rhizobium*.

The almost complete sequences (-1370 bp) of the 16S rRNA genes of the six probable novel isolates revealed 89.5--98.8% sequence similarities with known type species of rhizobia and phylogenetically within the order *Rhizobiales*, more specifically as members of the heterogenous family Rhizobiaceae. Strains designated as P5b, P-Ab, 56b, M30a, ELS-4, M9cR1, and T25a were isolated from the root nodules of *Pterocarpus indicus* Willd., *Desmodium triflorum* (L.) DC., *Desmodium scorpiurus* (Sw.) Desv., *Aeschynomene indica* L., *Desmodium stryacifolium* Merr., *Cajanus cajan* (L.) Millsp., and *Vigna radiata* (L.) R. Wilczek., respectively. These nodule-forming plants were collected from different places in the Philippines. The distinct phenotypic features in terms of their utilization of lipids, amino acids and carbohydrates compared with the closely related *Rhizobium phaseoli* NBRC 14785^T and *Rhizobium leguminosarum* IAM 12609^T suggest that they are probable novel species of *Rhizobium*. The 99.9% 16S rRNA gene sequence similarity and the exact similarities in the phenotypic characteristics of strains M9cR1 and T25a suggest that they belong to a single probable novel strain of *Rhizobium*. **(Authors' abstract)**

Keywords: *Rhizobia*, *Root nodules*, *Leguminous plants*, *16S rRNA*, *Novel species*, *Agriculture*

Some leaf physiological and morphological characters associated to differences in net carbon exchange in sugarcane

Rosario, Elpidio L., Musgrave

Seventeen morphological and physiological leaf characteristics were gathered from fourteen varieties of sugarcane. This was done in an effort to explain an almost 100%-difference in photosynthesis potential detected among the varieties tested. Net carbon exchange (NCE) was shown to be highly correlated with protein, K and P contents per unit leaf area. Specific leaf weights (mg. leaf tissue per unit leaf area) in fresh or dry basis were shown to be good indices, thick and erect leaf habits exhibit high capacity to fix, CO₂.

Keywords: *Agriculture, Morphological, Physiological, Sugarcane, Carbon dioxide*

The Philippine Agriculturist, Volume No. 16 Issue No. 1-2, 168-180
1972,
(Filipiniana Analytics)
Fil S19 P53 56/1-2

Leptin (T3469C) and Estrogen Receptor (T1665G) Gene Polymorphisms and Their Associations to Backfat Thickness and Reproductive Traits of Large White Pigs (*Sus scrofa* L.)

de la ViÃ±a, Celia B. , Cho, Byung-Wook , Llanes-Autriz, Mariedel M. , Barrientos, Nyka Noelle B. , Castillo, Ronne Matthews C. , Vega, Renato SA., Villa, Neily

The study was conducted to associate polymorphism of the leptin (*LEP*) and the estrogen receptor (*ESR*) genes with backfat thickness and reproductive performance in Large White sows. Nuclear DNA was isolated from hair follicles of 24 (for *LEP*) and 30 (for *ESR*) Large White sows in a commercial breeder farm. Amplification of the T3469C region of *LEP* and T1665G region of *ESR* was accomplished following digestion with *Hinf*I and *Pvu*II restriction enzymes, respectively. Electrophoresis of the *LEP* digestion products revealed genotype frequencies of 0.625 for TT (n=15), 0.25 for TC (6), and 0.125 for CC (3). Meanwhile the *ESR* genotype frequencies for AA, AB, and BB were 0.50 (15), 0.37 (11), and 0.13 (4), respectively. *LEP* polymorphism was not related to backfat thickness at farrowing and 21 days of lactation. Significant genotype associations were observed only for total litter size at birth (p<0.05) and total litter size born alive (p<0.01). *ESR* polymorphism was not significantly different for backfat thickness, litter size at birth, litter size at weaning, weight at 21 days old, and weaning to estrus interval. The three Large White sows having the CC *LEP* genotype have 14 litters size born alive. It is recommended that more Large White CC genotype sows be kept and monitored for further validation of the T3469C *LEP* polymorphism as candidate marker for sow productivity. **(Author's abstract)**

Keywords: *BFT, ESR, Leptin, Reproductive traits, Single nucleotide polymorphism, Agriculture*

Philippine Journal of Science, Volume No. 147 Issue No. 2, 293-300
2018,
(Filipiniana Analytics)
NP

Mangroves extraction in Pasuquin, Ilocos Norte using LiDAR dataset

Alibuyog, Nathaniel , Salvador, Mark Darrel , Sanchez, Sha

Mangroves help in the stabilization of coastal lines, habitat for animals and as alternative resource. Due to this, restoration and rehabilitation are usually being conducted in the areas they are planted. Due to availability of LiDAR data, the inventory of this resource could be produced to high resolution maps. Therefore, the objective of the study is to extract mangroves using LiDAR dataset in Pasuquin, Ilocos Norte. The derivatives used for the map extraction were Digital Surface Model (DSM), Digital Terrain Model (DTM), Canopy Height Model (CHM), canny edge, slope, slope of slope, number of returns, hillshade and intensity. The data was processed in the eCognition software for object based image analysis. Segmentation was used first to separate the objects in order to have easier classification. Then training points for prospect mangrove objects were done in GIS. After that, support vector machine (SVM) was done to classify the image layers. This machine as a linear classifier utilizes the maximum factor to separate objects. The layer derivatives applied in SVM were values of mean, standard deviation, mode and texture values. The basis for validation points used for accuracy assessment of the extracted mangroves was the actual field structures. The structures were tracked using a Global Positioning Device. The overall accuracy using Error Based matrix based on Test Training Mask is 0.991 and Kappa Index of Agreement is 0.9751607 respectively. **(Author's abstract)**

Keywords: Lidar, Mangroves extraction, Support vector machine, Object based image analysis, Agriculture

Transactions of the National Academy of Science and Technology, Volume No. 39 Issue No. 1, 45
2017 July,
(Filipiniana Analytics)
NP

Measurement of nitrogen fixation in crop and shrub legumes

Peoples, M.B., Herridge, D.F., Bergersen

Biological fixation of atmospheric N₂ is difficult to measure, although progress in developing field-based methodologies has been rapid over the last decade. In practice, such measurements could contribute to more N-efficient farming systems, germplasm improvement, and elimination of nodulation problems associated with Rhizobium inoculation and inoculants. Methodologies for measuring biological N₂ fixation in nodulated legumes provide either short-term or time-averaged determinations. Short-term estimates of symbiotic activity may be obtained from acetylene reduction assays or by analyzing the N solutes transported in the xylem stream leaving the roots of legumes.

Keywords: Green manure crops, Legumes, Agriculture

Green Manure in Rice Farming, Volume No. Issue No. , pages 223-237
1988,
(Filipiniana Analytics)
Fil(B) SB191 R518 1988

Mechanisms associated with iron toxicity tolerance in rice during seedling stage
Ismail, Abdelbagi , Drame, Khady , Pacleb, Myrish , Katimbang, Meggy Lou , Entila, Frederickson , Onyango, D

Excessive iron in soil is prevalent in perennially flooded lowland rice ecosystems due to reduction of insoluble Fe³⁺ to the bioavailable Fe²⁺ under anaerobic and acidic soil conditions. *Oryza glaberrima* (African rice) is considerably more tolerant of iron toxicity than *Oryza sativa* (Asian rice). Iron toxicity adversely affects plant growth and could result in seedling mortality and yield losses. Four genotypes of contrasting responses to iron toxicity were evaluated under control and excess iron (300 ppm Fe²⁺) using hydroponic solutions in greenhouse conditions. Measurements taken

included morphological and physiological traits. CK801 was least affected by iron toxicity while IR64 and Supa showed intense leaf bronzing. Excess iron resulted in stunted growth, with reduction of 69%*** and 75%*** in lengths of shoot and roots, respectively, across genotypes. Photosynthesis and transpiration were dampened under iron treatment, with the tolerant genotypes CK801 and Suakoko 8 being less inflicted. Malondialdehyde concentration was 7 fold higher under stress, and substantially higher in the sensitive genotypes Supa and IR64, indicating greater cell injury. Tolerant genotypes produced higher concentrations of antioxidants and increased activities of related enzymes. Conspicuous suberization and lignification was observed in the roots of the tolerant Suakoko 8 under stress. Understanding

the physiological traits associated with rice response to iron toxicity will facilitate breeding varieties adapted to soils containing toxic concentrations of iron. (**Author's abstract**)

Keywords: *Oryza glaberrima, Lowlands, Problem soils, Breeding, Agriculture*

Transactions of the National Academy of Science and Technology, Volume No. 39 Issue No. 1, 43
2017 July,
(Filipiniana Analytics)
NP

0099

The Mei of aunal Assemblages of Rocky Shore Site in the Taklong Island National Marine Reserve, Southern Guimaras, West Central Philippines
del Norte-Campos, Annabelle G. C. , Burgos, Lorelie A.

Owing to their small size and difficult taxonomic identification, meiofauna are often neglected as part of the benthic ecosystem. Most of the studies done on meiofauna have been limited to soft bottom intertidal or subtidal areas and very few were done on rocky shores. This study was done to characterize the meiofaunal assemblages of a rocky shore site in Southern Guimaras, west central Philippines as part of a long-term sampling program. Following the Natural Geography in Shore Areas (NaGISA) sampling protocol, four transects (3 intertidal and 1 subtidal), along the depth gradient of high tide (HT), mid-tide (MT), low tide (LT), and 1 m subtidal (ST), with 5 replicates each, were laid parallel to the shore of the mainland. Meiofaunal assemblages were sampled in August 2011 and October 2012. The percentages of macroalgal cover and biomass were also calculated. Predominating taxa in both surveys were quite consistent, i.e., harpacticoids, nematodes, syllid polychaetes and tanaid crustaceans. Except for the nematodes and chironomids, densities of the remaining dominant taxa (harpacticoids, crustaceans, and polychaetes) generally increased with depth, and showed a strong correlation with macroalgal biomass, further reflecting the depth-correlated higher availability of microhabitats and shelter from predators, as well as the decrease in the negative effects of hydrodynamic forces. Overall mean annual densities (2.1 ± 1.9 ind. cm⁻²) from the site proved to be lower compared with those in reported studies conducted in other rocky shore and intertidal habitats. (**Author's abstract**)

Keywords: *Meiofauna, NaGISA, Rocky shore, Tidal influence, Guimaras, Philippines, Agriculture*

0100

Microbial examination of mature coconut fruit
fernandez, Will

Mature coconuts with green and dried, brown-husks were harvested during the dry and rainy seasons. Samples for microbial examination were taken on the day of harvest and after 1 and 2 weeks of storage. Examination of the interior tissues, namely, the liquid endosperm (meat) the embryo and the haustorium (newly germinated) of the nuts showed the absence of microorganism. This dispelled the suspicion that the interior tissue of the mature coconut fruit harbor salmonella. The thin layers covering the basal pores (eyes) which are located external to the endocarp (shell) harbored some fungal species of Thielaviopsis, Cephalosporium, Microsporium, Botrytis and Fusarium. Fungi were absent on the thin layers of green husk nuts when sanmpled of the day harvest.

Keywords: *Coconut fruit, Thielaviopsis, Cephalosporium, Microsporium, Fusarium., Agriculture*

0101

Microbiological aspects of green manure in lowland rice soils
SubbaRao

Green manure legumes are often nodulated by slow-grwoing Rhizobium sp. (cowpea miscellany); Lathyrus is nodulated by R. leguminosarum; clovers, by R. trifolii. In nature, stem nodulation of Aeschynomene is restricted to A. aspera, A. indica, A. elaphroxylon, A. evenia, A. paniculata, A. sp.; in Sesbania, it is restricted to S. rostrata. Root infection is epidermal entry of Rhizobium in Aeschynomene; no infection threads have been seen. Stem nodules arise exogenously, root nodules are endogenous.

Keywords: *Green manure crops, Green manuring, Legumes, Agriculture*

0102

Mo-anatomy of the flower of *Ochrosia oppositifolia* (LAM) K. Schum. (Apocynaceae)
Buot, I.E., Aguila

Morphological study of the flower of *Ochrosia oppositifolia* (LAM) K. Schum. indicates that it is borne on a compound cyme at terminal branches throughout the year. It is, perfect, actinomorphic, tetracyclic, predominately, pentamerous except for the gynoecium which is dimerous. The proposed floral formula is CA CO A G. The vascular anatomy of the flower is described. An Annular fleshy nectary surrounds the syncarpous and bicarpellate ovary. Non-vascularized corolline corona which are merely hollow lateral invaginations of the corolla are very distinct. The style is terete and the stigma is crested and bifid at the tip. The five stamens are epipetalous and antesealous. The staminal filament arises near the level of insertion of the corolline corona. The anther on the other hand is two-lobbed tetrasporangiate dehiscing longitudinally.

Keywords: *Morpho-anatomy, vascular anatomy, Flower, apocynaceae, Plumierioideae, Ochrosia oppositifolia, Agriculture*

The Philippine Agriculturist, Volume No. 71 Issue No. 1, 57-64
1988,
(Filipiniana Analytics)
Fil S19 P53 71/1

0103

Molecular characterization of Taro [*Colocasia esculenta* (L.) Schott] using microsatellite markers

Rasco, Jhun Laurence S. , Mendoza, Mariecris Rizalyn R. , Abustan, Mary Ann M. , Lalusin, Antonio G.

Diversity of 46 taro [*Colocasia esculenta* (L.) Schott] accessions from the National Plant Genetic Resources Laboratory, Institute of Plant Breeding-Crop Science Cluster was analyzed using simple sequence repeats (SSR) to identify genetically different accessions that can be used as parents for taro varietal improvement. High quality DNA was isolated following modified Doyle and Doyle extraction protocol for taro and used for polymerase chain reaction (PCR). Fifteen sets of SSR primers based on taro, cassava and citrus sequences were used to amplify fragments. From these SSR primers, 10 resulted to band amplification. Polymorphic Information Content (PIC) was computed based on the banding pattern produced. It ranged from 0.69-0.96 which indicated high genetic diversity. A dendrogram generated using NTSYS-pc formed 8 clusters using Jaccard's coefficient at 0.72. Among the clusters, there was no association between geographic origin and genotypes of germplasm resources observed. The results suggest that the accessions even within location are diverse, hence, can be used for taro breeding programs. (**Author's abstract**)

Keywords: *Taro, SSR markers, DNA isolation, Genetic relationship, Agriculture*

Philippine Journal of Crop Science (PJCS), Volume No. 41 Issue No. 3, 65-73
2016 December,
(Filipiniana Analytics)
Fil(S) SB189 P5 41/3 2016

0104

Molecular Toolkit for Inbred Line Screening and Purification of Maize (*Zea mays*)
Ocampo, Eureka Teresa M. , Austria, Rovel Emman G. , Heredia, Maria Crist

Inbred lines are produced by self-pollinating maize plants for several cycles resulting in populations that are morphologically similar and genetically stable, and pure. Inbred lines are valuable parental materials in the development of hybrid varieties. Hence, genetic purity of inbred lines should be maintained so that hybrids produced are always of the same quality and genetic make-up. However, purification of inbreds by conventional methods can be difficult since morphological features can be similar in plants that are highly diverse. An alternative is to use molecular markers to screen, identify, and verify the genetic similarity of inbred lines. In this study, simple sequence repeats (SSRs) were used to identify genetically similar plants. One hundred and ten SSR markers representing the ten chromosomes of maize were selected from published literature and databases. The published primers of these markers were used to amplify the marker regions from isolated DNA of five maize inbreds (Sukmaraga 9, Sukmaraga 16, Lamuro 8, CW80116) and five native varieties (Pastilan, Banlon, TinuguibB, CalimpusA, KabagtikA). The amplified DNA bands were scored for polymorphism. Thirtytwo polymorphic markers (representing at least two for every chromosome) were selected and utilized for preliminary inbred line screening. The first and second batch of screening among known Philippine inbreds showed that the yellow maize inbreds Pi17 and Pi23 gave acceptable homozygosity of $\geq 90\%$, while white maize inbred lines P9 and P29 were highly heterozygous. Selected plants were selfed and advanced into the succeeding generation. True inbred lines were distinguished among the conventionally characterized Philippine 'inbred' lines with the assistance of SSR markers. (Author's abstract)

Keywords: *Inbred, Polymorphism, SSR markers, Agriculture*

Philippine Journal of Science, Volume No. 147 Issue No. 1, 57-63
2018 March,
(Filipiniana Analytics)
NP

0105

Molecular-Based Detection of Pathogenic *Listeria* spp. in Philippine Raw Carabao's Milk and White Cheese

Belen, Roxanne H. , Elegado, Francisco B. , Perez, Maria Teresa M. , Mendoza, Bernadette C. , Calapardo, Marilou R.

This study was conducted to detect the presence of pathogenic *Listeria* species in locally produced white cheese (*quesong puti*) and raw carabao's milk samples from Laguna, Nueva Ecija, Bulacan, Rizal, Lucena City, and Makati City, Philippines using phenotypic and molecular analyses. Out of 208 initial isolates obtained from 31 dairy product samples, 118 isolates were preliminarily considered presumptive *Listeria* species based on established culture-based detection methods. Further phenotypic tests and growth efficiency assessment using highly selective Polymyxin Acriflavine

Lithium chloride Ceftazidime Aesculin Mannitol (PALCAM) agar narrowed them down to only five putative isolates. However, the Polymerase Chain Reaction (PCR) analysis using the primer pairs *Lis* and *LL1/LL4* for the listeriolysin O gene and *iap* for the invasion-associated protein gene yielded negative results for the potentially pathogenic *Listeria* spp., except for the ARKPC49 isolate. The isolate, which was identified as *Providencia* sp. through 16s ribosomal DNA (rDNA) sequence analysis, was found to have variant PCR amplicons. Cluster analysis also confirmed its unrelatedness to *Listeria* spp. Four other isolates (e.g., LKPC48, LC3C37, LC2C29, and LC2C42) which exhibited gray-green colonies with a black halo on PALCAM Agar were identified as *Corynebacterium vitarumen*. Thus, the results confirmed the absence of pathogenic *Listeria* spp. and highlighted the need for molecular methods to supplement cultural methods in detecting pathogenic *Listeria* spp. from dairy products. (Author's abstract)

Keywords: *Carabao's milk, DNA fingerprinting, ERIC-PCR, Food safety, Listeria, RAPD-PCR, White cheese, 16S rDNA sequencing, Agriculture*

Morpho-Anatomical Characters and Ethylene Production in *Hibiscus rosa-sinensis* L. in Relation to Two-Day Floral Retention

Valdoz, Jonard C. , Pablito M. Magdalita, Absulio, Wella L. , Sotto, Rachel C.

The cultivars of *Hibiscus rosa-sinensis* are known worldwide for their aesthetic value as garden or potted plants; but they have a short duration or retention of their flowers. This constraint has limited their potential in the floriculture industry because these cultivars have not been used as sources of cut flowers for floral arrangements. The main objective of this research was to find out the factors that affect duration of petal retention in *Hibiscus rosa-sinensis* L. across the four breeds or varieties used, namely, 'Gelia Castillo' (GC), 'Loren Legarda' x 'Estrella F. Alabastro' (LL x EFA), 'Reddy-or-Not' (RON), and 'Wilcox' (WX). Morphological traits such as peduncle diameter, receptacle diameter, peduncle length and petal thickness were related to floral retention of *H. rosa-sinensis* L. Moreover, the anatomy of the abscission zone was observed to provide a tissue-level basis for floral retention. Furthermore, ethylene concentrations were quantified to assess their relation to floral retention. There were no defined abscission zones in flowers of hibiscus; instead, the abscised petals had remnants, suggesting that abscission did not proceed at the petal base where the abscission zone is theoretically located. In addition, ethylene production increased as abscission progressed, typically exhibiting the climacteric pattern and the auto-catalytic nature of ethylene biosynthesis. (**Author's abstract**)

Keywords: *Abscission zone, Ethylene, Floral retention, Hibiscus rosa-sinensis, Morpho-anatomy, Agriculture*

Morphological and physico-chemical characteristics of "Red Creole" *Allium cepa* L. in three production areas in the Philippines

Del Carmen, Dormita R., Espigol, Ana Mithuzela D. , Nuevo, Perlita A. , Masilungan, Gloria D.

A survey was conducted in the three major onion growing areas in the Philippines, namely, Mindoro Occidental, Nueva Ecija, and Pangasinan to augment and update the limited available data on the local 'Red Creole' variety. This was followed by laboratory determination of the morphological and physico-chemical characteristics of bulb onions that affect the taste, flavour and postharvest behaviour of the produce. Correlation between these characteristics was also investigated. These are deemed important as basis in developing effective interventions and/ or strategies in the produce quality and marketing systems improvement. Results showed that onions obtained from Nueva Ecija are superior in terms of size and compressive strength while onions obtained from Mindoro have the highest pungency values. Onions from Pangasinan are small with the lowest weight value but have the thickest leaf sheath. Bulb weight is positively related to compressive strength, but is negatively related to total soluble solids. Bulb height also shows positive correlation with compressive strength and negative correlation with total solids. The bulb's equatorial

diameter and firmness are also negatively correlated. Lastly, onion's outer leaf sheath thickness is also positively correlated with pungency. **(Author's abstract)**

Keywords: *Bulb onions, Red creole, Morphology, Physico-chemical characteristics, Agriculture*

Philippine Journal of Crop Science (PJCS), Volume No. 41 Issue No. 3, 13-19
2016 December,
(Filipiniana Analytics)
Fil(S) SB189 P5 41/3 2016

0108

Morphological, molecular, cytogenetic and agronomic evaluations of rice (*Oryza sativa* L.) mutants cv. NSIC Rc144

Tapic, Rosemarie T. , Alfonso, Antonio A. , Dela Cruz, Quirino D. , Avellanoza, Eleonor S. , Espejo Emilie O. , Nogoy, Franz Marielle C. , Agustin, Ace Mugssy L.

Using induced mutation in any breeding program requires a thorough verification of the authenticity of the derived mutants. Field evaluation of the promising lines is useful to assess stability of its agronomic performance. In this study, 10 mutant lines together with the wild type NSIC Rc144 were characterized using phenotypic, molecular and cytogenetic traits. Field evaluation was set up in two seasons (Wet and Dry) following Randomized Complete Block . Design using two check cultivars (PSB Re 82 and NSIC Re 144). Result of morphological characterization showed similarity as well as deviation in some traits of mutants from its original cultivar. Molecular characterization using 39 SSR markers revealed mutation-induced polymorphism. Cluster analysis using morphological data in comparison with molecular data revealed authenticity of the mutants as derived from NSIC Rc144. It further displayed that molecular approach appeared effective than morphological approach since there is less ambiguity compared to the phenotypic data analyzed. Cytogenetic evaluation did not give much information in terms of changes in chromosome configuration of the mutants. Field evaluation revealed significantly higher performance of the 2 mutants for it out-yielded the wild type and the check cultivars. **(Author's abstract)**

Keywords: *Agronomic performance, Cluster analysis, Cytogenetic, Molecular, Morphological evaluations, Mutant, Out-yield, Agriculture*

Philippine Journal of Crop Science (PJCS), Volume No. 41 Issue No. 3, 30-39
2016 December,
(Filipiniana Analytics)
Fil(S) SB189 P5 41/3 2016

0109

Morpho-physiological traits associated with tolerance of iron toxicity during seedling stage in rice

Ismail Abdelbagi M. , Drame, Khady N. , Katimbang, Meggy Lou , Onyango, D

Iron toxicity is a major abiotic stress affecting rice productivity on about 50% of lowland valleys in Africa and large areas in Asia. Successful breeding for iron toxicity tolerance essentially requires detailed understanding of the traits and genes associated with tolerance to identify good sources of tolerance.

Twenty-two rice genotypes with contrasting tolerance obtained from AfricaRice germplasm were subjected to 300 ppm Fe²⁺ in a hydroponic solution during seedling stage and evaluated for morpho-physiological traits that contribute to iron toxicity tolerance.

IR841, Suakoko 8, CK90, and CK80 1 were considered tolerant. Iron toxicity significantly reduced photosynthetic rate, stomatal conductance, and transpiration. Correlations between intercellular CO₂ and stomatal conductance, and transpiration rate and intercellular CO₂ were positive. Leaf temperature correlated negatively with stomatal conductance, intercellular CO₂ and leaf fluorescence.

The study identified key morpho-physiological traits associated with iron toxicity tolerance. These traits could be used to select donors for use in breeding high yielding rice genotypes tolerant of iron toxicity. **(Authors' abstract)**

Keywords: Rice, Iron, Toxicity, Leaf bronzing, Agriculture

Transactions of the National Academy of Science and Technology, Volume No. 39 Issue No. 1, 36
2017 July,
(Filipiniana Analytics)
NP

0110

Multigene phylogenetic relationships among Philippine isolates of *Fusarium* spp. causing sugarane pokkah boeng

Dela Cueva, Fe M. , Samaco, Manu

Pokkah boeng disease of sugarcane has been increasingly noted in different locally grown cultivars throughout the Philippines due to the continuous use of susceptible varieties and varying environmental conditions favorable for the spread and the multiplication of the pathogen. Reported studies have established that pokkah boeng is mainly caused by *Fusarium moniliforme*, but in the Philippines, it was found out that various species can also cause the disease (*Fusarium proliferatum*, *Fusarium verticilloides*, *Fusarium subglutinans*, among others). Due to the genetic diversity of *Fusarium* spp. causing pokkah boeng, the correlation between symptomatology and the causative organisms involved would be a viable area of study, which in turn would have an impact on the control measures. Therefore, molecular tools are needed for investigating pathogen diversity and taxonomy. Seventy fungal isolates collected from pokkah boeng infected sugarcane in Luzon, Visayas and Mindanao were confirmed as *Fusarium* spp. using the molecular primer, ITS-Fu-fir/ From these, 21, 11, 5, and 2 were detected as *F moniliforme*, *F proliferatum*, *F verticilloides* and *F subglutinans*, respectively, through species specific primers. A total of 31 isolates were unidentified inferring the inherent genetic diversity underlying the disease. All of the 70 *Fusarium* spp. isolates were subjected to amplification of the elongation factor (EF) gene, tubulin (TUB) gene and the ITS region of the rDNA. Sequence divergence in the coding regions were observed among the isolates indicating that same species grouped together. Moreover, the unidentified *Fusarium* spp. were clustered closer with *F moniliforme* group suggesting the role of *F moniliforme* as the primary pathogen causing pokkah boeng. Studies involving control measures against specific *Fusarium* spp. can be further conducted to determine the best method of controlling the disease in the long run. **(Author's abstract)**

Keywords: Multigene, Phylogenetic relationship, Pokkah boeng, *Fusarium*, Agriculture

0111

Natural occurrence and host range studies of *Cucumber mosaic virus* (CMV) infecting ornamental species in the rawalpindi islamabad area of Pakistan

Ashfaq, Muhammad, Saleem, Anam, Waqas, Muhammad, Mukhtar, Tariq

Surveys were conducted during the spring and autumn of 2012 and 2013 to determine the presence, prevalence and distribution of *Cucumber mosaic virus* (CMV) on ornamental plants in the Rawalpindi Islamabad area of Pakistan. A total of 1,783 symptomatic leaf samples (1,733 from ornamentals and 50 from weeds) were collected from 79 ornamental plant species in propagation sites such as nurseries, private gardens and public areas including parks and street-grown ornamentals. All the samples were subjected to double antibody sandwich enzyme-linked immunosorbent assay (DAS-ELISA) using monoclonal antibodies for the detection of CMV. The disease incidence varied from season to season and nursery to nursery. The highest incidence of 46.47% and 35.01% of CMV was observed in public areas and propagation sites, respectively, during autumn 2012. On the other hand, the incidence was found to be 62.24% and 42.66%, respectively, in these sites during spring 2012. Similarly, the incidence was 59.28% and 47.36% during autumn 2013 and 66.5% and 51.69% during spring 2013 in public areas and propagation sites, respectively. Of the 79 ornamental plant species inoculated with gerbera isolate of CMV., 36 species were ELISA positive while the rest showed negative response. Among the tested weed flora of ornamentals, *Oxalis* spp., *Ixora* spp., *Cyprus rotundus* and *Portulaca somnifera* were also found to be infected with CMV. (Author's abstract)

Keywords: *Cucumovirus, DAS-ELISA, Monoclonal antibodies, Ornamentals, Agriculture*

The Philippine Agricultural Scientist, Volume No. 100 Issue No. 1, 55-61
2017 March,
(Filipiniana Analytics)
Fil(S) S19 P53 100/1 2017

0112

Niche relationships in shore bugs of the genus *Valleriola*

Barroso, Antonio A.

Valleriola buenoi (Usinger) and *Valleriola mindorana* Drake were found to "coexist" on the same rock surfaces in the same area at the same time in Molawin Creek, Los Banos, Laguna. A closer examination of their niche relationships revealed varying degrees of habitat specialization in favorable areas. Differences in dispersion, behavioral patterns and microclimatic factors influencing fluctuation in their populations reveal a well-defined degree of niche divergence which explains their coexistence. Elevation, rock size and vegetation cover strongly determine their presence in streams. Observed mating preference for members of the same species demonstrates distinctness of *V. buenoi* and *V. mindorana*.

Keywords: *Valleriola buenoi, Valleriola mindorana, Shore bugs, Agriculture*

0113

Nitrogen fixation by leguminous green manure and practices for its enhancement in tropical lowland rice

Ladha, J. K., Watanabe, I., Sao

Several types of leguminous green manure crops have been used as N sources for rice. *Sesbania cannabina* and *crotalaria juncea* are outstanding N₂ fixers and are the most acceptable to Asian farmers. About 2.6kg N/ha per day can be accumulated by a leguminous green manure crop. Incorporating such a crop at 45-65 d results in rice yields equivalent of more than 200 kg N/ha have been reported in 45- to 60-d-old stem-nodulating *Aeschynomene* and *Sesbania* species and nonstem-nodulating *Sesbania aculeata*.

Keywords: *Legumes, Green manure crops, Agriculture*

Green Manure in Rice Farming, Volume No. Issue No. , pages 165-183
1988,
(Filipiniana Analytics)
Fil(B) SB191 R518 1988

0114

Note: Amylose and protein contents of milled rice as eating quality factors

Juliano beinvenido O., Onate, Luz U, Del Mundo, Angel

Milled rice of lines from the same crosses differing in either amylose content or protein content were evaluated by a Filipino taste panel. Amylose content verified as the more important factor affecting the tenderness, cohesiveness, and gloss color score of cooked rice was less affected by differences in amylose and protein content than scores for cohesiveness and tenderness.

Keywords: *Rice, Amylose, Protein, Milled Rice, Agriculture*

The Philippine Agriculturist, Volume No. 16 Issue No. 1-2, 44-47
1972,
(Filipiniana Analytics)
Fil S19 P53 56/1-2

0115

Note: Postharvest life of 'Carabao' mango (*Mangifera indica* L.) as affected by preharvest treatment of ethephon

Lertpuk Sujita, Jr. Mendo

Pre-harvest application of ethephon had no effect on the storage life, ripening, period edible ripe lie, and total postharvest life of cv. Carabao mangoes. Great variations in Postharvest characteristics of mangoes were only obtained when the conditions in storage were modified. Storage at 10 C for 3 weeks prior to ambient storage (32 C) significantly extended the postharvest life of the fruits. However the ripening period of the fruits was adversely affected. Although the fruits had longer period, their edible ripe life was markedly shortened relative to fruits continuously held at ambient temperature right after harvest. The fruits became very susceptible to microbial decay.

Keywords: *Ethephon, Pre-harvest, Mangoes, Agriculture*

The Philippine Agriculturist, Volume No. 71 Issue No. 1, pages 15
1988,
(Filipiniana Analytics)
Fil S19 P53 71/1

0116

NSIC RC 418 (Sahod Ulan 14): a new UPLB-developed rainfed lowland rice variety (*Oryza sativa* L.) for dry-seeding

Lalican, Danilo J. , Escamos, Senen H. , Cayaban, Jr., Ernesto B. , Bon, Sancho G. , Magnaye, Ann Mylalulex M. , Malabanan-Bauan, Katrina B. , Hernandez, Jose E. , Sta. Cruz, Pompe C. , Borromeo, Teresita H. , Sinohin, Alfredo M. , Alzona, Fe D. , Magsino, Ester A. , Felix, Angelina DR.

Rainfed rice fields in the Philippines is estimated to be around 30% of the total rice production area and produce about 4.5 M mt of rice annually. Although most breeding efforts in rice are focused on irrigated rice agroecosystems, development of new cultivars for rainfed lowland rice areas is still pursued. The University of the Philippines Los Banos-Rice Varietal Improvement Team (UPLB-RVIT) has produced several rainfed lowland rice varieties over the years both for transplanted and dry-seeded culture. C9270-B-3-1-3-2 released as NSIC Re 418 is the latest rainfed lowland rice variety developed by UPLB-RVIT for dry-seeding. C9270-B-3-1-3-2 is derived from a cross between C7652-28-7-4 and C8212-B-1-2. It was identified as a promising line for dry seeding in the UPLB Preliminary Yield Trial (PYT), and was entered to the National Cooperative Test (NCT) in 2011. C9270-B-3-1-3-2 was evaluated for 4 wet seasons in 3 rainfed rice locations, and was recommended for release as NSIC Re 418 or Sahod Ulan 14 in 2015. It is a medium maturing, semi-dwarf rainfed rice, with 13.1% and 18.9% yield advantage over check varieties PSB Re 14 and NSIC Re 192, respectively. It has intermediate reaction to diseases such as rice blast, bacterial leaf blight and sheath blight, has resistance to stemborers and exhibits intermediate reaction to hoppers. NSIC Re 418 also has excellent grain quality with good milling potential, intermediate amylose content (value), and good acceptability in both raw and cooked form. (Author's abstract)

Keywords: *Rainfed rice, Dry-seeded rice, NCT, UPLB-RVIT, Sahod ulan, Agriculture*

Philippine Journal of Crop Science (PJCS), Volume No. 42 Issue No. 2, 66-69
2017 August,
(Filipiniana Analytics)
Fil(S) SB189 P5 42/2 2017

0117

On-Farm Evaluation of Dry-Seeded Rice Cultivars and Cropping Systems in the Semi-Arid Region of India

Soriano, Junel B. , Wan, Suhas P. , Rao, Adusumilli N. , Hanumanthappa, Anantha K. , Gowda, Jnanesha A.C. , Rathore, Abhishek

Improving and sustaining rice-based cropping systems in the semi-arid region are essential in persistent drought condition triggered by worsening effects of climate change and declining water availability. This on-farm study was conducted to evaluate and identify the most productive, resource efficient and profitable direct dry-seeded rice (DDSR) cultivars, and DDSR-based cropping systems in the semi-arid region particularly in water-short irrigated rice areas. Farmer participatory field studies were conducted in Raichur District of Karnataka State, India to assess the performance of DDSR cultivars (*Samba Mahsuri*, *Gangavathi Sona* and *Prasanna*) seeded during the rainy season in rotation with dryland crops (chickpea, mustard and green gram) following rice. Among the three rice cultivars, *Gangavathi Sona* yielded 9% and 15% higher than *Samba Mahsuri* and *Prasanna*, respectively. Our study showed that productivity of rice can be improved by using drought resistant and high yielding cultivars with high harvest index, and stable canal water supply at the reproductive stage. Chickpea and green gram yielded better than mustard under minimal soil aeration conditions of zero-tilled and non-puddled fields which indicate that suitable post-rainy season crops for zero-tilled fields must be selected. The study revealed that sowing time, which depends on rainfall pattern and schedule of canal water supply, is among the major factors to be considered in selecting rice cultivars and dryland crops to achieve higher productivity, resource use efficiency and economic returns. Cropping system involving direct dry-seeding of *Gangavathi Sona*, followed by chickpea achieved higher production efficiency, land and water productivity, and economic returns compared to transplanted rice (TPR) system. Improving the productivity of chickpea and other suitable dryland crops that can be grown after rice in zero-tilled fields will contribute substantially to the evolving impacts of DDSR-based cropping systems in the semi-arid region. **(Author's abstract)**

Keywords: *Cropping system, Direct dry-seeded rice, Dryland crops, Productivity, Profitability, Resource use, Agriculture*

Philippine Journal of Science, Volume No. 146 Issue No. 3, 223-235
2017,
(Filipiniana Analytics)
Fil(S) Q1 P55 146/3 2017

0118

Optimizing seed potato production by aeroponics in China

Wang, Kexiu , Ai, Yingwei , Hu, Jianjun , Xie, Kaiyun , Tang, Mingxia , Wang, Yuming , Zaag, Peter Vander

Aeroponics is being enthusiastically adopted by many private companies and public institutions in China as a viable means to produce minitubers. A series of experiments were conducted, with two contrasting varieties: *Chuanyu 117* and *Mira*, to help refine the techniques and to strive for greater productivity. Experiments were conducted at Chengdu, Sichuan during the spring season from February to June and the autumn season from late September to February. Large differences were observed between nutrient solutions tested. The cheapest MS based treatment with NH_4Cl as the nitrogen source produced the highest tuber number per plant. The MS based solution with NH_4NO_3 as the nitrogen source yielded the highest tuber weight per unit area. Misting the nutrient solution for 30 sec every 10 min appears to be better than doing it at a 20-min interval. For the variety *Chuanyu 117*, the 20-min interval had a dramatic negative effect in contrast to *Mira* which was minimally affected. Maximum tuber number per unit area was obtained with plant densities between 54 and 80 plants m^{-2} . Harvesting the tubers at 2-wk interval during the bulking period did significantly improved yields of *Chuanyu 117* but not *Mira*. Assessing all 3 experiments, considering the best treatments, the tuber number per plant ranged 22-34 for *Chuanyu 117* and 23-28 tubers per plant for *Mira*. The main limitations that need to be overcome are the management of the plants so that they develop adequate haulm growth to support tuber growth through nutrient and hormonal manipulation for both the spring and autumn seasons, which have contrasting climatic conditions. **(Author's abstract)**

Keywords: *Aeroponics, Minitubers, Seed potato production, Tuber number, Tuber yield, Agriculture*

Philippine Journal of Crop Science (PJCS), Volume No. 42 Issue No. 1, 69-74
2017 April,
(Filipiniana Analytics)
Fil(S) SB189 P5 42/1 2017

0119

Optimizing the doses of moringa (*Moringa oleifera* L.) leaf extract for salt tolerance in maize

Ali, Anser , Abbas, Muhammad Nasir , Maqbool, M. Mudassar , Arshad, M. Irshad , Jan, Muhammad , Qayyum, Abdul , Lee, Dong Jin

Salinity is a major agricultural problem that adversely affects maize yield. Maize is a major fodder crop which necessitates the improvement of its vegetative performance under salt stress using different doses of moringa leaf extract (MLE). With the objective to tolerate the salt stress, 5 levels of moringa leaf extract concentrations [control, 5%, 10%, 15% & 20%] were foliarly sprayed on maize seedlings raised in saline (70 mM NaCl) and non-saline (0 mM NaCl) hydroponic Hoagland solutions. Plants were harvested 4 wk after applying salt stress and foliage spray of leaf extract. The following morphological characters (shoot length, root length, shoot fresh weight, root fresh weight, shoot dry weight, root dry weight, shoot root ratio) and biochemical parameters (sodium and potassium contents) were evaluated. The experiment was laid out in CRD in factorial arrangement with 5 replicates. The data collected was subjected to statistical analysis at 1% probability level and DMR was used to separate the significant treatment means. The results showed that moringa leaf extract seems to be effective in enhancing the salinity tolerance of maize. The foliar application of moringa leaf extract improved the shoot and root growth significantly. Moringa leaf extract proved to be helpful in reducing the Na and increasing the K content of the leaf. The salinity tolerance of maize was improved as the concentration of Moringa leaf extract was increased up to 15%, but higher concentration (20%) proved to be toxic for maize seedling. (**Author's abstract**)

Keywords: *Leaf extract, Maize, Moringa oleifera, Salinity, Seedling growth, Agriculture*

Philippine Journal of Crop Science (PJCS), Volume No. 42 Issue No. 1, 84-89
2017 April,
(Filipiniana Analytics)
Fil(S) SB189 P5 42/1 2017

0120

Patterns of variability in quantitative morpho-agronomic characteristics of Philippine traditional corn from selected provinces

Bon, Sancho G. , Huelgas, Visitacion C. , Roxas, Gilbert R. , Salazar, Artemio M.

Two hundred recently collected traditional corn populations were characterized based on quantitative morpho-agronomic descriptors, aimed to assess the distribution and frequency of quantitative variation, determine the principal component of variation and similarity groupings of the collection. Data showed wide spread statistical range and high variance and standard deviation for kernel, tassel, plant and ear descriptors. Nine descriptors however, showed skewness, indicating aggregation of values towards either end of the range. Means indicated values closer to the

unimproved corn types such as shorter plant heights, higher number of leaves, narrower stem diameter, lighter kernel weight, shorter ear length, early tasseling and silking, smaller kernel dimensions, smaller cob diameter, and non-synchronous flowering. As expected, collections were distributed over many classes ranging from 6 to all 10 frequency classes but generally falling within the 4 or 5 central classes. In general, values obtained indicated high variability of the collection having wide dispersion distributed to multiple class ranges. A cumulative 74.6% of sample variability was contributed by 11 PCs with the first 3 principal components explaining about 44.48% of the sample variation. PC1 was composed of 22 variables representing plant, tassel and ear characteristics. PC2 included tassel peduncle length and number of kernel rows while PC3 identified 100-kernel weight and kernel width. Number of primary branches of tassel and rachis diameter were not found significant in all primary axes. The collection clearly scattered over the biplot space but no clear pattern of provenance association can be identified. Weak groupings can be observed for some collections from Masbate, Oriental Mindoro and Agusan del Sur. Cluster analysis further confirmed inherent morpho-agronomic variability of the collection set where maximum clustering was achieved at 15.75 Euclidean distance coefficient. The collection can be grouped into two clusters with 9 outliers. Cluster II was the larger group with 3 sub-clusters while Cluster I was composed of 18 collections. Cluster II maybe sub-grouped into 3 smaller clusters IIA, IIB, IIC. No clear association to provenances was established but 21 of the Masbate collection clustered in IIA and 8 of 14 Aklan and 7 of 10 Agusan Del Sur collections both clustered in IIC. Cluster analysis validated high degree of variability of the collection set. The present study therefore confirmed the presence of considerable genetic diversity, outlined distribution patterns of variations observed and identified the principal components among the local corn germplasm. Recommendations were forwarded. (**Author's abstract**)

Keywords: *Morpho-agronomic diversity, Multivariate analysis, Philippine corn, Principal component, Agriculture*

Philippine Journal of Crop Science (PJCS), Volume No. 42 Issue No. 2, 10-27
2017 August,
(Filipiniana Analytics)
Fil(S) SB189 P5 42/2 2017

0121

Penetration and Infection of Corn By *Puccinia Polysora* Underwent *Santiago- Oro, Rosalinda, Exconde*

Puccinia polysora penetrated corn leaves through stomata directly by germ tube. Hypal growth originating from just below the guard cells was strictly intercellular among the mesophyll cells, without invading the vascular elements. Housteria were formed both in the mesophyll and epidermal cells. Uredia were produced from the pseudoparenchymatous funguous layer arising from the dense mycelial growth at the point of penetration. Ten days after inoculation, unredia erupted with the sori developing at the point of inculation. Fungal development pattern in the leaf sheath, midrib and husk was the same as in the leaf.

Keywords: *Corn, Puccinia Polysora, Agriculture*

The Philippine Agriculturist, Volume No. 58 Issue No. 1/2, 50-60
1974,
(Filipiniana Analytics)
FIL S19 P53

0122

Performance of Four Chrysanthemum [*Dendranthema grandiflora* (Ramat.) Kitam.] Varieties Conserved *In Vitro*

Budiarto, Kumiawan , Rosario, Teresita L.

Four chrysanthemum varieties were conserved *in vitro* at low temperature conditions for 6 mo in four culture media: ½ Murashige and Skoog (MS) + 2.5% dimethylsulfoxide (DMSO) and in Tsuchiya media at ½, ¼ and full strengths. Plantlets of all varieties conserved in MS + 2.5% DMSO had shorter internodes, lesser leaf and internode number and no root formation compared with varieties conserved in Tsuchiya media. Decreasing the nutrient concentration of the Tsuchiya medium to ¼ strength induced more optimum plantlet growth and root development. Mortality in all varieties started at 4 mo storage period. Varieties 'Puspita Nusantara' and 'Tirta Ayuni' conserved in ¼ strength Tsuchiya medium produced the highest number of roots at 6 mo storage. They also had the highest plantlet survival rate. The results showed that successful conservation of chrysanthemum plantlets *in vitro* can be achieved through modification of the nutrients in the culture medium. The findings would greatly help to reduce the maintenance costs of active plant growth in base collections under *in vivo* conditions. (Author's abstract)

Keywords: *Chrysanthemum (Dendranthema grandiflora), Dimethyl sulfoxide (DMSO), In vitro conservation, Plantlet performance, Percent survival, Tsuchiya medium, Agriculture*

The Philippine Agricultural Scientist, Volume No. 100 Issue No. 4, 347-357
2017 December,
(Filipiniana Analytics)
Fil(S) S19 P53 100/4 2017

0123

Phenotypically-desirable and PRSV-P tolerant papaya F₁ hybrids

Magdalita, Pablito M. , Signabon, Freddie Webb B.

The development of new papaya F₁ hybrids that are phenotypically-desirable and resistant to papaya ringspot virus-P (PRSV-P) is one of the important components of an integrated disease management strategy against the virus disease. While moderately tolerant varieties such as the Sinta provided some protection against the disease, new virus strains could evolve and overcome the resistance, hence new resistant varieties are necessary. Partial diallel crossing scheme was used to generate F₁ hybrids between diverse inbred lines. Eight F₁ papaya hybrids were evaluated for desirable horticultural traits and reaction to PRSV-P. Three hybrids were selected: hybrids 4, 7 and 5. F₁ hybrid 4 is better than the other hybrids in terms of horticultural traits and virus reaction. It is semi-dwarf, had stout stem, thick flesh, higher TSS and edible portion than Sinta. It had a reduced symptom severity, delayed disease onset, slow disease progress and rate of disease development, reduced symptom severity, low disease index and lower virus titre than Solo, indicating a moderately tolerant reaction to PRSV-P. Hybrid 7 is semi-dwarf, had stouter stem, thicker flesh, higher TSS and had higher edible portion than Sinta. It had a delayed disease onset, slower disease progress, and virus titre lower than Solo, also indicating a moderately tolerant reaction to PRSV-P. Hybrid 5 is also semi-dwarf, had high TSS and an attractive bright red flesh. However, it had an early disease onset, faster disease progress and rate of disease development, making it moderately susceptible to PRSV-P. Overall, F₁ hybrids 4 and 7 were selected based on evaluation of horticultural traits and tolerance to PRSV-P. (Author's abstract)

Keywords: *F₁ papaya hybrids, Horticultural traits, Papaya ringspot virus-P, Tolerance, Agriculture*

Philippine Journal of Crop Science (PJCS), Volume No. 42 Issue No. 1, 75-83
2017 April,
(Filipiniana Analytics)
Fil(S) SB189 P5 42/1 2017

Phenotyping rice (*Oryza sativa* L.) genotypes for morpho-physiological traits associated with tolerance of salinity at reproductive stage

Egdane, James A. , Tam, Bui Phuoc , de Ocampo, Marjorie P., Ismail, Abdelbag

Salt stress is a major constraint across large rice production areas, especially in tropical coastal zones; because of the high sensitivity of modern rice varieties. Understanding the morphological and physiological traits associated with tolerance of salt stress provides the basis for improving yield and quality, and for sustaining productivity of saline areas. A set of 324 genotypes from a rice diversity panel and five checks (Pokkali, FL478, Jumbo Jet, IR29, and Rc222) were evaluated for salinity tolerance at reproductive stage based on morphological and physiological parameters. Four pre-germinated seeds were sown per pot then thinned to three plants per pot 2 weeks later, with water level raised to about 1-2 cm above soil surface. When seedlings were 21 d old, water was siphoned out and drained from the concrete tanks for 12 h, then flooded with either tap water (control) or saline solution (treatment) with an EC of 5 dS m⁻¹ for 3 days, then raised to 10 dS m⁻¹ and kept at this level until harvest. Salinity was monitored regularly and adjusted when necessary using NaCl and tap water. Salinity tolerance was highest in the aus and indica subpopulations, reflected as lowest injury scores of 6.3 and 6.4, respectively. K⁺ concentration positively correlated with plant height, panicle length, chlorophyll concentrations, dry plant biomass, yield components, days to booting, and SES scores, while Na⁺ concentration and Na⁺/K⁺ ratio positively correlated with grain yield, number of filled grain panicle⁻¹, and days to booting. Grain yield correlated negatively with SES scores, booting time, Na⁺ concentration, and Na⁺/K⁺ ratio, but positively with spike let fertility, tiller number hill⁻¹, filled grain panicle⁻¹, 100 grain weight and chlorophyll concentration. These findings help breeders to choose suitable donors for best trait combinations to develop genotypes tolerant of salt stress. (Author's abstract)

Keywords: *Mechanisms of salt tolerance, Morphological and physiological traits, Rice response, Rice response to salt stress, Agriculture*

, Volume No. Issue No. , 26
(Filipiniana Analytics)
NP

Philippine crop occurrence according to coronas climate types: Preliminary results

Philipson, W.R., Layese, M. F., Mariano

A survey of 30 provinces investigated the extent to which patterns of rainfall distribution as defined by the four coronas climate types, reflect patterns of crop occurrence. The data obtained from each province consisted of : (1) the predominant, major, and secondary crops of each soil unit, (2) the degree to which each soil unit is cultivated, and (3) the climate type under which each soil unit occurs. The findings point to definite interaction between rainfall distribution and crop occurrence. Each Coronas climate type exhibits characteristic crops as well as characteristic soil-cropping intensities of like crops. The applicability of the Coronas System for partitioning cropping patterns is supported by the correspondence between trends in crop occurrence and the defined trend in climate types.

Keywords: *Crops, Soil, Coronas Climate, Climate, Agriculture*

Phylogenetic analysis of 246 Korean rice varieties using core sets of microsatellite markers
Kwon, Yong-Sham , Manigbas, Norvie L. , Kim, Doh-Hoon , Yi, Gihwan

Phylogeny of 246 Korean rice varieties from 3 breeding institutes were evaluated using 26 SSR primers. Two hundred ninety alleles were detected on 11 chromosomes. The number of alleles detected per locus ranged 7-16, with an average of 11.15 alleles per locus. The highest frequency of allele occurrence was 22.1% on chromosome 6 and the lowest frequency was 1.7% on chromosome 11. The polymorphic information content (PIC) values ranged 0.523-0.879 with an average of 0.731 . Higher PIC values suggests that primer sets could be used in identifying Korean rice varieties. Genetic similarity analysis revealed two major groups. Group 1 included most of the japonica varieties, and Group 2 included predominantly the *tongil* type rice which is a hybrid of *indica* and *japonica*. Cluster analysis showed that there were no distinct clusters among breeding institutes however, some varieties from the same breeding institute occurred in the same sub-cluster. Rice varieties released by the Department of Rice and Winter Cereal Crop exhibited the greatest genetic differences, whereas those of the National Institute of Crop Science exhibited the lowest among the breeding institutes. The phylogenetic data suggests that genetic diversity of varieties released by National Institute of Crop Science was greater than that of Department of Rice and Winter Cereal Crop and the Department of Functional Crop. Genetic diversity of special purpose rice such as aromatic, pigmented, waxy, and super yield was greater than rice grown for premium quality. Phylogenetic analyses provide a reference data in determining parents to cross for genetic improvement.
(Author's abstract)

Keywords: *Genetic diversity, Microsatellite, Phylogeny, Rice, Agriculture*

Philippine Journal of Crop Science (PJCS), Volume No. 42 Issue No. 1, 27-40
2017 April,
(Filipiniana Analytics)
Fil(S) SB189 P5 42/1 2017

Phylogeny and evolutionary history of *Brassica* species in China based on Chalcone synthase gene (Chs) sequence
Chen, Fa-Bo , Huo, Shi-Ping , Cao, Chang-Lei , Liu, Hong-Fang , Yao, Qi-Lun , Fang, Ping

For many years, relationships within Chinese *Brassica* species and subspecies were the subject of much controversy. Sequences of the chalcone synthase gene (Chs) were used to analyze the evolutionary history of *Brassica* plants from China. Sequences from *Brassica* were separated into three well-supported groups in accordance with the A, B, and C genomes. SplitsTree analysis recognized three distinct *Brassica* groups, and median-joining network analysis recognized three distinct haplotypes of *Chs*. The estimates of Tajima's *D*, Fu and Li's *D*, and Fu and Li's *F* statistics for the *Chs* gene between the A-diploid and C-diploid were not significant, while those between the A-polyploid and B-polyploid were significant. The results indicated that (1) Chinese *Brassica* could be divided into three sections - *Pekinensis*, *Juncea*, and *Oleracea*; (2) both tree and reticulate evolution existed in the evolution of Chinese *Brassica*; (3) *B. rapa* var. *oleifera*, *B. nigra*, and *B. oleracea* were the parental donors of the A genome, B genome,

and C genome in the allotetraploid, respectively; and (4) the relationship between the A and B genomes was closer than that between the A and C, and B and C genomes in Chinese *Brassica*. These results shed new light on the knowledge about the phylogeny and evolution of *Brassica* in China that could account for rich resources of *Brassica* species. (**Author's abstract**)

Keywords: *Brassica, Chs gene, Phylogenetic relationship, Tetraploid, Agriculture*

The Philippine Agricultural Scientist, Volume No. 100 Issue No. 1, 24-36
2017 March,
(Filipiniana Analytics)
Fil(S) S19 P53 100/1 2017

0128

Physicochemical Properties of Glutinous Rices in Relation to Pinipig Quality

Antonio, Alicia A., Julian

Makers of pinipig (flattened parboiled rice) prefer the glutinous (waxy) rice variety Malagkit Sungsong to other glutinous rices, because its hydrated pinipig is more tacky or sticky. The physicochemical properties of Malagkit Sungsong were compared with those of four other glutinous varieties from the same crop, which produced inferior pinipig. malagkit Sungsong had a lower gelatinization temperature of starch, its 10% gel was softer and its level of water-soluble starch at 100 c was higher.

Keywords: *Physicochemical, Glutinous, Pinipig Rice, Agriculture*

The Philippine Agriculturist, Volume No. 58 Issue No. 1/2, 17-23
1974,
(Filipiniana Analytics)
FIL S19 P53

0129

Physiological and Growth Responses of *Begonia semperflorens* to Different Growing Media

Popescu, Monica , Popescu, Gheorghe Cristian

Begonia plants are among the most popular ornamental plants that are very well suited for landscaping, flowerbeds, hanging baskets or container pots. Currently, in Romania, there has been an increasing demand to produce flowers for the landscaping market, and for the use of land in private and public gardens. Several organic and inorganic natural materials in different combinations were investigated for photosynthetic capacity, leaf area and flowering potential of *Begonia semperflorens*. The main objective of this study was to determine whether or not different growing media formulas are suitable for ornamental plant production with marketable value. Optimization of growing media formulas was performed by preparing four growing media mixing fallow soil, biolan peat, acid peat, leaf compost and perlite in different proportions. The highest photosynthesis rates as well as leaf area were obtained from growing media with 60% biolan peat, 30% acid peat and 10% perlite (BP60-AP30-P10). There were recorded results which suggest that *begonias* grown in the BP60-AP30-P10 medium seem to be high-value ornamental plants, while the ornamental value of the plants cultured in media containing fallow soil is too low. (**Author's abstract**)

Keywords: *Begonia semperflorens, Flowering potential, Optimization, Photosynthesis, Substrates, Agriculture*

Physiological Response of *Triticale* to Zinc Application and Biofertilizers under Various Water Limitation Treatments

Arough, Younes Kheirizadeh , Sharifi, Raouf Seyed

In order to evaluate the effects of biofertilizers and zinc on some physiological traits of *Triticale* under limited water conditions, a factorial experiment was conducted in randomized complete block design with three replications in 2014 and 2015. Experiment factors included water limitation at three levels [normal irrigation (W_0) as control; moderate water limitation (W_1) - irrigation withheld at 50% of heading stage; severe water limitation (W_2) - irrigation withheld at 50% of booting stage]; four biofertilizer levels: no biofertilizer (F_0), application of mycorrhiza (F_1), application of plant-growth promoting rhizobacteria (PGPR) (F_2), application of both PGPR and mycorrhiza (F_3); and four nano zinc oxide levels [(without nano zinc oxide (Zn_0) as control, application of 0.3 (Zn_1), 0.6 (Zn_2) and 0.9 (Zn_3) g L⁻¹]. Results showed that water limitation decreased chlorophyll a, chlorophyll b, total chlorophyll, carotenoid and yield of *Triticale*, while soluble sugars and proline content, and the activity of catalase (CAT), peroxidase (POD), and polyphenoloxidase (PPO) enzymes increased. However, inoculation of plants with biofertilizers and zinc application improved these traits under water limitation conditions and normal irrigation. Application of biofertilizer and nano zinc oxide as F_3Zn_3 increased grain yield by 87.5% when compared with F_0Zn_0 under severe water limitation. Based on the results, biofertilizers and nano zinc oxide application can be recommended for profitable *Triticale* production under water limitation conditions. (**Author's abstract**)

Keywords: *Antioxidant enzyme, Mycorrhiza, PGPR, Proline, Triticale, Water deficit, Agriculture*

Plant-based pesticides for the management of selected pest for organic vegetable production in the Ilocos

Quijano, Rodalyn G. , Villarin, Alecsis G. , Cocson, Lucricia Conchita G. , Lutap, Leticia A., Solsoloy, Aid

With the increasing concern for environmental safety and human health, development of alternative control methods for crop production such as the use of biopesticides against major pests of vegetable crops is a necessity. Such crop insect pests were tomato fruitworm, *Helicoverpa armigera* Hubn., thrips (*Thrips tabaci*), mites (*Aceria tulipae*) and Epilachna beetle (*Epilachna vigintioctpunctata*) and aphids (*Aphis cracivora*) while on diseases were *Alternaria solani* causing early blight on tomato, *Alternaria porri*, causing purple blotch and *Cercospora duggiae* causing cercospora leaf spot on garlic, respectively. Plants with known pesticidal properties were collected and reevaluated as biopesticides.

Pesticidal effect on target pests was noted from plants such as *Cleome viscosa*, *Argemone mexicana*, *Euphorbia hirta*, *Tabernaemontana pandacaqui*, *Cucurma longa*, *Origanum vulgare*, *Piper betle*, *Lantana camara*, *Allium sativum*, *Aloe barbadensis* *Azadirachta indica* leaves and garlic waste. Insect growth inhibitory effect was observed such as reduced number of larval and pupal days, as well as, premature mortality of treated larvae. Using the formulated products, the effectiveness was comparable with chemical pesticides under field conditions; lower disease intensity and higher marketable yield were noted compared to farmers practice. Cost and return analysis also showed that the different products is comparable with chemical pesticides. Microbial antagonists isolated from goat manure tea and bat dung were identified and proved effective in vitro against *A. solani* in tomato and *A. porri* and *C. duddiae* in garlic. Shelf life of the products showed potency after one year of storage. Results mentioned proved that the formulated biopesticides were very essential for organic vegetable production in the Ilocos. **(Authors' abstract)**

Keywords: *Plant extracts, Pesticidal property, Toxicity, Product formulation, Pest, Agriculture*

Transactions of the National Academy of Science and Technology, Volume No. 39 Issue No. 1, 17
2017 July,
(Filipiniana Analytics)
NP

0132

Plants leaves as potential protein sources *Madamba L.S.P., Jr. Pisigan R.R., Javier, F.B., Lugo*

The crude protein contents of seventeen samples of plants leaves were determined at three stages of maturity. The tree leaves generally were found contain more protein than the herb leaves. Katuray a tree had the highest protein level 36.17 while asistasiya an herb had the lowest (10.14%) in the moisture-free basis.

Keywords: *Leaves, Herves, Tree, Agriculture*

The Philippine Agriculturist, Volume No. 16 Issue No. 1-2, 114-122
1972,
(Filipiniana Analytics)

0133

Plastic fasteners for rapid attachments of radio transmitters to rats *Fall, Micahael W., West, Richard R., Kolz*

The attachment of collar radio transmitters to rats is facilitated by using adjustable plastic fasteners. The technique improves over those previously used by being faster under field conditions, by allowing for more precise tuning of transmitters, and by not requiring anesthesia or long restraint of animals.

Keywords: *Collar radio, Plastic fasteners, radio telemetry, Agriculture*

The Philippine Agriculturist, Volume No. 56 Issue No. 7-8, 263-266
1972,
(Filipiniana Analytics)

0134

Postharvest Control of Philippine Mango Anthracnose by Benomyl
Quimio, A. J., Quimio, Tric

The lethal dose of benomyl on the mycelium of *Colletotrichum gloeosporioides* from mango ranged from 275 to 600 ppm. Spore germination of the fungus

Keywords: *Agriculture*

The Philippine Agriculturist, Volume No. 58 Issue No. 1/2, 147-155
1974,
(Filipiniana Analytics)
FIL S19 P53

0135

Postharvest Control of Philippine Mango Anthracnose by Hot Water Treatment
Quimio, A. J., Quimio, T

Fruits and Carabao and Pico mango cultivars from Pangasinan and Batangas were injured by exposure for 10 min to temperatures above 54 C and 57 C, respectively. Hot water treatment at 53 C for 10 min had no apparent effect on the appearance and eating quality of fruits when compared with the controls and effectively inhibited anthracnose development on fruits artificially inoculated with *Colletotrichum gloeosporioides* 3 days earlier. Fruit rotting due to the disease was also significantly reduced in naturally infected fruits treated similarly. However, the treatment reduced the natural luster of fruits and injured the lenticels just as soaking in water at room temperature did.

Keywords: *Mango, Anthracnose, Hot Water Treatment, Agriculture*

The Philippine Agriculturist, Volume No. 58 Issue No. 1/2, 138-146
1974,
(Filipiniana Analytics)
FIL S19 P53

0136

Potential Banana cv 'Lakatan' Somaclones Induced by Long Culture Period and High 2,4-D Concentration
Sales, Emma K. , Roca, Harem R.

The study was undertaken to determine the effect of long subculture and high dosage of 2,4-D on the yield and other postharvest traits of banana cv 'Lakatan' somaclones. Morphological evaluation was done on 2,040 plants (planted in a 2.5ha field (3x3m distance of planting, laid in Randomized Complete Block Design (RCBD) in factorial

arrangement) using the *International Network for the Improvement of Banana and Plantain* (INIBAP) postharvest evaluation procedure. Out of these 2,040 plants, 40 somaclones were selected based on their better performance compared to the untreated plants (control). Results showed that prolonged subculture and addition of high concentration of 2,4-D produced both positive and negative variations. Positive variation was exhibited by heavier bunch weight, earlier flowering, longer shelf life and a larger number of hands, which translate into increased income. Negative variation, on the other hand, included dwarfism, delayed flowering and a lesser number of hands. (**Author's abstract**)

Keywords: *Lakatan banana, postharvest traits, shelf life, somaclonal variation, 2,4-D, Agriculture*

Philippine Journal of Science, Volume No. 145 Issue No. 2, 181-187
2016 June,
(Filipiniana Analytics)
Fil(S) Q1 P55 145/2 2016

0137

Potential of sesbania as a green manure in saline rice soils in Thailand

Arunin, S., Dissataporn, C., Anuluxtipan, Y., Na

Rice-based cropping patterns in Thailand vary from region to region. Very little economic evaluation is available except in the northeast region, where crops other than rice showed negative net income. Thus, it appears possible to grow a crop for green manure. Green manure crops can supply P and N and contribute to soil organic matter status. The advantages and disadvantages of 18 species as green manure crops, as well as their seed production, are presented. *Sesbania* spp. show great potential as green manure crops because of their tolerance for salinity, acidity, and flooding.

Keywords: *Green manure crops, Green manuring, Agriculture*

Green Manure in Rice Farming, Volume No. Issue No. , pages 83-95
(Filipiniana Analytics)
Fil(B) SB191 R518 1988

0138

Predatory lady bird beetles associated with lanzones mussel scale, *Unaspis mabilis* Lit & Barbecho (hemiptera: diaspididae)

Madela, Ma. Anna , Recuenco, Monalisa O. , Adorada, Joel L. , Adorada, Jessamvn R., Gregorio, April Kim Mar

Nine ladybird beetle species found associated with lanzones mussel scales (*Unaspis mabilis* Lit & Barbecho) were collected and identified. The beetles were verified to be *Acarinus philippinensis* Kapur, *Chilocorus circumdatus* (Gyllenhal), *C. nigrata* (Fabr.), *Scymnus (Neopullus) hoffmani* Weise, *Nephus phosphorus* Lewis, *Microweiseinae* sp., *Pseudoscymnus* sp., *Scymnus (Pullus)* sp., and *Telsimia nitida* Chapin. Among these, only four are currently being reared by DA-BPI, RCPC and PCA. Hence, the other potentially more effective predators' remains to be studied and further evaluated. (**Author's abstract**)

Keywords: *Agriculture*

Production Performance and Apparent Nutrient Digestibility of Broiler Chickens Fed Aflatoxin-Contaminated Diets Treated with Different Toxin Binders
Magbiro, Sol Kristel D. S. , Acda, Sonia P. , Merca, Florinia E. , Angeles, Amado A.

To determine the effects of supplementation of different toxin binders (TB) on production performance traits and total tract nutrient digestibility of broilers fed aflatoxin-contaminated diets, five hundred (500) straight-run day-old chicks were used in the study to evaluate five dietary treatments: basal/control diet with low aflatoxin B1 (LAD), basal/control diet with high aflatoxin B1 (HAD), HAD + crosspovidone polymer (HADA), HAD + bentonite (HADB), and HAD + hydrated sodium calcium aluminosilicates (HADC). The broilers were divided into five groups and randomly distributed to one of the treatment groups following a complete randomized design with cage as experimental unit. The treatment groups were replicated 10 times with 10 birds per cage.

Body weight, weight gain, feed consumption and livability were reduced on HAD-fed broilers, while growth performances of those fed LAD, HADA, HADB and HADC were not statistically different from each other. Apparent digestibility of nutrients and feed efficiency of broilers were not significantly different among treatments. The addition of toxin binders (TB) in the aflatoxin-contaminated diet was effective in counteracting the adverse effects of aflatoxin on the performance of broilers without affecting the apparent digestibility of nutrients. **(Author's abstract)**

Keywords: *Aflatoxin, Broilers, Nutrient digestibility, Production performance traits, Toxin binder, Agriculture*

Prominent traits of some F1 hybrid papaya lines in Thailand
Janthasri, Rapatsa , Janloon, Suphachai , Suwanseree, Valerie

This study identified and compared characteristics of 10 F1 hybrid papayas that were obtained by crossing five cultivars selected for high yield and tolerance to *Papaya ring spot virus* (PRSV). The hybrids were tested at the Papaya Research and Development Center, Maha Sarakham Province, from January to December 2013. The results showed that hybrids No. 1 ('Yellow Krang' x 'Red Krang'), No. 2 ('Yellow Krang' x 'Khaek Dam'), No. 3 ('Yellow Krang' x 'Florida'), No. 4 ('Yellow Krang' x 'Khaek Nuan') and No. 5 ('Khaek Dam' x 'Khaek Nuan') had good yield and fruit qualities but they were more susceptible to PRSV than hybrids No. 6 ('Khaek Dam' x 'Florida'), No. 7 ('Red Krang' x 'Florida'), No. 8 ('Red Krang' x 'Khaek Nuan'), No. 9 ('Khaek Dam' x 'Florida') and No. 10 ('Florida' x 'Khaek Nuan'). Hybrid No. 2 ('Yellow Krang' x 'Khaek Dam') had the lowest tolerance to PRSV, with disease incidence of 3.56 on a

scale of 0-4. Hybrids No. 2 and No. 5 produced more fruits than the others, while hybrid No. 3 had the lowest yield with only 16 fruits/plant/year. Hybrids with 'Florida' cultivar as parent tended to have better tolerance to PRSV. (Author's abstract)

Keywords: *Carica papaya, Conventional breeding, Cultivar, Papaya ringspot virus, Papaya yield, Agriculture*

The Philippine Agricultural Scientist, Volume No. 100 Issue No. 1, 16-23
2017 March,
(Filipiniana Analytics)
Fil(S) S19 P53 100/1 2017

0141

Properties and Nutrient Status of Degraded Soils in Luzon, Philippines

Calubaquib, Michelle Ann M. , Navarrete, Ian A. , Sanchez, Pearl B.

A prerequisite to soil management, particularly in degraded soils, is a good knowledge of the characteristics and fertility status of degraded soil, which is fundamental to planning suitable soil management strategies for crop production purposes. The aim of this study was to determine the physico-chemical and mineralogical properties and fertility constraints of degraded soils in Luzon, Philippines. Ten surface soil samples were collected from 10 degraded soils representing the dominant soil series in Luzon Island. These soils were analyzed for physical, chemical and mineralogical properties. Results revealed that all soils have high clay content (except Bantay soil), which impedes cultivation. All soils were acidic, have a very low organic matter (OM), total N, available P, and low to moderately low exchangeable cations. X-ray diffraction reveals the dominance of halloysite/kaolinite, quartz and hematite in all soils. Results further revealed that all soils have fertility constraints, particularly acidic soils, low OM, low total N, and low available P. All soils contain sufficient exchangeable Ca, but low to high exchangeable K, particularly in soils of Annam, Bolinao, Bantay and Cervantes. Together, these results suggest that all soils possess physical and chemical constraints to crop production and the occurrence of constraints varies with soil type, location in the landscape, slope and parent material. The recognition of these fertility constraints is essential for the long-term planning of soil management strategies essential to sustainable utilization of these degraded soils. (Author's abstract)

Keywords: *acid soil, degraded soils, fertility constraints, mineralogy, soil series, Agriculture*

Philippine Journal of Science, Volume No. 145 Issue No. 3, 249-258
2016 September,
(Filipiniana Analytics)
Fil(S) Q1 P55 145/3 2016

0142

Puddling Performance of Different Tilling Wheel Designs of the Float-Assisted Tiller in a Laboratory Soil Bin Set-up

Fajardo, Arthur L.

The float-assisted tiller is a popular farm implement used for lowland tillage in the Philippines. Lower cost per hectare is the main advantage of using the float-assisted tiller compared with traditional plowing and harrowing. Different designs of the float-assisted tiller have been developed and are commercially available. However, only a few studies

have been published regarding float-assisted tiller design modifications and their corresponding performance evaluation.

The present study aimed to determine and compare the puddling performance of three designs (TW1, TW2 and TW3) of tilling wheel for the float-assisted tiller at different shaft speeds (200, 250 and 300 rpm). The experiments were done using a single tilling wheel in a laboratory soil bin filled with Maahas clay. Performance index was used as a measure of puddling performance.

Performance index was affected by the tilling wheel design, shaft speed, number of passes, and the combination of number of passes and shaft speed. The mean differences of performance index were not significant between TW1 and TW2. However, the mean differences of performance index between shaft speed and number of passes were all significant. Performance index was relatively higher with TW3 on the 1st pass for all shaft speeds.

The best tilling wheel design among the three is TW3 based on obtained performance index.

Further study is recommended to verify results under actual field conditions. (**Authors' abstract**)

Keywords: *Float-assisted tiller, Performance index, Tilling wheel design, Tractive efficiency, Agriculture*

The Philippine Agricultural Scientist, Volume No. 100 Issue No. 2, pages 143-149
2017 June,
(Filipiniana Analytics)
Fil(S) S19 P53 100/2 2017

0143

New QTL for Salt Tolerance at the Seedling Stage in Rice var. Hasawi Using Recombinant Inbred Lines

Pascual, Evangelina D. , Dela Viña, Celia B. , Mendiolo, Meryn S. , Hernandez, Jose E. , Amas, Junrey C. , Sajise, Andres Godwin C. , Gregorio, Glenn B.

Novel quantitative trait loci (QTL) for seedling-stage salt tolerance were determined in Hasawi variety of rice (*Oryza sativa* L.) using 384-plex single nucleotide polymorphism (SNP) markers. The F₆ recombinant inbred lines (RILs) population, which was produced from the cross IR29 x Hasawi, generated phenotypic data for seedling length and weight, biomass, shoot sodium (Na⁺) and potassium (K⁺) concentration, and Na-K ratio. Genotyping analysis resulted in a linkage map length of 1379.80 cM with an average of 8 cM interval, thereby producing a total of 17 significant QTLs. Most of the QTLs detected were for seedling vigor, specifically: two for visual salt injury (*qSES1*, *qSES4*); three for shoot length (*qSL 1*, *qSL9*, *qSL 12*); two for root fresh weight (*qRFW4.1*, *qRFW4.2*); three for root dry weight (*qRDW12*, *qRDW4.1*, *qRDW4.2*); one for reduction in root length (*qRLRED1*); two for shoot fresh weight (*qSFW4* and *qSFW12*); three for shoot dry weight (*qSDW4.1*, *qSDW4.2*, and *qSDW7*); and one for shoot sodium concentration (*qSNCI*). Two large-effect QTLs from chromosome 1 were found to be responsible for 37.6% of the phenotypic variation in visual salt-injury score and 41.1 % of the variation in shoot length. Four QTL clusters were found in this study: one in chromosome 1 for visual salt injury and shoot sodium concentration, two in chromosome 4 responsible for seedling vigor, and one in chromosome 12, contributing to vigor as well. The results suggest that Hasawi employs a different salt-tolerance mechanism since very few studies reported QTLs in chromosomes 2, 9, and 12. The single nucleotide polymorphism (SNP) markers which co-segregated with identified QTLs could be potential candidates for marker-aided breeding. (**Author's abstract**)

Keywords: *Hasawi, QTL, Rice, Salinity, Seedling stage, SNP, Agriculture*

The Philippine Agricultural Scientist, Volume No. 100 Issue No. 2, pages 200-210
2017 June,
(Filipiniana Analytics)
Fil(S) S19 P53 100/2 2017

0144

QTL Identification for Within-Boll Yield Components of *Gossypium hirsutum* L.

Allah, Sami-Ul, Naeem, Muhammad, Iqbal, Muhammad, Nazir, Wajid, Zahid, Waqas

Cotton is regarded as the organic gold of the world owing to its fiber. Increasing the yield of cotton varieties remains as the principal objective of cotton breeders. None other than within-boll yield traits may have a direct influence on the yield of cotton crop. The present study aimed to identify the quantitative trait loci (QTL) controlling these vital traits so as to speed up the cotton improvement program in Pakistan. From a total of 2365 simple sequence repeat (SSR) primers, 137 polymorphic primer pairs were found to be encompassing a distance of 2341 cM. A linkage map consisted of 121 loci with an average distance of 4.7 cM between two adjacent markers. Based on the phenotypic data on the seven traits, 14 QTLs were identified in this study on all of the chromosomes for seed cotton yield per locule, seeds per locule, seeds per boll, locule per boll, seed cotton yield per boll, lint per seed and seed volume in F₂ population depicting a phenotypic variation from 0.69% to 14.71%. It is concluded that this study may prove to be a milestone in the cotton breeding program after confirmation of linked markers. Utilization of identified QTLs with the help of molecular markers in marker-assisted cotton breeding may enhance the yield potential of developing cotton varieties by unraveling the genetic mechanism of these traits. (**Author's abstract**)

Keywords: *Cotton, QTLs, SSR, Within-boll yield components, Agriculture*

The Philippine Agricultural Scientist, Volume No. 100 Issue No. 3, 287-295
2017 Septembner,
(Filipiniana Analytics)
Fil(S) S19 P53 100/3 2017

0145

Radiotracer studies on pesticide residues in plants at the national crop protection center university of the Philippines at los banos laguna

Magallona, E.D., Tejada, A.W, Calumpang, S.M.F, Barredo,

The chemodynamics of 14 C-carbosulfan and 14 C-isoproc carb in a rice paddy ecosystem was studied. the major metebolite formed from carbosulfan was carbofuran (CF) Residue levels of CF reached a peak at 72 hr after carbosufan (CS) application. After 72 hr, the radioactivity was distributed as follows soil: Water ,plant, fish, air. 14 C-isoproc carb exhibited systemic activity in rice plants with the greatest concentration in the stems and least in grains. Kangkong (Ipomoea aquatica) plants absorbed and stored isoproc carb better than rice. Radioactivity was also found in T. nilotica fingerlings and snails . 14-C-isoproc carb and its metabolites bound in soil were utilized by ssecondayb

Keywords: *Radiolabelled insecticides, insecticides residues , Environmental Contamination , Agriculture*

Reaction of some cassava accessions to red spider mite (*Tetranychus kanzawai* Kishida) infestation

Bernardo, Emiliana N., Esguerra, Nel

A satisfactory technique for evaluating cassava reactions/varieties for resistance to the Red spider mites in the field or screenhouse was developed. Of the 295 entries tested, 50 showed varying levels of tolerance to the pest when tested in field. At a much higher mite population in the screenhouse, however, practically all the accessions showed lower levels tolerance although leaves of the more tolerant accessions 17,29,33,48 and 49 were still green when the susceptible checks began to get defoliated. Differences in tolerance levels were most evident 3 weeks after artificially infesting each plant with 20 reproducing adult mites. Significant antibiotic effects of the resistant hosts in the pest were not detected.

Keywords: *Red spider mite, Tetranychus kanzawai, Cassava accessions, Agriculture*

Reactions of sugar cane varieties to Philippine isolate of *Colletotrichum Falcatum* went

Ahmed, Hamiz

the pathogenicity of 13 Philippine isolate of *Colletotrichum falcatum* was tested on 28 varieties of sugar cane both in the laboratory and in the field. The plug method of inoculation was used. Isolate A-1 was more virulent than the rest. The sugar cane varieties tested were more susceptible in the laboratory than in the field. CAC 57-13, PHIL 54-60 and CP 36-105 were resistant to all the isolates of the fungus, while CAC 57-60 PHIL 56-60 PHIL 53-3, CO 453 and PR 980 were resistant only to most of the isolates. The other cane varieties tested were moderately susceptible. None was found immuned to attack by the causal fungus.

Keywords: *Colletotrichum falcatum, Pathogenicity, Philippine isolates, Sugarcane, Agriculture*

First record of *Eoctenes kirkaldy* in Southern Luzon, (hemiptera: polycytenidae), with key to the cimicoidea ectoparasitic on bats in the Philippines

Yap, Sheryl A. , Amarga, Ace Ke

Polycytenidae Westwood, also known as bat bugs, is a haematophagous group of hemipterans exclusively ectoparasitic on bats and is closely related to Cimicidae Latreille (bed bugs). Worldwide, it is represented of 2 subfamilies, 5 genera, and 32 species. These bugs are dorsoventrally flattened with conspicuous ctenidia on, apterous, anophthalmus, possess well-developed legs, and reproduce via adenotrophic viviparity. They are rare compared to other insect taxa ectoparasitic on bats as evinced by a relatively small number of museum collections and described taxa. Polycytenid bugs in the Philippines is only represented by two species from the genus *Eoctenes* Kirkaldy: *E. spasmae* (Waterhouse) and *E. intermedius* (Speiser). The first Philippine record for the genus is reported in 1961 from Northern Luzon. This paper presents the first record of *Eoctenes* in Southern Luzon, with key to the Cimicoidea ectoparasitic on bats in the Philippines. **(Author's abstract)**

Keywords: *Cimicoidea, Eoctenes, New record, Polycytenidae, Southern Luzon, Agriculture*

Transactions of the National Academy of Science and Technology, Volume No. 39 Issue No. 1, 11
2017 July,
(Filipiniana Analytics)
NP

0149

Recovery patterns after rewatering of water atressed sunflower (*Helianthus anuus* L. 0 plants

Miah, M.A.S., Smith, A.R., Hal

Recovery patterns of sunflower plants upon relief of water stress were examined. Sunflower plants were grown in the glasshouse and approximately 30-day old plants were exposed to water stress by withholding water supply for a period 3,5,7, and (days. At the ead of each stress period, rewatering was done and recovery patterns with respect to the shoot fresh and dry weigh, internode production, stem elongation, shoot water content, Leaf water potential, Leaf area, and stomatal; conductance, were investigated up to 21 days of rewatering. Water stress is relieved provided that the stress [period was not too severe or prolonged. length of recovery period after rewatering was found to be dependent on the degree of severity of stress. Length of recovery period increased as the severity of stress was increased.

Keywords: *Sunflower, Plants, Helianthus anuus, Agriculture*

The Philippine Agriculturist, Volume No. 71 Issue No. 1, pages 2130
1988,
(Filipiniana Analytics)
Fil S19 P53 71/1

0150

A regression study of percent organic carbon as a soil profile depth function

Philipson, W.R., Layese, M. F., Dertin

In an investigation of the extent to which similar soil exhibit similar profile distributions of organic carbon the mean depth (D) and organic carbon contents (OC) of 45 horizons, from six soil profiles representing six series of the suborder Usterts were applied to the following regression models: (1) $OC = a + bD$, (2) $\log OC = a + b'D$, and (3) $OC = a'' + b'' \log D$; where a, a', and a'' are the unknown intercepts, and b, b', and b'' the unknown slopes of the respective equations. Comparison of the best-fit equations indicate that different pedons within the same series exhibit similar patterns of organic carbon distributions. The results suggest that: (1) profile distributions of organic carbon could provide one additional criterion for soil correlation, and (2) organic carbon in series profiles could be reliably predicted by regression equations, characteristics of the series, with depth as the only independent variable.

Keywords: *Agromic, Soil Fertility, Soil, Organic Carbon, Agriculture*

The Philippine Agriculturist, Volume No. 16 Issue No. 1-2, 206-215
1972,
(Filipiniana Analytics)
Fil S19 P53 56/1-2

0151

**Relationship of Surrogate Vitellogenin with Selected Reproduction Parameters in
Philippine Mallard (*Anas platyrhynchos domesticus* L.)**
Monleon, Arnolfo M. , Vega, Renato SA , Lambio, Angel L.

The vitellogenin (Vtg) profile is hypothesized as a nonlethal physiological index of reproductive state in Philippine mallard (*Anas platyrhynchos domesticus* Linn.). The circulating total serum zinc as surrogate Vtg at pre-lay period (17 to 22 week old) and sexual maturity (or age at first egg lay with mean±SD of 22.14±0.22 week old) were determined from blood sera of 340 ducks. The sera were assayed for Vtg zinc in duplicate using 96-well microplate and read the optical density at 415nm in a microplate reader (Model 680, S/N 123669). The total serum zinc concentration of the sample was calculated using the nonlinear regression formula $\Delta OD = a \times [Zn^{2+}] / b + [Zn^{2+}]$ and used in evaluating relationships with body weight, liver weight and selected reproductive parameters, namely: ovary and oviduct weights (in wet basis), and gonadosomatic and oviductosomatic indices. Results show that the circulating Vtg follows nonlinearity indicating independence in Vtg production with respect to the age but the surge was prominent at onset of sexual maturity. This finding conforms to the demand for Vtg of developing ovarian follicles necessary for yolk development and maturation. This shows that the circulating Vtg follows a dynamic pattern common in all egg-laying (oviparous) species depending on biochemical, physiological, and metabolic requirements and utilization. (**Author's abstract**)

Keywords: *Anas platyrhynchos domesticus* L., anatomical parameters, Philippine mallard, vitellogenin, zinc assay, Agriculture

Philippine Journal of Science, Volume No. 145 Issue No. 2, 175-180
2016 June,
(Filipiniana Analytics)
Fil(S) Q1 P55 145/2 2016

0152

Relative proportions and economic values of the different wholesale and retail cuts of beefs
Arganosa, V. G, dagdagan, N. M, Aglibut, F. B, Madamb

Twenty grade Batangas cattle were used in this study to find out the relative proportions and economic values of the different wholesale and retail cuts of beef. The wholesale and retail cuts from the left and right sides of the carcass were determined. The yields percentage yield of every wholesale and retail cut the total values were given. The club, T-bone, Porterhouse, and round steaks were the most expensive cuts. The beef stew and round steak were the two heaviest of all retail cuts. The weights of all wholesale cuts from the left side were similar to those from the right side except the flank. Significantly heavier chuck roast and brisket stew the left carcass. The intraclass correlation coefficients between the wholesale and retail cuts from the left and right side were also given

Keywords: *Beefs, Cattle, Meat, Agriculture*

The Philippine Agriculturist, Volume No. 16 Issue No. 1-2, 35-43
1972,
(Filipiniana Analytics)
Fil S19 P53 56/1-2

0153

Response of wild and edible *Musa* spp. seedlings to limiting moisture stress

Delfin, Evelyn F., Ocampo, Eureka Teresa M., dela Cueva, Fe M., Damasco, Olivia P., de la Cruz, Felipe, Dinglasan, Eric G., Gueco, Lavernee S., Herradura, Lorna E., Molina, Agustin B.

Banana, one of the world's leading crops is predicted to be highly vulnerable to drought conditions brought about by climate change. Identification of drought tolerant cultivars is one of the long term strategies of addressing the effect of climate change. The National Plant Genetic Resources Laboratory and the Bureau of Plant Industry of the Philippine Department of Agriculture maintain germplasm collections of edible and wild *Musa* spp. from the Philippines, Southeast Asia and Papua New Guinea (SEA/PNG) that have not been assessed for drought tolerance. Thus, this study was conducted to assess the drought response of 29 *Musa* genotypes from the germplasm collections at seedling stage under greenhouse condition. Drought was imposed on 3 mo-old tissue culture-derived seedlings by withholding water for 2-3 wk, while control plants were watered regularly. Under drought condition, the genotypes differed significantly in terms of plant growth, number of leaf cigars formed, specific leaf area, biomass production and partitioning as well as water use efficiency across water treatment. Only 28% of the banana genotypes allocated more biomass to the roots. Total leaf area production was influenced by significant interaction between water treatment and genotype. Significant genotypic differences in terms of relative leaf folding (RLF) and stomatal conductance were observed, with increased RLF as soil moisture content decreased. Stomatal conductances were significantly affected by the interaction between genotype and time of sampling. The genotypes also differed significantly in their water use efficiency (WUE) with increases ranging 1-70% under drought. WUE was found to be positively correlated with total plant dry weight, root volume, root dry weight and relative leaf folding. Based on the relative performance under drought cultivar, 'Gubao' (BBB) is the most drought tolerant based on total biomass production, root dry weight, root volume and WUE followed by 'P.K. Malaccacina' and 'Tindok'. **(Author's abstract)**

Keywords: *Drought, Musa spp, Musa balbisiana, Stomata! conductance, Relative leaf folding, Water use efficiency, Agriculture*

Philippine Journal of Crop Science (PJCS), Volume No. 41 Issue No. 3, 1-12
2016 December,
(Filipiniana Analytics)
Fil(S) SB189 P5 41/3 2016

0154

Rodents of the Philippine croplands
Barbehenn, Kyle R., Sumangil, Jesus P., Libay, Justini

Rats have caused serious crops losses in the Philippines for many years. However the taxonomic identity of the common pest species has been a source of confusion and only limited data on the nationwide distribution of real and potential pest species have been available. To help fill this gap in our knowledge, field collections of rodents were made throughout the Philippines from January, 1969 through May, 1971 with major efforts aimed at areas of lowland rice and other agricultural situations. The major pest species are *Rattus rattus mindanensis*, *R. argentiventer*, *R. exulans*, and *R. norvegicus*. All four species have been observed to inhabit rice fields apparently as self-sustaining populations, but usually only one species predominates in any particular situation. Little is known of the competitive relationships among Philippine rats, but such interactions are presumed to be very important in determining the relative abundance and distribution. Records are reported—the most noteworthy being the occurrence of *R. latipes*, *R. (Tryphomys) adustus*, *R. argentiventer* and *Chrotomys whiteheadi* in the lowlands of Luzon. Destruction of major forest habitats will probably hasten the extinction of some rarer rodent species and increase the area occupied by the high densities of pest species.

Keywords: *Rats, Pest, Rattus rattus mindanensis, argentiventer, exulans, norvegicus, Agriculture*

The Philippine Agriculturist, Volume No. 16 Issue No. 1-2, 217-242
1972,
(Filipiniana Analytics)
Fil S19 P53 56/1-2

0155

Role of green manure in low-input farming in the humid tropics
van der Hei

Field experiments under humid tropical conditions in southeastern Nigeria for several years studied N. requirement and utilization of upland cropping systems, with and without legumes and with low-input management on acid, low-activity clay soils. Total N utilization over several cropping systems was assessed. Quantities of N removed from the soil and left behind as crop residues after harvest and residual effects on N fertilizers and legumes included in the cropping systems were determined.

Keywords: *Green manure crops, Green manuring, Agriculture*

Green Manure in Rice Farming, Volume No. Issue No. , pages 185-191
1988,
(Filipiniana Analytics)
Fil(B) SB191 R518 1988

0156

Screening and evaluation of tolerance to complete submergence in a diverse panel of rice
(*Oryza sativa* L.)

Ismail, Abdelbagi, Ella, Evangelina S., Entila, Frederickson D., Myrish A. P

This study was carried out to screen a panel of 311 accessions of rice for submergence tolerance to flooding stress and identify possible donors among the rice sub-populations included in the panel. The experimental design was randomized complete block design with two replicates each for non-flooded and flooded conditions. Fourteen-day-old seedlings were submerged in the submergence plot. The water depth was maintained for a period of 12 days by adding water regularly. Observations for survival, shoot and root length, dry weight, and percent chlorophyll were recorded before and after submergence. Accessions from the Indica, Aus and Temperate Japonica sub-populations showed approximately 40% survival while the Admix, Tropical Japonica and Aromatic subpopulations showed much lower (0-5%) survival. Slight increase in shoot dry weight and root dry weight were observed for all sub-populations but found to be higher in Aus and Temperate Japonica. In addition, all sub-populations exhibited extreme drop of photosynthetic pigments during complete submergence. Increased root growth during complete submergence were found to be prominent in Aus, Indica and Temperate Japonica. No significant correlation was observed between seedling survival and shoot elongation since survival results leaned towards sensitivity. However, low but significant correlation was observed between survival and photosynthetic pigments while both seedling vigor and photosynthetic pigments showed good association with root traits. Varieties which exhibited good tolerance to submergence stress were considered for further studies such as identifying alleles for use in marker-assisted breeding. **(Author's abstract)**

Keywords: Complete submergence, Tolerance, Marker-assisted breeding, Alleles, Agriculture

Transactions of the National Academy of Science and Technology, Volume No. 39 Issue No. 1, 44
2017 July,
(Filipiniana Analytics)
NP

0157

Seed mutation breeding of pineapple using ethyl methanesulfonate (EMS)

Lorenzo, Jen Charmaine , Canamal, Alma , Canicosa, John Eric , Galvez, Hayde , Valencia, Lolita, Mercado, Sheila

Pineapple (*Ananas comosus* L.) is one of the few crops in which most cultivars are produced from spontaneous mutations and natural evolution. Mutation-assisted breeding techniques using ethyl methanesulfonate (EMS) is one way of generating a variety of mutants. Therefore, the experiment was undertaken to induce point mutation in pineapple shoots using seed EMS mutagenesis. Mutation experiment was conducted at the Institute of Plant Breeding, UPLB using Smooth Cayenne and the Queen variety. The two varieties were crossed and the seeds produced were treated with six (6) concentrations of EMS (0.25, 0.50, 0.75, 1.00, 1.25 and 1.50%). The materials were evaluated using IPGRI descriptor for pineapple for five (5) qualitative traits: plant habit, foliage attitude, leaf color, spine distribution and spine color; and two (2) quantitative traits: plant height and number of leaves. Phenotypic diversity was determined by calculating the Shannon Weaver diversity index (H). Among the treatments, 0.75% EMS showed the highest diversity for the seven (7) evaluated traits with H=0.84 and 0.25%EMS treatment having the least diversity (H=0.64). The average range of diversity of the materials is from 0.64 - 0.84 and an overall mean of 0.73 ± 0.06 indicating a high genetic diversity. This range of diversity can be exploited a good source of possible novel genetic mutation. With the publication of the pineapple database, primers can be designed to screen targeted genes for induced point mutations. **(Author's abstract)**

Keywords: Pineapple, Mutation breeding, Ethyl methanesulphonate (EMS), Shannon Weaver diversity index , Agriculture

Transactions of the National Academy of Science and Technology, Volume No. 39 Issue No. 1, 37
2017 July,
(Filipiniana Analytics)

Spatial distribution of lanzones mussel scale, *Unaspis mabilis* lit & barbecho (hemiptera: diaspidae) in Calabarzon, Luzon, Philippines

Gregorio, April Kim Mark C. , Madela, Ma. Anna , Recuenco, Monalisa O. , Adorada, Jessamyn R. , Adorada, J

A study was conducted to determine the spatial distribution of lanzones mussel scales, *Unaspis mabilis* Lit & Barbecho in Cavite, Laguna, Batangas, Rizal and Quezon provinces (CALABARZON). Results revealed that lanzones mussel scales are cosmopolitan in the CALABARZON area, predominantly in the lanzones producing areas in Laguna. However, the highest infestation rate was observed in Batangas province. The lanzones mussel scales are sporadically recurring every year at different levels of infestation depending on a number of environmental factors such as season, rainfall, presence of natural enemies, cropping system, etc. Nevertheless, the pest population and levels of infestation decreases on the onset of rainy season after leaf shedding and this was validated regionwide. **(Author's abstract)**

Keywords: *Spatial distribution, Mussel scale, Unaspis mabilis, Calabarzon, Agriculture*

Transactions of the National Academy of Science and Technology, Volume No. 39 Issue No. 1, 20
2017 July,
(Filipiniana Analytics)
NP

Spent Tea Leaves as Extender and Scavenger for Urea Formaldehyde-Bonded Plywood

Lapuz, Rebecca B. , Mari, Erlinda L., Jimenez, Jr., Juanito

In lieu of wheat flour, spent tea leaves (STL) from the manufacture of tea-flavored drink was mixed with urea formaldehyde (UF) resin to produce an adhesive for 5-mm-thick plywood. Three glue mixes (GM1, GM2, and GM3) were formulated using three STL levels (3.4%, 6.8%, 10.2% by mass). GM1 had no catalyst and coconut shell flour/filler; GM2 had no catalyst but had a filler; while GM3 had a catalyst but no filler. The glue manufacturer's recommended formulation was used for making the control plywood. All glue mixes were formulated with the same total resin solids. The effect of the STL on the various glue mixes was evaluated in terms of the plywood's shear strength & wood failure (PNS ISO 12466-1:2016 & PNS ISO 12466-2:2016), and formaldehyde emission (PNS ISO 12460-4:2016). Results indicated that GM3, or complete replacement of wheat flour and coconut shell flour with STL both as extender and filler in the plywood glue mix, was the best formulation. It did not adversely affect the panel's strength properties. Moreover, formaldehyde emission was significantly reduced by 36 to 60%. **(Author's abstract)**

Keywords: *Extender, Formaldehyde emission, Plywood, Shear strength, Spent tea leaves, Agriculture*

Philippine Journal of Science, Volume No. 147 Issue No. 2, 285-291
2018 June,
(Filipiniana Analytics)
NP

SSR-based genetic relationship in eggplant (*Solanum melongena*) genotypes with varying morphological response to drought

Saracanlao, Rachel Jellan R. , Ocampo, Eureka Teresa M. , Canama, Alma O. , Manaday, Sarah Jane B. , Maghirang, Rodel G. , Delfin, Evelyn F.

This study assessed the genetic diversity among selected eggplant accessions with different drought responses using simple sequence repeat (SSR) markers. Twenty eggplant accessions from Turkey, China, India, Laos, Taiwan, Africa and different provinces of the Philippines were analyzed for genetic diversity. The selections include 15 *Solanum melongena* and 5 genotypes from 4 *Solanum* species (*S. ferox*, *S. linociera*, *S. parkinsonii* and *S. nodiflorum*). Eighteen polymorphic SSR markers were used to establish the genetic relationship among the 20 eggplant accessions. The selected 18 polymorphic SSR primers amplified 46 alleles with the number of alleles per primer ranging 2-4 and had an average of 2.6 alleles per primer. Null alleles were also detected in 5 SSR markers.

The genetic relationship among 20 eggplant accessions was established based on UPGMA clustering. The dendrogram scale varied from 0.14 to 0.95 with a mean similarity of 0.54. At 0.70 similarity coefficient, *S. melongena* accessions mainly clustered together. The rest of the *Solanum* species (*S. ferox*, *S. linociera*, *S. parkinsonii* and *S. nodiflorum*) formed distinct single groups except for *S. linociera*, SL TS. The highest similarity of 0.95 was obtained between *S. melongena* accessions while the least similarity was observed between *S. nodiflorum* and the rest of the eggplant accessions used. The grouping of commercial varieties with other landraces indicates that the commercial varieties used were similar to the landraces and that the commercial varieties were bred from local materials. Cluster analysis did not distinctly separate the 20 accessions based on drought response. However, the results of the present study can be used in the selection of candidate eggplant accessions for the development of eggplant varieties for drought tolerance. **(Authors' abstract)**

Keywords: *Eggplant, SSR markers, Drought, Genetic relationship, Agriculture*

Philippine Journal of Crop Science (PJCS), Volume No. 41 Issue No. 3, 57-64
2016 December,
(Filipiniana Analytics)
Fil(S) SB189 P5 41/3 2016

Steinernema longicaudum, an entomopathogenic nematode species collected in pummelo orchards, Davao Region

Stock, Patricia , Ubaub,

Davao Region is the largest pummelo-producing area in the country. Like other tropical fruits pummelo is infested with several insect pests which consequently leads to the use of synthetic chemicals since it is the easiest to apply, most efficient, and cheapest among the control available. The increasing public awareness to the importance of food safety and the initiative of the Philippine government through the Republic Act 10068 known as Organic Act of 2010, calls for an alternative control measures which are environment-friendly and pose lower risks to human and animals. One of the potential alternative control measures is the use of soil-dwelling

Entomopathogenic Nematodes (EPNs). To establish the presence and identify the species of EPNs present in the region, soil collections were done in 10 pummelo orchards in Davao Region. EPNs were extracted from the soil using the insect-baiting technique. Dead larvae were retrieved from the soil and transferred to a white trap to collect the infective juveniles (Us) of the nematodes. Out of 10, only two sampling areas where EPNs were extracted. Isolates were subjected to molecular identification using 28s and ITS rDNA sequence data. Both isolates were identified as *Steinernema longicaudum*. **(Author's abstract)**

Keywords: *Entomopathogenic nematodes, Pummelo, Steinernema longicaudum, Agriculture*

Transactions of the National Academy of Science and Technology, Volume No. 39 Issue No. 1, 14
2017 July,
(Filipiniana Analytics)
NP

0162

Stem-nodulating legumes as green manure for rice in West Africa

Rinaudo, G., Alazard, D., Moudiong

In West Africa, the stem-nodulating legumes *Sesbania rostrata* and *Aeschynomene afraspera* generally behave as wild annual plants in periodically flooded soils. They are particularly sensitive to photoperiod and temperature; at the latitude of Senegal (15 N), they grow well during the rainy season (Jun-Sep). *S. rostrata* and *A. afraspera* are fast-growing and fix N₂ more actively than most rooting-nodulating legumes. Stem nodules are less affected than root nodules result from the infection of predetermined sites with specific strains of *Rhizobium*. In nature, when soils already harbor native stem strains, nodules appear on the lower parts of the stems; however, their distribution is often irregular. Stem inoculation is generally recommended to optimize N₂ fixation. When used as green manure at the beginning of the rainy season, *S. rostrata* and *A. afraspera* can provide more than 100kg N/ha to a rice crop, resulting in significant yield increases. *S. rostrata* also acts as a plant trap for the pathogenic nematodes *Hirschmanniella oryzae* and *H. spinicaudata*, the prevalent species in flooded ricefields in West Africa.

Keywords: *Green manure crops, Green manuring, Agriculture*

Green Manure in Rice Farming, Volume No. Issue No. , pages 97-129
1988,
(Filipiniana Analytics)
Fil(B) SB191 R518 1988

0163

The Study of Quantitative Traits with Different Statistical Parameters in Registered Inbred Rice (*Oryza sativa* L.)

Cantila, Aldrin Y. , Abdula, Sailila E. , Candalia, Haziel Jane C.

The primary quantitative trait grain yield (GY) and secondary traits *viz.*, days to maturity (DM), number of productive tillers (NPT), plant height (PH), panicle weight (PW), spikelet fertility (SF), spikelet number per panicle (SNP), and thousand seed weight (TSW) of 18 Philippine registered inbred rice were studied using different statistical parameters *viz.*, correlation analysis, genotypic and phenotypic coefficient of variability (GCV and PCV), broad sense heritability (H²b), and genetic advance (GA). There was a significant, positive, and strong correlation between DM and PH, PW and SNP, PW and GY, and SNP and GY. GCV showed moderate variability in PW with 11.94% and NPT with

10.55%. PCV also showed moderate variability in NPT with 17.23%, GY with 14.3%, PW with 13.89% and SNP with 12.67%. All traits except for PW and SNP in GCV and traits except for NPT, GY, PW, and SNP in PCV showed low variability. H^2b too had PH with 79.26%, PW with 73.91%, and SNP with 60.39% as high heritability while GA expressed to the mean (GAM) had PW with 21.14% as high genetic gain. The study found out that PW and SNP had positive and strong association to GY, but only PW had consistent and considerable amount of genotypic and phenotypic variations. Furthermore, high H^2b along with high GAM was only obtained in PW. Therefore, the different statistical parameters were in congruent with the implication that higher grain yield can be achieved by attaining genotypic selection in PW. (**Author's abstract**)

Keywords: *genetic advance, heritability, quantitative, secondary traits, yield, Agriculture*

Philippine Journal of Science, Volume No. 146 Issue No. 4, 387-393
2017 December,
(Filipiniana Analytics)
Fil(S) Q1 P55 146/4 2017

0164

Suitability Assessment of Bantog Soil Series for Potential Enhancement of Rice-Based Cropping Systems

Canete, Sandro D. , Collado, Wilfredo B. , Badayos, Rodrigo B. , Sanchez, Pearl B. , Sta. Cruz, Pompe C.

Land evaluation was carried out on both irrigated and irrigation-supplemented rainfed lowlands of Bantog soil series using the Food and Agriculture (FAO) land suitability framework. This system was able to describe the land qualities of the land units, define important production constraints relative to its characteristics or properties, and suggest corresponding interventions for optimum and sustainable crop production. Suitability analysis disclosed that Bantog series is highly suitable to rice production. Relatively, both land units were limited by low to moderate level of organic carbon, low nitrogen, phosphorus, and potassium except for the high phosphorus level in the irrigation-supplemented rainfed lowland. Such constraints on soil nutrient status can be addressed using the Quantitative Evaluation of the Fertility of Tropical Soils (QUEFTS) model for irrigated rice. Other crops showed moderate to high suitability on both land units. Alternative farming options such as crop rotation, relay cropping, and multiple cropping while infusing interventions associated with moderate drainage, low organic carbon, soil cracking, and marginal to moderate texture are recommended as it translate into a more profitable and sustainable farming. Moreover, information on crops' fitness in Bantog series has of practical importance in selecting the type of crops to grow as well as in the planning of cropping system suited for the properties of the land unit. Besides, agro-technology transfer can be smoothly implemented since soils of the same series most likely assume similar limitations and management interventions. (**Author's abstract**)

Keywords: *agro-technology transfer, Bantog soil series, production constraints, land evaluation, land units, suitability analysis, Agriculture*

Philippine Journal of Science, Volume No. 145 Issue No. 3, 237-247
2016 September,
(Filipiniana Analytics)
Fil(S) Q1 P55 145/3 2016

0165

Technology and quality of gouda-type semihard cheese from local buffalo's milk

Davide, C.L., Peralta C.L., Fuentes C.A, Sarmag

an appropriate technology for the manufacture of semihard Gouda-Type cheese from local milk has been developed. Buffaloes milk normally gives a pale of straw-colored Gouda cheese but can be made to resemble the normally yellow cow Gouda by the addition of anatto cheese color to the milk Also, being significantly richer in composition, particularly protein and fat than cows milk, its cheese requires a longer ripening period in order to develop its characteristics Gouda flavor. Compared to the cow Gouda which develops in characteristics qualities, Although slightly lower after a longer ripening of 4 months. Standardizing the high-fat buffalo milk to 3% fat produces a slightly inferior cheese devoid of the pleasant mouth-feel hence its lower consumer acceptability than whole buffalo Gouda cheese The new technology therefore recommends the utilization of whole buffalo's milk added with annatto cheese color and a cheese ripening of at least 4 months in the manufacture of highly and nutrition gouda-type cheese.

Keywords: *Buffalo's Milk, Gouda cheese, Streptococcus , Agriculture*

The Philippine Agriculturist, Volume No. 71 Issue No. 1, 46-56
1988,
(Filipiniana Analytics)
Fil S19 P53 71/1

0166

Tolerance of Three Isolates of *Helminthosporium Maydis* Nisikado and Miyake to Four Fungicides

Raymundo, S.A., Exconde

The sensitivity, tolerance and adaptation of 3 monosporial isolates of *Helminthosporium maydis* to Parzate, Dithane M-22, Dexon 70 and Arasan 75 were determined using potato sucrose agar and potato sucrose solution as media. The tolerance of all the isolates to the fungicides in solid medium was higher than in liquid medium. Adaptation of all isolates to the other fungicides was at a lesser degree compared to Parzate. Except Dexon 70, adaptation was greater in solid than in liquid medium. Acquired tolerance of all isolates to dexon 70 when sub-cultured in progressively increased concentrations of the fungicides was not lost after 3 series of transfer to fungicide-free medium. Tolerance to the other fungicides was lost except Parzate where the Laguna isolate retained its capacity to grow in 750 ppm of this fungicide after 3 series of transfer to fungicide-free medium Cultural characteristics of all isolates adapted to Parzate and Dexon 70 were markedly modified. When adapted to Arasan 75, growth of all the isolates always started from the edge of the medium in contact with the flask wall. Dexon 70 completely inhibited sporulation of all isolates in both media while Parzate produced the same effect in liquid medium. Some conidia of Ilocos Norte isolate adapted to 750 ppm Parzate showed constriction of the conidial wall and obscured conidial outline.

Keywords: *Tolerance, Fungicides, Helminthosporium, Agriculture*

The Philippine Agriculturist, Volume No. 58 Issue No. 1/2, 1-16
1974,
(Filipiniana Analytics)
FIL S19 P53

0167

Transformation of green manure nitrogen in lowland rice soils

Nagaraj

In lowland rice soils, green manure N undergoes transformation nitrogen and is rapidly partitioned to exchangeable and soil solution. Increase in exchangeable and soil solution after green manure application have been used as measures of N released. In laboratory and greenhouse studies, concentration in soils after green manure incorporation increased rapidly, then tended to level off; in a few instances, a decline in concentration followed the initial increase, possibly because of losses.

Keywords: *Green manuring, Green manure crops, Agriculture*

Green Manure in Rice Farming, Volume No. Issue No. , pages 193-208
1988,
(Filipiniana Analytics)
Fil(B) SB191 R518 1988

0168

Untying the genetic variability of *Peronosclerospora philippinensis* (W. Weston) C.G. shaw from different locations using species specific primers for improving corn populations

Tumolva, Jamie Ann B. , Garcia, Morris O. , Pascual, Cecilia B. , Pinili, Mar

Downy mildew (DM) caused by *Peronosclerospora philippinensis* is one of the most devastating diseases of corn attacking the host plant from seedling to mid-vegetative stage which can limit farmers yield for up to 80 - 100%. Still after the discovery of metalaxyl, no other control measures were effective in managing the disease. The economic and environmentally viable measure to suppress the disease is through breeding for resistance to DM. In this study a collection of corn germplasm were evaluated for resistance to DM and DM - infected samples either treated or non-treated with metalaxyl from different locations were analyzed for genetic variability using newly-designed primers MSPinITS I F /R obtained from the internal transcribed region (ITS) 1 and CBPMisc28s FIR from the 28S region. Among the populations evaluated, UPLB Cn N 15 with 18% disease incidence (DI), UPLB Cn N33 with 25.5% DI and UPLB Cn NI 7 with 27.0% DI that showed resistance to DM were continuously breed to improve the population. The primer pairs were found specific for *P philippinensis* and *P miscanthi* and reliable based on their gene sequences (KX252750 - KX252763; KX683373 - KX683376), % identity from other *Peronosclerospora* (88.6% - 94.3%), and unraveled the possible genetic diversity with 89.1 to 96.1 % nucleotide sequence identity among isolates that would partly explain the various reaction of corn varieties planted on different locations, and can be used for monitoring possible spread of DM across borders that may pose risk to the exchange of germplasm. (Author's abstract)

Keywords: *Downy mildew, Peronosclerospora,, Corn, Resistance, Primers, Agriculture*

Transactions of the National Academy of Science and Technology, Volume No. 39 Issue No. 1, 50
2017 July,
(Filipiniana Analytics)
NP

0169

The use of ipil-ipil (*Leucaena leucocephala*) in the diets of laying chickens and laying quail

Vohra, Pran, Herrick, R.B, Wilson. W.O, Siope

A dietary level of 20% ipil-ipil caused no depression in body weight or a regression in gonadal weight of coturnix. This level may reduce egg production of chickens under certain conditions without significantly.

Keywords: *Ipil-ipil, Coturnix, Leucaena leucocephala, Agriculture*

The Philippine Agriculturist, Volume No. 16 Issue No. 1-2, 104-113
1972,
(Filipiniana Analytics)
Fil S19 P53 56/1-2

0170

Validation of loop-mediated isothermal amplification technology (lamp) using ELISA for the detection of fumonisin in ear-rot infected corn caused by *Fusarium verticillioides*

Pascual, Cecilia B. , Ocampo, Eureka Teresa M. , Tumolva, Jamie

Fusarium verticillioides is a fungal species causing Fusarium ear rot that affects both pre-harvest and postharvest com. *F. verticillioides* produces a family of mycotoxins, the fumonisins, that have been reported to cause fatal diseases in animals and humans. This study aimed to compare and validate the color detection of fumonisin gene by LAMP technology with ELISA that measures the fumonisin produced from the expressed gene.

Fumonisin-producing isolate of *F. verticillioides* was cultured and inoculated at varied concentration on healthy kernels. Different severity of Fusarium ear-rot (FER) infection was observed using different amounts of inoculum. Kernel samples with different levels of FER infection were used in a fumonisin-ELISA kit to quantify fumonisin production. The DNA from same samples were also extracted and used in an optimized LAMP reaction for fumonisin gene amplification. Prior to amplification by LAMP, hydroxynaphthol blue was added to facilitate visual detection. Optimized isothermal condition was at 65° for 60 mins.

Severity of FER infection was correlated with the level of fumonisin. Amplified DNA from samples with high fumonisin level, as measured by ELISA, showed sky blue color reaction to LAMP wherein relatively darker blue indicated moderate infection/ fumonisin production and dark violet for absence of fumonisin. From these results, the LAMP portable molecular detection kit was verified, and is recommended as faster, easier and more cost effective compared to PCR-based and serological assays for fumonisin detection in the field and in postharvest facilities. **(Authors' abstract)**

Keywords: *LAMP, Fumonisin, Fusarium ear rot, Corn, Agriculture*

Transactions of the National Academy of Science and Technology, Volume No. 39 Issue No. 1, 15
2017 July,
(Filipiniana Analytics)
NP

0171

Variations in phytochemical constituents and antioxidant activity of selected Philippine native corn varieties (*Zea mays* L.)

Salazar, Artemio M. , Ocampo, Eureka Teresa M. , Bautista, Feli

Native corn is an important staple for human food and animal feed in the Philippines; however the diversity and nutritional value among these native corn in terms of phytochemical content and antioxidant activity in the crop has not been investigated. Thus, the phytochemical constituents (total phenols, flavonoids and carotenoids) and 2,2-diphenyl-1-picrylhydrazyl (DPPH) radical scavenging activity were determined in mature dried kernels of 46 Philippine native com varieties collected around the country. Diversity analysis based on these antioxidant properties revealed significant variations among the native corn. The collection of was characterized to have, for every gram of dried com kernel, means for DPPH radical scavenging activity of 0.64 %, phenolic content of 1.65 μg gallic acid equivalents, flavonoid content of 1.87 μg catechin equivalents and carotenoid content of 0.17 μg . Only the phenolic content was found to be significantly correlated with the antioxidant activity ($r=0.243, p<0.05$). The UPGMA cluster analysis based on antioxidant activity-phytochemical content and as supported by principal component analysis, revealed six distinct groupings among the native com varieties. The data obtained can aid in breeding programs for the improvement native com varieties with enriched phytochemical compounds and high antioxidant activities. (**Author's abstract**)

Keywords: DPPH, Phenolic, Flavonoid, Carotenoid, Native com, Agriculture

Transactions of the National Academy of Science and Technology, Volume No. 39 Issue No. 1, 27
2017 July,
(Filipiniana Analytics)
NP

0172

Vegetative Propagation of Stevia (*Stevia rebaudiana* Bertoni Hemsl) Using Stem Tip Cuttings in Different Growing Media

Ogao-Ogao, Ryan Jay A. , Nitural, Pedrito S. , Claveria, Florencia G.

The study was intended to teach students the essence of recycling farm wastes to support the cultivation of valuable crops like stevia (*Stevia rebaudiana* Bertoni Hemsl). The study was undertaken to evaluate different combinations of growing media in the asexual propagation of stevia, specifically on the rooting and survival of stem tip cuttings, and to evaluate the best growing medium that can enhance survival and production. The different growing media combinations were recycled from the farm, namely: spent mushroom compost (M), chicken manure compost (Ck), fine sand (FS), and garden soil (GS). The earliest emergence of root initiation of cuttings (8.00 ± 1.73 to 8.67 ± 1.15 days) was recorded in T5 (1Ck:1FS v/v), T6 (3Ck + FS v/v) and T7 (1GS:3Ck v/v). The poor survival of T5 stevia was deemed attributable to the poor root initiation (22.23 ± 9.93) of cuttings. Longer roots were observed in cuttings grown in T5 and T6 (6.40 ± 0.26 to 6.40 ± 1.00). The highest number of shoots produced per cutting ($7.27a \pm 0.50$) was recorded in T9 (3GS + 1Ck v/v), while T8 (1GS:1Ck v/v) produced the lowest number of shoots. Stevia cuttings grown in T3 (3GS:CMS (3:1 v/v) registered the highest mean survival rate (82.22 ± 38.95), and comparable to T1 (66.67 ± 5.80), T6 (65.53 ± 6.93), T8 (55.57 ± 16.43), and T9 (71.10 ± 6.96), all markedly higher relative to the control group (21.13 ± 5.10). Present findings point to survival of stevia being enriched in growing medium comprising GS, M and CK. In light of these findings, experimentation on the combination of animal manure compost, spent mushroom compost and garden soil, and studies on the quality of leaves produced including chemical analysis are highly recommended. (**Author's abstract**)

Keywords: Agrivet Sciences Institute, rooting media, Salikneta Farm, stevia cuttings, Agriculture

Philippine Journal of Science, Volume No. 146 Issue No. 4, 437-443
2017 December,
(Filipiniana Analytics)
Fil(S) Q1 P55 146/4 2017

Woody species as green manure crops in rice-based cropping systems

Brewbaker, J. L., Glov

Characteristics of 28 woody species or groups of species that are used or that deserve consideration for use as green manure in rice-based cropping systems are reviewed. All are legumes, only one is an annual. Three species are of special importance: *Gliricidia sepium*, *Leucaena leucocephala* and its hybrids, and *Sesbania bispinosa*. The value of N₂-fixing woody species as green manure has not been widely studied. At least 10 plant families, including 650 known and perhaps 5,000 additional species, are N₂ fixing. They are usually perennials, commonly high in leaf N and usually easy to coppice or lop for fodder. Earlier studies focused primarily on species with fodder value. The vast majority of woody legumes carry tannins or toxins that may render them poor in digestibility but do not affect their utility as green manure.

Keywords: *Field crops, Crop yields, Cropping systems, Agriculture*

Green Manure in Rice Farming, Volume No. Issue No. , pages 29-43
(Filipiniana Analytics)
Fil(B) SB191 R518 1988

Yield Ilocos white garlic in response to air temperature and purple blotch damage in Ilocos Norte, Philippines

Lutap, Leticia A. , Galacgac, Evangel

Garlic is a cash crop with a quick return on investment and this is a good source of income for the Ilocano farmers. Bulb formation is one of the most sensitive phenological stages of garlic. It was observed that when exposed to high temperature before bulb initiation and during the growth and development of bulb, bulb production is low. On the other hand, purple blotch (*Alternaria porri* L.) has been identified as an important yield limiting disease in garlic (*Allium sativum* L.). The study was conducted to determine the relationship between air temperature and degree of purple blotch damage on the yield of garlic in Ilocos Norte, Philippines. Garlic yield produced from the experiments conducted at the Mariano Marcos State University, City of Batac, Ilocos Norte from 2008- 2016 garlic season and the average production data from the province of Ilocos Norte (2006- 2016) were considered in the analysis. The yield was correlated with the air temperature gathered from the MMSU-PAGASA Agrometeorological Station (18° 3' N latitude, 120° 32' E longitude at an elevation of 17 m AMSL) in the City of Batac, Ilocos Norte and in Laoag City Synoptic Station (18° 11 ' N latitude, 120° 32' E longitude at an elevation of 5 m AMSL). Likewise, the yield was correlated with the degree of purple blotch damage to the plants.

Results showed that air temperature and purple blotch damage were negatively correlated and significantly affected the size and weight of the bulb. These indicate that the lower the mean air temperature i.e. <25°C and the slighter the purple blotch infection or damage during the bolting stage of the plants, the bigger and heavier bulbs it produced ensuing higher yield of garlic.

(Authors' abstract)

Keywords: *Purple blotch, Ilocos white garlic, Temperature for garlic, Garlic yield, Agriculture*

Yield Loss Caused by Philippine Corn Downy Mildew *Exconde, O.R., Raymundo,*

Downy mildew reduced significantly the yield of sweet corn (Ph 801) and UPCA Var. 3 at different levels of disease infection for 2 seasons. During the wet season of 1971, losses in sweet corn were 27.1, 30.5, 89.8 and 100% at 16.7, 23.4, 93.7 and 100% infection respectively. During the dry season of 1972, losses at 35.7, 46.4 and 71.4 and 82.7% occurred at 45.6, 59.1, 58.7 and 75.1% infection respectively. In UPCA Var. 3 during the wet season, corresponding yield losses at 16.1, 24.9, 82.5 and 100% infection were 22.6, 25.9, 86.3 and 100%, respectively. During the dry season of 1972, % losses were 9.6, 26.3, 44.0 and 75.4 at % infection of 24.4, 40.3, 58.5 and 75.0, respectively.

Keywords: *Corn, Downy Mildew, UPCA Var. 3, Agriculture*

Yield performance of hybrid maize and its correlation with temperature, rainfall, relative humidity and sunshine *Ocampo, Apolonia, Beran, Nichelle Jefferson, Paril, Sazon, Luviminda Ann, Salazar, Art*

The study aimed to investigate the performance and effect of climate at different growth stage on yield of rainfed hybrid maize cultivars. The experiment was conducted in the Demonstration Field of Isabela State University in Cabagan, Isabela during the 2013-2015 dry and wet seasons using randomized complete block design with three replications. Three hybrid cultivars were used namely Monsanto's DK9132, Pioneer's P30T80 and Syngenta's NK8840. No fertilizer was applied but best cultural management practices were implemented in the entire growing period. Daily weather data during the growing periods were collected at the nearest Philippine Atmospheric Geophysical and Astronomical Services Administration (PAGASA) of the experiment site located in Tuguegarao City. There was no significant differences between cultivars, yield ranges from 0.94 to 3.40 t/ha. There was significant difference across season - dry season (1.28 t/ha) had lower mean yield compared to wet season (3.67 t/ha). Moreover, results showed that average temperature, rainfall and sunshine during the vegetative to reproductive (0-60DAP) (0.71, 0.70, and 0.66), reproductive to maturity (60-120DAP) (0.54, 0.69 and 0.49) and vegetative to maturity (0-120DAP) (0.68, 0.69 and 0.49) were significantly correlated with yield. There was significant negative correlation between yield and relative humidity during the vegetative to reproductive (-0.71) and the entire growing period (-0.57). The linear relationship observed suggest that the increase or decrease in the average temperature, rainfall, relative humidity, and sunshine scenarios during different growth stages could affect hybrid maize production. The findings are important in developing adaptation techniques to help maize farmers. (Author's abstract)

Keywords: *Maize, Climate, Yield, Correlation analysis, Agriculture*

Transactions of the National Academy of Science and Technology, Volume No. 39 Issue No. 1, 38
2017 July,
(Filipiniana Analytics)
NP

0177

**Yield variations of natural kawayan tinik (*Bambusa blumeana* J.A. & J.H. SCHULTES)
stands in Ilocos Norte, Philippines**

Rosario, Josel

Improvements in processing technologies and expansion of markets for *kawayan tinik* products had increased the demand for bamboo poles resulting in overcutting and rising prices of poles. Efficient management of existing stands is necessary but information on the growth and yield of these stands is lacking. Thus, a study was undertaken to determine the culm, shoot and biomass yields of natural stands of *kawayan tinik* growing on various locations in Ilocos Norte and evaluate the effects of physiographic, edaphic and stand variables on the productivity of these stands.

Stratified sampling was used in selecting representative towns and barangays. Sample clumps were located along roads, along creeks, on backyards and on hilly areas. Clump diameter and culm characteristics (number of shoots and culms, and the biomass of culms and shoots) were measured. Selected physiographic and edaphic characteristics of the sampling locations were also determined.

Clumps growing along creeks had the biggest clump diameter, highest number of culms and biomass yields while those on hilly areas had the smallest clump diameter and lowest biomass yields. In addition, clumps along creeks have better culm, shoot and biomass yields due to the interrelationships of more favorable growth factors such as availability of moisture, moderate slope, lower elevation and better soil characteristics. Results imply that areas along creeks are more favorable for the growth and yield of *kawayan tinik*. This information can be used as basis in crafting management schemes for natural *kawayan tinik* stands in the province. (**Authors' abstract**)

Keywords: *Biomass yield, Culm and shoot production, Hilly areas, Physiographic location, Agriculture*

Transactions of the National Academy of Science and Technology, Volume No. 39 Issue No. 1, 46
2017 July,
(Filipiniana Analytics)
NP

0178

Zinc Deficiency: A Widespread Nutritional Disorder of Rice in Agusan Del Norte

Katyal, J.C. , Ponnampereuma

A widespread nutritional disorder of lowland rice occurring on the soils of the Butuan and San Manuel series in Agusan del Norte was minimized by dipping the seedlings in a 2% suspension of zinc oxide in water before transplanting. Experiments in farmers fields in Agusan Del Norte showed that N, P, K fertilizers without zinc depressed yield at three locations while those with zinc oxide (costing P 7.00/ha) alone gave yields of 4 t/ha or more at six of the eighth experimental sites. Sixty kilograms each of N, P₂O₅, and K₂O increased the mean yields of the zinc-treated plots from 4.5 t/ha to only 3.5 t/ha. Zinc treated plants contained less magnesium and manganese than the untreated zinc-deficient plants. IR20, IRS, and H4 survived on a zinc-deficient soil at Ampayon on which 29 varieties, including some old tall types, perished. The critical limit of available soil zinc by the new 0.05 N HCl extraction procedure was 1.0 ppm; the critical concentration in the 50-day old plant was 15 ppm. Soils high in magnesium tended to be deficient in available zinc apparently because of absorption of Zn²⁺ by magnesium carbonate.

Keywords: *Zinc Deficiency, Rice, Nutritional Disorder, Agriculture*

The Philippine Agriculturist, Volume No. 58 Issue No. 1/2, 79-89
1974,
(Filipiniana Analytics)
FIL S19 P53

ANTHROPOLOGY

0179

Predictive Model of the Balatok- Tonglo- Aringay Ancient Gold Trade Trail in Southwestern Cordillera *Canilao, Michael Armand P.*

Using the Least Cost Path method in raster GIS analysis, a predictive model was created to estimate the location of an ancient gold trail connecting the Balatok/ Acupan mines with Tonglo gold bulking center and Aringay coastal settlement within Benguet and La Union Provinces. To derive the model, ASTER global digital elevation model was used in tandem with WorldView2 multispectral and high resolution imagery. The paper shows that GIS and Remote Sensing methods immensely aid in delimiting the research study area in the search for trails thereby resulting to efficient targeting of time and resources for second order excavations. (**Author's abstract**)

Keywords: *Ancient Gold Mining, Cordillera Archaeology, Geographic Information Systems, Least Cost Path, Remote Sensing, WorldView2, Anthropology*

Philippine Journal of Science, Volume No. 146 Issue No. 1, 81-84
2017 March,
(Filipiniana Analytics)
Fil(S) Q1 P55 146/1 2017

0180

Weight of Evidence Predictive Modelling and Potential Locations of Ancient Gold Mining Settlements in Benguet in the 16th to 18th Centuries *Canilao, Michael Armand P.*

Using the Weight of Evidence method in the analysis of geographic patterns, this paper sought to identify areas with high probability for being ancient settlement locations of small- scale subsistence gold miners in Benguet Province of Northwestern Luzon between the 16th to the 18th centuries. The training points used in this project include 24 known ancient village locations that are based on Spanish missionary accounts in the 18th century. The evidential themes that were used include: 1) distance from gold placer mines, 2) Slope class, and 3) Land-use class. Incidentally, the distance to placer mines is the same as distance to fresh water source for habitation purposes. The resulting response theme or unique conditions map shows areas that may potentially contain archaeological sites. The final map shows areas where there is a high probability of encountering an archaeological site. (**Author's abstract**)

Keywords: *Ancient gold mining, Cordillera archaeology, Geographic Information Systems, Weight of Evidence, Anthropology*

Philippine Journal of Science, Volume No. 146 Issue No. 2, 187-192
2017 June,
(Filipiniana Analytics)
Fil(S) Q1 P55 146/2 2017

ARCHITECTURE

0181

Daylighting simulations: a case study of the University of the Philippines College of Architecture Library

This paper reports on the use of lighting models to simulate daylight conditions in building spaces. The case study was conducted for the College of Architecture Library, University of the Philippines Diliman (at that time, under construction). The study intended to test the effectiveness of two (2) daylighting design elements that were to be incorporated in the library, namely the sunshade devices protecting the exterior windows and skylight. Also, it investigated the sufficiency of light levels for specific tasks inside the library compared to established local standards.

A daylighting model was constructed with finishes matching the existing conditions as close as possible. Testing was done through simulating the lighting model with a light meter attached during critical days within the year (equinox and solstices) and specific times of the day. Light level readings at particular areas of the lighting model were obtained.

The results showed that base measurements exceeded the local light level standards and produced harmful glare. The solution taken was controlling the amount of light entering the library by simulating overcast conditions to distribute light evenly throughout the spaces. Interventions on the lighting model were simulated and tested, resulting in favorable light levels. These were used as basis in the design and construction of the actual library space. (**Author's abstract**)

Keywords: *Architecture*

MUHON a journal of Architecture, Landscape Architecture, and the Designed Environment, Volume No. 4 Issue No. , 1-6
2013,
(Filipiniana Analytics)
NP

Exploring campus open space qualities: identifying the U.P. Diliman academic cores predominant qualities in its physical, social and psychological aspects

Sabido, Brian Alan L., Ramos, Grace C

The University of the Philippines (U.P.) Diliman is taking steps in its development towards a more self-sustaining community. Measuring the adequacy of the U.P. Diliman campus' amenities is an important step towards this goal. This paper measures the adequacy of the Academic Core, as the central open space amenity of the U.P. Diliman Campus through a survey that aimed to identify its predominant qualities. The qualities identified served as indicators of how adequate the Academic Core is in meeting the needs of the Diliman community. Findings reveal that the Academic Core is predominantly grounds for passive recreation and the identified predominant qualities may provide insight and basis for design considerations in developing new amenities and enhancing existing ones in the process of planning a self-sustaining community (**Author's abstract**)

Keywords: *Passive recreation, Open space amenity, Architecture*

MUHON a journal of Architecture, Landscape Architecture, and the Designed Environment, Volume No. 5 Issue No. , 7-16 2016,
(Filipiniana Analytics)
NP

Mapping of Sustainability in architectural practices in the Philippines

Teodoro, Gloria B. , Fischl,

The awareness in architectural sustainability is increasing worldwide. This pilot study aims to map and evaluate the situation of sustainable development of architecture offices in the Philippines through an online survey. In spite of sampling difficulties, the mapping of sustainability was successfully done for the collected sample, and results showed that architects evaluate themselves as having less than intermediate level of knowledge/skill in sustainability issues. Furthermore, they have a general concept about natural (renewable), energy efficient and sustainable products and services. Difficulties with application of sustainability are due to a client's budget and will. It is widely accepted that the individual companies suffer from lack of resources and therefore perform weaker in sustainability than the profession would require. Introduction of the morphological analysis of sustainable development (morph-SD) tool indicated that architects are mainly familiar with environmental related principle-level sustainability-oriented terms, while the economic and social aspects of sustainable development are not significantly represented. Confirmation of findings and further development of the morph-SD tool would require a comprehensive geographic sampling. (**Author's abstract**)

Keywords: *Architecture practice, Sustainable development, Semantic analysis, Architecture*

MUHON a journal of Architecture, Landscape Architecture, and the Designed Environment, Volume No. 5 Issue No. , 1-6 2016,
(Filipiniana Analytics)
NP

Motivation and guided complex learning of solar geometry

Dytoc, Bro

This paper discusses the integration of motivation and guided complex learning in mastering basic solar-geometry, as taught in the environmental technology course, ARCH 3314, taught in Kennesaw State University's Undergraduate Architecture

Program. The rethinking of the topic's instructional strategies responds to the objectives of improved appeal, relevance, and engagement for the technical course while integrating aspects of problem-based learning and scaffolded guidance on learning complex tasks. The problem-based learning map helps in motivating the students' critical learning of solar responsive design, paving a path to a deeper appreciation of passive sustainability, while the drawing and modeling methods are quite instrumental in the guided learning of complex tasks.

Students enrolled in the course have initial introductions regarding the earth's tilted relationship to the sun, and its seasonal patterns across different latitudes. The heliodon is very instrumental in transferring the reference from a celestial to a terra-centric point of view, smoothly moving to sunpath diagram exercises and applying raytracing onto orthographic drawings. The next phase in the learning is the generation of shading masks from overhangs, fins, louvers, and gridded shade solutions. Orthographic analyses of shading devices generate corresponding masks with full and half shade performance, based on how a sun could "see" it. The shading mask can now be properly oriented and overlaid onto a site's sunpath diagram that is rendered with the locale's average seasonal temperatures. The juxtaposition of these two layers then allows for a relatively comprehensive evaluation of the solar shading device's performance throughout the whole year.

Having scaffolded the students' learning to appreciate and interpret the layered graphic information of sunpath, seasonal temperatures, and shading masks, they apply these skills in designing and testing of shading devices for their Design II Studio building's west façade, which performs poorly in terms of solar response. Having actual experience of these spaces contributes to their project's sense of real-world relevance to their project exercise. Student teams construct and apply their design onto a scaled model of the building. The model itself is set on a Heliodon table that turns and tilts to accurately simulate solar behavior in early and late afternoon, during spring, equinox, and winter. Photographs of the exterior and interior are systematically documented; and all this accumulated information is ultimately laid out in a large poster.

Pedagogically, while these instructional methods have much improved the learning experience over previous years, the student responses to post-course surveys still point to the need of yet more improvement in the design and delivery of the instruction. (**Authors' abstract**)
Keywords: *Architecture pedagogy, Solar-responsive design, Problem-based learning, Guided learning for complex tasks, Instructional design strategies, Architecture*

0185

Visual assessment of native species replacement candidates for the acacia tree (*Albizia saman*) in the U.P. Diliman academic oval streetscape

Gozon, Patrick And

The acacia tree, botanically known as *Albizia saman*, has remained an integral element of the University of the Philippines Diliman campus landscape for almost seven decades (as claimed in the University of the Philippines website <http://www.upd.edu.ph/sitesofinterest.html>). In 2009, a university wide memorandum was passed limiting the planting of exotic tree species in all U.P. campuses. Since *A. saman* is an introduced species from the Americas and not native to the Philippines, it is debated what species could be used to replace the acacia trees in the academic oval in case specimens die or are fallen.

The study attempts to evaluate 14 native tree species already found growing within the U.P. Diliman campus as candidates to succeed the acacia trees as main street tree around the academic oval. The acacia is first scrutinized of its aesthetics based on the quality of space it creates in the campus landscape design. The candidate native tree species are then subjected to the same evaluation process and measured whether they could approximate *Albizia saman*'s design importance in U.P.'s unique urban landscape. **(Authors' abstract)**

Keywords: *Native trees, Aesthetic assessment, Acacia, U.P. Diliman landscape, Architecture*

BIOLOGY

0186

Assessing the Quality of Bovine Embryos Produced *In Vitro* Through the Inner Cell Mass and Trophectoderm Ratio

Maylem, Excel Rio S. , Leoveras, Ma. Elizabeth DC. , Atabay, Edwin C. , Atabay, Eufrocina P.

Embryo quality and implantation potential are the most important factors influencing the rate of successful pregnancies. These two are related to the occurrence of the three morphogenetic process (i.e., compaction, blastulation, and hatching) and the allocation of embryonic cells to the inner cell mass (ICM) and trophectoderm (TE) in response to proper timing of embryonic development. This research was conducted to determine the allocation of ICM and TE of bovine embryos *in vitro* in relation to its developmental stage and age. The account of this event can be used as

benchmark for comparison of good quality embryos for transfer. Using a defined medium – modified synthetic oviductal fluid for IVC – 85 bovine embryos derived from the slaughter house were assessed for cell number and ICM and TE ratio using the Hoechst 33342-propidium iodide differential staining method. Embryos collected on days 7, 8, and 9 were stained, viewed, and examined using fluorescence microscope and Nikon Imaging Software - Basic Research. The results revealed that in terms of total cell number (mean \pm SD), the expanded blastocyst on the 7th day (109.29 ± 41.09) and hatched blastocyst on the 8th day (139.5 ± 43.13) yielded the highest total cell number. From these two stages, chi square test determined that the 7th day expanded blastocyst with an ICM:TE count (ratio) of [34.4 ± 15.4]:[73.2 ± 34.9] (0.47) fits to the 1:3 ratio given for a good quality embryo. The results of the present study indicate that the 7th day expanded bovine blastocyst developmental stage and age has the highest potential for pregnancy when transferred owing to its being able to achieve the desired cell number and ICM and TE. (**Author's abstract**)

Keywords: bovine, embryo, inner cell mass, total cell number, trophectoderm, Biology

Philippine Journal of Science, Volume No. 146 Issue No. 4, 469-474
2017 December,
(Filipiniana Analytics)
Fil(S) Q1 P55 146/4 2017

0187

Bioavailability and Accumulation Assessment of Copper in *Pityrogramma calomelanos* *Dahilan, Joshua Karl A. , Dalagan, Juliet Q.*

Bioavailability and hyperaccumulation of copper (Cu) in *Pityrogramma calomelanos* was evaluated using sequential extraction technique (SET) and atomic absorption spectrophotometry (AAS). Bioaccumulation factor (BAF) was found to be greater than 1 which means that *P. calomelanos* is a metallophyte, a plant capable of accumulating metals into its roots and shoots. Translocation factor (TF) which was less than 1 signified that *P. calomelanos* is a possible excluder, a plant that prevents metal transport to the plant shoots. The highest Cu uptake in the fronds was $821.60 \text{ mg}_{\text{Cu}}/\text{kg}_{\text{dry weight}}$ indicating that the plant is not a hyperaccumulator. Fourier transform infrared (FTIR) spectrum of the soil, above and below ground parts of the plant revealed shifting of the absorption bands which is indicative of the interaction of Cu with the functional groups present in the plant and soil. FTIR spectra of above and below ground parts of the plant showed the interaction of Cu with the O-H group of the carboxylic acid at 2973 cm^{-1} , Cu with C=O group at about 1639 cm^{-1} and Cu with C-H group at 1162 cm^{-1} . FTIR spectra of the soil illustrated the attachment of Cu to soil minerals by the emergence of the 1033 cm^{-1} peak. Bioavailable Cu through SET analysis revealed $430.70 \text{ mg}_{\text{Cu}}/\text{kg}_{\text{soil}}$ of soluble and exchangeable Cu, $380.67 \text{ mg}_{\text{Cu}}/\text{kg}_{\text{soil}}$ of Cu bound to carbonates and $425.97 \text{ mg}_{\text{Cu}}/\text{kg}_{\text{soil}}$ of Cu bound to iron and manganese oxides. (**Author's abstract**)

Keywords: Accumulation assessment, Bioaccumulation factor, Bioavailability, Copper, Hyperaccumulator, *Pityrogramma calomelanos*, Translocation factor, Biology

Philippine Journal of Science, Volume No. 146 Issue No. 3, 331-338
2017 September,
(Filipiniana Analytics)
Fil(S) Q1 P55 146/3 2017

0188

Biophysical and Functional Characterization of asFP504, a Novel Fluorescent Protein from the Philippines

Chen, Chun-Jung , Hsieh, Yin-Cheng , Huang, Yen-Chieh , Altamia, Marvin , Concepcion, Carla P. , Liu, Franco Carlos , Emralino, Francine Lianne C. , Bascos, Neil Andrew D., Palmes-Saloma, Cyn

Fluorescent proteins have proven to be invaluable for a myriad of applications in scientific research. The discovery and characterization of novel fluorescent proteins promises to expand this range even further. This report focuses on the biophysical and functional characterization of a novel green fluorescent protein cloned from a Philippine soft coral species. The asFP504 protein showed peak excitation at 471 nm and at 494 nm ($\lambda_{E1}= 471$ nm; $\lambda_{E2}=494$ nm), its emission maximum from 471 nm excitation was observed at 504 nm. The fluorescence was observed to be related to its oligomeric state. Both fluorescence and oligomerization were robustly maintained for a range of temperatures, pH conditions, treatment with chaotropic agents, and proteolysis. X-ray crystallography documented a molecular packing of three dimers within each asymmetric unit for the asFP504 protein. The observed absorbance and fluorescence properties are comparable to that of commercially available fluorescence proteins. Despite its lower absorbance, asFP504 has higher quantum yield than mCitrine. In addition, the stability of asFP504 in the presence of multiple denaturants presents the potential of this protein – the first fluorescent protein from the Philippines – for use in many different research applications. **(Author's abstract)**

Keywords: *Crystal structure, Fluorescent protein, FRET, GFP, Mutagenesis, Biology*

Philippine Journal of Science, Volume No. 147 Issue No. 1, 65-74
2018 March,
(Filipiniana Analytics)
NP

0189

Cadmium Accumulation and its Effects on Nutrient Uptake and Photosynthetic Performance in Cucumber (*Cucumis sativus* L.)

Sun, Hongyan , Wang, Xiaoyun , Shang, Li , Zhou, Zhaowei , Wang, Rui

The phytotoxicity of different concentrations (0, 10, 25, 50, 100 and 200 μ M) of cadmium (Cd) on cucumber (*Cucumis sativus* L.) seedlings was studied. Cucumber growth was negatively affected by increasing Cd concentrations, and biomass decreased significantly at concentrations of more than 25 μ M, while the total antioxidant capacity decreased in all tissues. Moreover, Cd was accumulated primarily in roots, and Cd concentration increased with increasing Cd concentrations in solution. Cd induced a decrease in the photosynthetic performance (i.e., net photosynthetic rate, stomata!

conductance, and transpiration rate), while there was an increase in intercellular CO₂ level at Cd concentrations higher than 100 μ M. In addition, Cd induced alterations in some nutrient elements; for instance, it significantly decreased shoot Zn, Cu and Mn concentrations and reduced their concentrations in roots up to the 25 μ M Cd treatment. In terms of macroelement, stem/root Mg, leaf Ca, and K decreased significantly after the Cd treatments, indicating a negative correlation with Cd. Leaf Mg and stem/root Ca decreased evidently only in seedlings exposed to 50 and 100 μ M Cd, respectively. In

general, cucumber is highly sensitive even at very low Cd concentrations. Increasing Cd stress in cucumber not only inhibited plant growth, but also affected a series of macronutrient and micronutrient concentrations both in shoots and roots. **(Author's abstract)**

Keywords: *Antioxidant capacity, Cadmium toxicity, Cucumber (*Cucumis sativus* L.), Nutrient, Photosynthesis, Biology*

Continuous Logical Modeling of the Submergence Regulatory Network in Rice

Nazareno, Allen L. , Dionisio-Sese, Maribel L. , Cuaresma, Genaro A. , Mendoza, Eduardo R. , Jose, Editha C.

The study on the interaction of different hormones involved in plant developmental processes under environmental stresses is an important area of concern in systems biology. With this, a detailed network structure of submergence regulatory system in rice (*Oryza sativa* L.) was analyzed using continuous logical modeling. The model correctly simulated the functioning of core components of the network. Moreover, it showed oscillatory behavior of majority of the components, which is consistent with the notion of inherent buffering in signaling networks. A prediction of the role of *SUBMERGENCE 1A (SUB1A)* in sustained oscillatory behavior of ethylene during submergence in water was also established. (**Author's abstract**)

Keywords: *Continuous logical model, Ethylene, Hormone crosstalk, Submergence, Biology*

Current Status of Philippine Mollusk Museum Collections and Research, and their Implications on Biodiversity Science and Conservation

Anticamara, Jonathan A. , Batomalaque, Gizelle A. , Ramos, Dino Ang

Mollusks are an invaluable resource in the Philippines, but recent reviews on the status of museum collections of mollusks or research trends in the country are lacking. Such assessments can contribute to a more comprehensive evaluation of natural history museums in the Philippines, as well as biodiversity management. This review showed that local museums in the Philippines have much to improve in terms of their accessibility and geographic coverage in order to effectively cater to research and conservation needs of the country. Online access to databases was lacking for local museums, making it cumbersome to retrieve collection information. The UST museum held the most species and subspecies across all museums (4899), comparable to the national museums of countries such as the USA and France. In terms of size, there were larger Philippine mollusk collections in museums abroad. Majority of mollusk specimens come from Regions 4 and 7, while the CAR and Region 12 were least sampled. Publications on Philippine mollusks are dominated by taxonomic and biodiversity research. Around 80% of publications were on marine species. Therefore, there is a great need to (1) improve access to collections by publishing databases and collections online; (2) improve spatial coverage of mollusk sampling to have a better nationwide (and habitat) representation of Philippine mollusk diversity; (3) fill important knowledge gaps in the ecological assessment of exploited mollusks and minor taxa that will be useful in status assessment and management; and (4) build a network of functional museums to facilitate mollusk and invertebrate researches and conservation by making properly curated specimens available to more researchers nationwide. (**Author's abstract**)

Keywords: *Molluscan research, Museum collections, Philippine mollusks, Biology*

Detection and Sequence Analysis of Enzyme Genes of Four Thermo-tolerant *Bacillus pumilus* Strains from the Philippines

Malit, Jessie James L., Hedreyda, Cynthia

The Philippines boasts of diversity in bacterial species that can be explored in producing industrially significant enzymes to help reduce the country's dependence on enzyme importation. This study was focused on four thermotolerant strains of *Bacillus pumilus*, a species reported to produce serine alkaline protease, lipase, pectate lyase, and laccase. Enzyme gene targeted polymerase chain reaction (PCR) and gene sequence analysis confirmed the presence of four enzyme genes in all strains studied. Preliminary enzyme assays revealed that all strains except 1271, tested positive for protease, pectate lyase, and lipase activities. Only strain 1271, however, exhibited positive laccase activity. These initial results could be the basis for pursuing studies on laccase using strain 1271 and studies on protease, pectate lyase and lipase enzymes from the other three strains. Partial amino acid sequence of the serine alkaline protease gene in strain 1271 revealed five amino acid variations from the other three strains and the variations resulted in protein conformational changes. The translated partial laccase gene sequence of strain 1271 exhibited ten amino acid variations from partial laccase enzymes of the other three strains but the amino acid variations did not result in enzyme conformation change. The amino acid sequences in the complete lipase genes showed five amino acid variations in isolate 1271 compared with enzymes from other three strains but no change in the predicted protein model was observed. Sixteen variations in the amino acid sequences of the pectate lyase enzyme observed among strains resulted in a unique pectate lyase protein conformation for each isolate. The role of enzyme conformation variation as well as other factors that could have led to the enzyme assay results in this study, could be further elucidated with optimized quantitative enzyme assays, gene expression studies and mutagenesis. **(Author's abstract)**

Keywords: *B. pumilus*, Laccase, Lipase, Pectate lyase, Protease, Biology

Detection of Plasmid-Borne β -Lactamase Genes in Extended Spectrum β -Lactamase (ESBL) and Non-ESBL-Producing *Escherichia coli* Clinical Isolates

Cruz, Merlyn C., Hedreyda, Cynthia T.

Increasing frequency of infections caused by antibiotic resistant *Escherichia coli* strains producing extended-spectrum β -lactamase (ESBL) needs to be addressed by continuous surveillance and accurate detection of specific ESBLs genes for more effective treatment. A total of 71 β -lactam drug resistant isolates (26 phenotypically ESBL-producing and 45 non-ESBL-producing) were observed to carry approximately 23 kb plasmids. These isolates were subjected to β -lactamase gene-targeted PCR to detect plasmid-encoded *bla*_{TEM}, *bla*_{SHV}, *bla*_{CTX-M} *group1* and *bla*_{CTX-M} *group9* genes. BLAST analysis of amplicons revealed that plasmid-encoded *bla*_{TEM} is most

prevalent in both ESBL and non-ESBL-producing *E. coli* isolates. Plasmid-encoded *bla_{SHV}* gene was only detected in 8 non-ESBL-producing isolates and explanation of such observation awaits additional studies to detect the possibility that the gene could be in the chromosomal DNA or to test the prevalence of the plasmid-encoded gene with more isolates. Twelve isolates of the ESBL type *bla_{CTX-M}* were identified from phenotypically identified ESBLs, comparable with 13 isolates detected with *bla_{TEM}*. This observation suggests that the relatively newly emerging ESBL-type CTX-M is continuously increasing as one of the new β -lactamase derivatives among ESBL-producing *E. coli* in the clinical setting. This study reveals that there is discrepancy between the results of the phenotypic observation and genotypic analysis showing that the presence of ESBL-associated β -lactamase genes may be undetected when using the conventional phenotypic approach. Mutation in these unexpressed genes may result to ESBL antibiotic resistance, suggesting that the unexpressed and undetected genes may serve as reservoir for ESBL genes. (Author's abstract)

Keywords: *CTX-M, ESBL, Escherichia coli, SHV, TEM, Biology*

Philippine Journal of Science, Volume No. 146 Issue No. 2, 167-175
2017 June,
(Filipiniana Analytics)
Fil(S) Q1 P55 146/2 2017

0194

Effect of gamma radiation on the shelf life, physiological and nutritional value of onion (*Allium cepa* L.)

Munir, Neelma, Hameed, Nazish, Haq, Rukhama, Naz, Shagufta

Onion is one of the most important and perhaps one of the oldest cultivated vegetable crop in all continents. In Pakistan, it is grown in different volumes and harvesting periods. Based on the latest United Nation's report, Pakistan ranks as the 8th country that produces the most onion. Onion is widely used for culinary purposes particularly in savory dishes to improve the gastronomic properties of most recipes. Apart from its culinary characteristics, onion has a remarkable medicinal powers and antifungal, antibacterial, antihypertensive, anti-inflammatory, and antioxidant properties. However, post-harvest losses reduce these benefits. Post-harvest losses occur due to mishandling, rotting sprouting, and dehydration. Reduction of these post-harvest losses would maintain and enhance onion quality. Thus, this study aimed to enhance the shelf life and the removal of micro flora without affecting the nutritional value of onion through gamma irradiation. The onion sample used during the experiment was collected from a wholesale market in Lahore, Pakistan. The main objective for treating harvested onions with different doses of gamma radiation was to prevent the physiological processes leading to sprouting during extended storage. The samples were sent to Pakistan Radiation services (PARAS) Lahore for irradiation at doses of 0.05 kGy, 0.10 kGy, and 0.15 kGy then these were stored at room temperatures. Various physiological and nutritional parameters were assessed during the various storage time. The parameters include the percent of weight loss, ash content, moisture content, fat, crude fiber, crude protein, and carbohydrates. By measuring these parameters, before and after gamma irradiation, it was concluded that the dose of 0.10n kGy is optimum for enhancing onion shelf life without any significant change in its physiological as well as nutritional value. (Author's abstract)

Keywords: *Allium cepa L., Gamma irradiation, Pakistan, Physiological value, Proximate analysis, Biology*

Philippine Journal of Crop Science (PJCS), Volume No. 42 Issue No. 2, 61-65
2017 August,
(Filipiniana Analytics)
Fil(S) SB189 P5 42/2 2017

Effect of Terminal Heat Stress on Proline, Secondary Metabolites and Yield Components of Wheat (*Triticum aestivum* L.) Genotypes

Shahid, Muhammad, Saleem, Muhammad Farrukh, Anjum, Shakeel Ahmad, Afzal, Irfan

An experiment was conducted to screen different wheat genotypes for heat tolerance at the metabolite level. The experiment was laid out in randomized complete block design (RCBD) with split plot arrangement having four blocks. Main-plot treatments consisted of H₀ (control) and H₁ [(Heat imposition from complete emergence of spike to grain filling initiation (Feekes Scale = 10.50-11.00)]. Subplot treatments consisted of 11 wheat cultivars ('Punjab-2011', 'AARI-2011', 'Galaxy-2013', 'Millat-2011', 'Aas-2011', 'Fareed-2006', 'Chakwal-50', 'Mairaj-2008', 'Pakistan-2013', 'NIBGE-NIAB-1' and 'Kohistan-97'). 'Aas-2011', 'Chakwal-50' and 'Mairaj-2008' manifested increment in total phenolic content, glycine betaine and proline under heat stress compared with the control plots while all other genotypes showed a decline in secondary metabolite activity. Significantly, the lowest malondialdehyde (MDA) concentration was recorded in 'AAS-2011' (0.91 $\mu\text{mol g}^{-1}$) and 'Chakwal-50' (0.96 $\mu\text{mol g}^{-1}$) while the highest was recorded in 'Pakistan-2013' (1.24 $\mu\text{mol g}^{-1}$). Minimum decrease in grain yield under heat stress was observed in 'Aas-2011' (29%) followed by 'Chakwal-50' and 'Mairaj-2008' (32%) whereas the maximum was observed in 'AARI-2011' (48%). 'Aas-2011', 'Mairaj-2008' and 'Chakwal-50' manifested heat tolerance; 'Pakistan-2013', 'NIBGE-NIAB-1' and 'Kohistan-97' showed heat susceptibility while all the remaining cultivars demonstrated medium heat tolerance on the basis of metabolite, membrane stability and yield components. (Author's abstract)

Keywords: Osmo-protectants, Phenolic content, Thermo-sensitivity, Thermo-tolerance, Wheat, Yield components, Biology

The Philippine Agricultural Scientist, Volume No. 100 Issue No. 3, 278-286
2017 September,
(Filipiniana Analytics)
Fil(S) S19 P53 100/3 2017

Effects of Mycorrhizal Fungi on Plant and Growth Soil Properties Trifoliolate Orange Seedlings Grown in a Root-Box

Chi, Ge-Ge, Wu, Qiang-Sheng

Soil aggregate stability is associated with roots, arbuscular mycorrhizal (AM) hyphae, and glomalin-related soil protein (GRSP), among others. In this work, a root-box was divided into two parts: one part was the root+ hyphae zone and hyphae (37- μm mesh; root free) zone, and the other part was the nohyphae (0.45- μm mesh; root- and hyphae-free) zone. Trifoliolate orange (*Poncirus trifoliata*) seedlings were planted in the root + hyphae zone and were colonized by *Diversispora spurca*. After 18 wk, root colonization was significantly higher under the 37- μm mesh than under the 0.45- μm mesh, while soil hyphal length was higher under the 0.45- μm mesh than under the 37- μm mesh in the root+ hyphae zone. Arbuscular mycorrhizal fungi (AMF) inoculation significantly increased shoot and root biomass, and a stronger effect was observed under the 37- μm mesh than under the 0.45- μm mesh. AMF seedlings represented considerably higher acid, neutral, alkaline and total soil phosphatase activity, easily extractable GRSP (EE-GRSP) and total GRSP (T-GRSP) concentration, distribution of soil water-stable aggregates in the size of 2-4 mm and 1-2 mm, and mean weight diameter in the root + hyphae zone of both the 37- μm mesh and the 0.45- μm mesh and hyphae zone of the 37- μm mesh. Aggregate stability was dominantly due to root biomass and root AMF colonization in the root + hyphae zone and to EEGRSP in the hyphae zone. This result suggested that besides AMF-stimulated plant growth and phosphatase activity, mycorrhizas also strongly enhanced aggregate stability in the rhizosphere. (Author's abstract)

Keywords: *Arbuscular mycorrhiza, Glomalin, Hyphae, Mean weight diameter, Phosphatase, Biology*

The Philippine Agricultural Scientist, Volume No. 100 Issue No. 3, 271-277
2017 September,
(Filipiniana Analytics)
Fil(S) S19 P53 100/3 2017

0197

Effects of Organic Fertilizer on Hepatic Lipid Levels and Cholinesterase Activity in *Channa punctatus* (Bloch).

Nath, Susanta , Saha, Chiropritim , Bhowmick, Himadri Sekhar , Matozzo, Valerio

The effects of mustard oil cake (MOC) on liver lipid levels and brain cholinesterase activity of *Channa punctatus* (Bloch) were assessed. Due to excessive use, these organic fertilizers enter the freshwater ecosystem as runoff during irrigation and heavy rain, reaching concentrations higher than those required in the rearing pond. Fish were exposed to 0.42 mgL⁻¹ MOC for 35 days. The results reveal that liver lipid levels were higher during exposure in both control and treated fish when compared to 0 day levels. Lipid levels decreased slightly after 21 (in both treated and untreated fish) and 35 days (in untreated fish). Results also showed an increase in brain cholinesterase activity in MOC-exposed fish. **(Author's abstract)**

Keywords: *brain, Channa punctatus, cholinesterase, lipid, liver, mustard oil cake, Biology*

Philippine Journal of Science, Volume No. 145 Issue No. 4, 413-418
2016 December,
(Filipiniana Analytics)
Fil(S) Q1 P55 145/4 2016

0198

Effects of Varying Copper Concentrations on Photosynthesis of *Gracilaria salicornia* and *Padina sanctae-crusis*

Aaron, Jesrelljane J. , Dy, Danilo T.

Two tropical macroalgae, *Gracilaria salicornia* and *Padina sanctae-crusis*, were exposed to varying concentrations of total Cu and subsequently subjected to photosynthesis-irradiance (P-I) response experiments. The study aimed to determine the effects of total Cu toxicity on the P-I model parameters and growth rate of the macroalgae. The photosynthetic efficiency (α) showed a decreasing pattern with increasing total Cu concentration. Light saturation (I_k) for both algae increased at lower concentration and showed transient shift at 12.5 $\mu\text{g total Cu L}^{-1}$. The maximum photosynthesis (P_{max}) of *P. sanctae-crusis* was higher in specimens exposed to 12.5-25 $\mu\text{g total Cu L}^{-1}$ compared to the controls. Unlike *P. sanctae-crusis*, *G. salicornia* exposed total Cu-free medium as well as those at 12.5-25 $\mu\text{g total Cu L}^{-1}$ were comparable. But, both algae showed decreasing P_{max} values from 50-500 $\mu\text{g total Cu L}^{-1}$. Respiration (R) showed nonlinear pattern due to some delay of the effect of copper on the respiratory system. Growth data proved to be more sensitive to total Cu with the reductions of mean daily growth rate starting at 12.5 $\mu\text{g total Cu L}^{-1}$ for *G. salicornia* and negative growth rate at 500 $\mu\text{g total Cu L}^{-1}$ for *P. sanctae-crusis*. After 7 days of exposure the EC20 for *G. salicornia* and *P. sanctae-crusis* were 100 and 50 $\mu\text{g total Cu L}^{-1}$, respectively. The results suggested severe impact of total Cu⁺ at high concentrations on P-I parameters and growth rate of *G. salicornia* and *P. sanctae crusis*. **(Author's abstract)**

An Egg Yolk Immunoglobulin (RVP6-IgY) Specific for a Constructed Rotavirus VP6 Antigen (rVP6) Inhibited Rotavirus Replication *in vitro*

Balolong, Marilen P. , Oh, Ju Kyoung , Kim, Jung Woo , Jung, Yong Tae , Gloriani, Nina G. , Kang, Dae-Kyung

Group A rotaviral diarrhea continues to be highly prevalent worldwide among children younger than 5 years of age, as well as among pre-weaning piglets. The middle capsid of rotavirus, VP6, is highly immunogenic and conserved among mammalian species, making it an ideal immunogen candidate. We developed a construct using the partial segment (nucleotides 8-1194) of the VP6 gene from Rotavirus strain OSU, subcloned into the expression vector pET 21b and expressed in *Escherichia coli* BL21 (DE3) to produce RVP6 that is ~45 kDa in size. Purification of RVP6 using a Ni-NTA column produced 3-4 mg L⁻¹ of transformed E. coli culture after induction with 1 mM isopropyl beta-D-thiogalactoside (IPTG). RVP6 was then orally administered to mice to establish the characteristic immune response produced in serum and fecal samples. Likewise, RVP6 was also given intramuscularly to laying hens to recover RVP6-specific antibodies (RVP6-IgY) in yolk. RVP6-IgY was then tested for its ability to inhibit rotavirus replication *in vitro*. Three oral doses of RVP6 induced a characteristic systemic immune response as shown by increased serum IgG titer along with a complementary increase in fecal IgA titer suggestive of an induced mucosal response. It also mounted increased serum titers in laying hens, eventually recovering RVP6-IgY from yolk optimally at 6-weeks post immunization. The yolks with high titers were then selected for partial purification. Partially purified RVP6-IgY was shown to be specific to RVP6 immunogen (dot-blot assay) suggesting its potential for use in diagnostics. Replication was inhibited *in vitro* when RVP6-IgY was added before virus infection and when co-incubated with the virus at 100µg/ml concentration, suggesting its promise for prophylactic use. However, it was not able to inhibit replication when added post-infection. Our results provided basis to describe the potential of RVP6 and RVP6-IgY; therefore, efficacy studies in piglets are encouraged to confirm its potential. **(Author's abstract)**

Keywords: *E. coli* BL21 (D3), Immunogen, Immunoglobulin Y (IgY), Inhibition of Virus Replication, Rotavirus VP6, Biology

Estimation of Genetic Variation through Isozyme Analysis in Freshwater Sardines, *Sardinella tawilis* (Herre), from Two Portions of Taal Lake: Agoncillo and Talisay, Batangas

Adajar, Joan Christine O. , Manuel, Ma. Carmina C. , Tandang, Rosalina N. , Reamillo, Maria Cecilia S.

Genetic variation in freshwater sardines, *Sardinella tawilis* (Herre), from two portions of Taal Lake (Agoncillo and Talisay, Batangas in the Philippines) was determined through isozyme analysis using four enzyme systems: acid phosphatase (ACP), alkaline phosphatase (ALP), esterase (EST), and malic enzyme (ME). The degree of genetic variability within subpopulation and between subpopulations was determined by calculating several genetic measures, particularly the proportion of polymorphic loci (P), average number of alleles (A), average heterozygosity (H), genetic identity (I_N), genotypic similarity (I_H), genetic distance (D), and by applying Wright's F statistic (F_{sr}). Results revealed four presumptive loci in both subpopulations (*ACP-I*, *ALP-I*, *EST-I*, and *ME-I*). Among organs, the heart showed the highest genetic variation based on the P (0.75), A (1.75), and H (0.369-0.371) values in both subpopulations. The computed I_N , I_H , and D showed the same trend in the two subpopulations where eye tissues had greater relatedness with muscle tissues. Although both subpopulations have the same trend, a higher genetic variation was seen in the organs of the Agoncillo subpopulation than in the organs of the Talisay subpopulation as indicated by their F_{sr} values, 0.321 and 0.162, respectively. The two subpopulations, when compared, revealed the same values for P (0.75) and A (1.75). However, average heterozygosity was slightly higher in the Talisay subpopulation ($H = 0.291$) than in the Agoncillo subpopulation ($H = 0.249$). The computed values for I_N , I_H , and D implied a high relatedness between the two subpopulations. This result was further supported by their F_{ST} value of -0.015 which indicated low genetic variation. (Author's abstract)

Keywords: Freshwater sardines, Genetic variation, Isozyme, Isozyme polymorphism, *Sardinella tawilis*, Starch-gel electrophoresis, Biology

The Philippine Agricultural Scientist, Volume No. 100 Issue No. 4, 422-430
2017 December,
(Filipiniana Analytics)
Fil(S) S19 P53 100/4 2017

0201

Estimation of Genetic Variation through Isozyme Analysis in Freshwater Sardines, *Sardinella tawilis* (Herre), from Two Portions of Taal Lake: Agoncillo and Talisay, Batangas

Cruz-Lacierda, Erlinda R. , Nagasawa, Kazuya

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Keywords: *Argulidae*, *Argulus japonicus*, *Branchiura*, *Carassius auratus*, *Cyprinus carpio*, *Fish lcuse*, *Goldfish*, *Japanese koi carp*, *Biology*

The Philippine Agricultural Scientist, Volume No. 100 Issue No. 4, pages 422-430
2017 December,
(Filipiniana Analytics)
Fil(S) S19 P53 100/4 2017

0202

Forensic entomology in the Philippines: Establishing Baseline Data on the Forensically Important Blow Fly Species *Chrysomya megacephala* (Fabricius, 1794)

Pedales, Ronniel D.C., Fontanilla, Ian Kendrick

The Philippines is yet to adapt and implement guidelines and protocols in forensic entomology, particularly establishing local databases. Considering the efforts made by neighboring Southeast Asian countries in the field, the nation has been left behind in insect evidence-based investigations. Of utmost importance to forensic entomology are blow flies (Diptera: Calliphoridae), which are primary colonizers of carrion. Through knowledge of their distribution, identity, and growth rates, investigators are able to provide a post-mortem interval that is most accurate after the onset of putrefaction. The Philippines has a total of 83 blow fly species recorded, including the cosmopolitan species *Chrysomya megacephala*. This paper aims to establish a baseline reference in Philippine forensic entomology by mapping the distribution, providing DNA barcodes, and estimating larval growth rates from oviposition to pupariation of *C. megacephala*. Distribution data were mapped in QGIS using localities from fieldwork data in this study and those in the *Key to the Philippine Calliphoridae* by Kurahashi and Magpayo. DNA barcodes of specimens from

Isabela, Quezon City, and Marinduque in the Philippines matched with *C. megacephala* from the database in GenBank and revealed a possible SNP in the fragment amplified. *C. megacephala* was reared from oviposition in a simple incubation set-up to estimate the duration of development to pupariation, which ranged 100-113 hours. This is the first study on the distribution, molecular identification, and development of *C. megacephala* in the Philippines. Further work is needed to distinguish among populations of the species and to construct more precise growth curves.

(Author's abstract)

Keywords: *Chrysomya megacephala*, *DNA barcoding*, *Forensic entomology*, *Biology*

Philippine Journal of Science, Volume No. 147 Issue No. 1, 17-25
2018 March,
(Filipiniana Analytics)
NP

0203

Growth and Fatty Acid Profile of *Thraustochytrium* sp. CR01 Using Different Sugar Substitutes

Uba, Marigold O. , Duabe, Katherine Charmaine P. , Biene, Maria Amabelle Christine M. , Ortiz, Ma. Kristina Celyna R. , Bennett, Reuel M. , Dedeles, Gina R.

Thraustochytrids, which are a group of marine heterokonts, have shown their promising potential as a good source of the omega-3 polyunsaturated fatty acids (PUFAs) docosahexaenoic acid (DHA) and

eicosapentaenoic acid (EPA) of importance to human health and aquaculture, respectively. A cost-effective production method (using alternative carbon source) of these thraustochytrids coupled with higher PUFA yield has yet to be established for commercial exploitation of lipids. In this study, *Thraustochytrium* sp. CR01 isolated from senescent fallen mangrove leaves in Coastal Road, Cavite was grown on different sugar products such as liquid sugar, molasses, and corn syrup as glucose substitute for carbon source in the culture medium. Based on growth analysis, there is no significant difference between the sugar used in which the corn syrup biomass produced 0.15 – 0.25 g/ 25mL; while liquid sugar and molasses had 0.1 – 0.3 g/ 25mL. Analysis of fatty acid methyl ester results showed that *Thraustochytrium* sp. CR01 produced predominantly palmitic acid (16:0), a saturated fatty acid which constitutes 57% total fatty acids (TFA) in corn syrup, 54% TFA in molasses, and 25% TFA in liquid sugar. DHA was also produced at 5% TFA in corn syrup, 7% TFA in molasses, and 2% TFA in liquid sugar. (**Author's abstract**)

Keywords: *biomass production, fatty acid profile, monounsaturated fatty acids, polyunsaturated fatty acids, Thraustochytrium sp., Biology*

Philippine Journal of Science, Volume No. 145 Issue No. 4, 365-371
2016,
(Filipiniana Analytics)
Fil(S) Q1 P55 145/4 2016

0204

Histological Responses of Golden Apple Snail (*Pomacea canaliculata*) to Copper *Pena, Silvia C. , Pocsidio, Glorina N. , Co, Elisa L.*

Histopathological changes in kidney, digestive gland, foot, and gills of *Pomacea canaliculata* due to copper exposure were studied to assess copper's effects on tissues of its different organs and also for the possibility of being used as a biomarker. Three-month-old snails were exposed to copper ($67.5\mu\text{g L}^{-1}$) for seven days and were excised and fixed in 10% formalin. Routine histological preparation and examination exhibited varied forms and degrees of aberrations. These include hydropic degeneration, disintegration and loss of cells, elongation of kidney tubules, hyperplasia of K corpuscles in the digestive gland, flattened epithelium, and muscular bundles in foot in complete disarray, dilations and folding of the gill filaments. Gross and subtle tissue alterations in these organs may lend support to the role of *P. canaliculata* as a biomarker for copper contamination. (**Author's abstract**)

Keywords: *Copper, Digestive gland, Foot, Gills, Kidney, Pomacea canaliculata, Biology*

Philippine Journal of Science, Volume No. 146 Issue No. 3, 315-321
2017 September,
(Filipiniana Analytics)
Fil(S) Q1 P55 146/3 2017

0205

Initial Findings of the Nationwide Assessment of Philippine Coral Reefs *Licuanan, Ardea M. , Reyes, Michelle Z. , Luzon, Katrina S. , Chan, Marie Angelica A. , Licuanan, Wilfredo Y.*

The Philippine archipelago is well known for its species-rich coral reefs, yet updated information on the present status of its coral reefs at the national level is lacking. Hence, a nationwide assessment was initiated in 2014 to update the information on the status of coral reefs in the Philippines. Reefs sampled were randomly selected from around the

country, with the number of assessment stations for each of six biogeographic regions stratified by the total area of reefs in each of these regions. Five 50 m transects were randomly deployed in each assessment station. The initial data gathered from 2015 up to 2017 included a total of 166 stations (108 in Luzon, 31 in Visayas, and 27 in Mindanao), sampled across 31 provinces. None of these stations were classified in the excellent category based on live coral cover, and more than 90% of the same stations were in the poor and fair categories. Their average hard coral cover, weighted by the reef area of each biogeographic zone, was 22% (95% confidence intervals: 19.4, 24.9). These values indicate a marked decline in the condition of local reefs over the last four decades, thereby revealing the urgent need for the revision and update of conservation and management policies. (Author's abstract)

Keywords: *Coral reef assessment, Hard coral cover, Biology*

Philippine Journal of Science, Volume No. 146 Issue No. 2, 177-185
2017 June,
(Filipiniana Analytics)
Fil(S) Q1 P55 146/2 2017

0206

Isolation and Screening of Yeast Isolates Indigenous Palm Wine for Ethanol Production

Antia, Ukponobong E. , Akan, Otobong D. , Stephen, Nsikak U. , Eno-Ibanga, Cheryl K. , Akpan, Nseobong G.

The problem that has been ravaging ethanol producing industries for decades now is the ability of industrial yeast isolates to withstand ethanol production stress conditions while giving out optimal ethanol yeast. Hence, there is need to constantly source for yeast isolates with these qualities. Yeast isolates obtained from aging palm-wine were investigated for their ability to withstand some ethanol production stress conditions. Their growth responses were observed qualitatively at different temperatures, sugar concentrations (up to 200 g/L), and ethanol concentration (up to 20% v/v). A total of 20 yeast isolates were obtained and screened for ethanol stress condition tolerance. *Saccharomyces cerevisiae* SCPW 17 was able to tolerate ethanol production stress conditions with minimal growth at 45°C and 20% v/v ethanol and intensive growth in a medium containing 200 g glucose/L. The identity of *S. cerevisiae* SCPW 17 was determined and confirmed by the analysis of its internal transcribed spacer (ITS1) region of the 18S ribosomal DNA. *Saccharomyces cerevisiae* SCPW 17 exhibited good characteristics needed in yeast isolates meant for ethanol and bio-ethanol production. (Author's abstract)

Keywords: *Bio-ethanol, Growth response, Osmotic stress, Palm wine, Saccharomyces cerevisiae, Yeasts, Biology*

Philippine Journal of Science, Volume No. 147 Issue No. 3, 411-417
2018 September,
(Filipiniana Analytics)
Fil(S) Q1 P55 147/3 2018

0207

Lack of Association Between Lipid and Lipoprotein Profile and Menopause Status in Women with Cardiac Syndrome X

Rasmi, Yousef , Khademy, Esmail , Majidinia, Maryam , Seyyed-Mohammadzad, MirHossein , Hajhosseini, Reza , Khosravifar, Fariba , Saboory, Ehsan , Seidi-Shirvani, Sam , Rahmati-Yamch, Mohammad

Cardiac syndrome X (CSX) or angina pectoris is characterized by positive findings on exercise electrocardiography and normal results on coronary angiography). It frequently occurs in menopausal women. On the other hand, studies

indicated that menopause is associated with alteration in lipid profile and increased risk of cardiovascular diseases. Therefore, this study aimed to determine the possible influence of menopause on lipid and lipoprotein profile in women with CSX. Fifty women with CSX (mean age: 52.4±7.65 years) and 50 healthy women as control (50.0±5.62 years) were studied. CSX and control groups were divided as pre- and post-menopause subgroups. The plasma lipid and lipoprotein profile of subjects was estimated colorimetrically. The total cholesterol (TC), triglyceride (TG), lipoprotein A(LP[a]), low density lipoprotein (LDL), high density lipoprotein (HDL), apoprotein A1(APOA1), apoprotein B (APOB) were significantly higher among those in the CSX group than those of the control group. (TC: 158.2±5.7 vs. 114.5±5.1mg/dl; P=0.001, (TG: 152.1±11.4 vs. 105.9±8.9mg/dl; P=0.002, LP[a]: 44.2±7.9 vs. 22.2±4.3mg/dl; P=0.017, LDL: 88.9±3.7 vs. 66.1±23.4mg/dl; P=0.001, HDL: 36±1.4 vs. 29.3±0.8mg/dl; P=0.001, APOA1: 120.9±1.6 vs. 107.7±1.5mg/dl; P=0.001, and APOB: 95.2±3.4 vs. 74.4±2.6mg/dl; P=0.001). The differences of lipid and lipoprotein profile between pre- and post-menopause CSX was not significant. In conclusion, plasma lipid disorders play important roles in the development of CSX. Changes that occur in the lipid profile after menopause are not associated with increased CSX. (**Author's abstract**)

Keywords: apoprotein, cardiac syndrome x, lipid, lipoprotein profile, menopause, microvascular, Biology

Philippine Journal of Science, Volume No. 145 Issue No. 2, 121-125
2016 June,
(Filipiniana Analytics)
Fil(S) Q1 P55 145/2 2016

0208

Length – Weight and Length – Length Relationships, Condition Factor, Sex Ratio and Gonadosomatic Index of the Ariid Catfishes *Arius dispar* and *Arius manillensis* (Siluriformes: Ariidae) in Laguna de Bay, Philippines
Santos, Brian S. , Canoy, Reynand Jay C. , Tango-Imperial, Jazzlyn M. , Quilang, Jonas P.

The ariid catfishes *Arius dispar* and *Arius manillensis* are commercially important in the Philippines and have been overexploited in the past. This study describes for the first time the length-weight and length-length relationships, condition factor, sex ratio, and gonadosomatic index of the two species. A total of 1,698 *A. dispar* and 874 *A. manillensis* were collected from Laguna de Bay over the period of 12 months to assess the aforementioned parameters. For both species, the sex ratio significantly differed from equality, the length-length relationships were highly significant and the coefficients of determination (r^2) were all greater than 0.96. Length frequency analysis indicates overfishing for both species. The average monthly gonadosomatic index (GSI) ranged from 0.04 to 0.15 in *A. dispar* males and from 0.23 to 2.99 in females. The average monthly GSI ranged from 0.04 to 0.49 in *A. manillensis* males and from 0.28 to 4.02 in females. For females of each of the two species, the GSI had two peaks: one from February to May (dry months) and the other from July to September (wet months). These peaks might correspond to the spawning runs of these two species. This study provides baseline information which can be used for the management and conservation of these economically important fishery resources. (**Author's abstract**)

Keywords: *Arius*, Comparative growth, Gonadosomatic index, Fishery management, Reproductive period, Biology

Philippine Journal of Science, Volume No. 146 Issue No. 1, 85-94
2017 March,
(Filipiniana Analytics)
Fil(S) Q1 P55 146/1 2017

Length-Weight Relationships of Fishes in Eight Floodplain Lakes of Agusan Marsh, Philippines

Jumawan, Joycelyn C. , Seronay, Romell A.

Length-weight relationships (LWRs) of 16 fish species caught from eight floodplain lakes of Agusan Marsh in the Philippines in January 2014-2015 are reported. The species collected belong to nine families and were mostly introduced to the country. Samples were collected using five types of fishing gear. The “b” values in the LWR $W=aL^b$ ranged from 2.196 to 3.34 and showed a mean value of 2.95. These measurements of fishes from Agusan Marsh contribute baseline information for the management and conservation of this critical wetland. The dominance of introduced over the native species and the risks accompanying this scenario is discussed. (**Author's abstract**)

Keywords: *Agusan Marsh, Introduced fish species, Lakes, Biology*

Philippine Journal of Science, Volume No. 146 Issue No. 1, 95-99
2017 March,
(Filipiniana Analytics)
Fil(S) Q1 P55 146/1 2017

Molecular Characterization of *BRCA1* as Candidate Gene Marker for Subclinical Mastitis in Dairy Water Buffaloes (*Bubalus bubalis*)

Biendima, Cyndi C. , Ramos, Sonny C. , Uy, Mary Rose D. , Mingala, Claro N.

Subclinical mastitis (SCM), a major problem in dairy animals all over the world, is caused by intramammary infections with coagulase-negative staphylococci. It causes enormous losses for breeders since it suppresses the milk yield and quality; hence, it influences the national income of the country. It is related to low milk production, altered milk consistency, low protein content and high risk of contamination due to pathogenic organisms. The goal of the present study is to discover new information about the gene of interest, *breast cancer 1 (BRCA1)*, early onset in the water buffalo genome by examining the presence of single nucleotide polymorphisms (SNPs) in water buffaloes. DNA from milk samples was isolated from thirty female riverinetype water buffaloes. Somatic cell score (SCS) was calculated from somatic cell count for each sample. The results showed two animals reached greater than 5, 5.6 and 5.8 SCS, respectively, which is indicative of SCM infection. Multiple sequence alignment revealed that all samples were monomorphic for *BRCA1* gene. The genetic homology is undeniably high; however, it is not conclusive that the polymorphism found in cattle can also be found in water buffaloes. It is recommended that other single nucleotide polymorphisms in other exon should be studied. Also, the search for other candidate genes and larger sample size are essential to fully understand if these polymorphisms really affect the susceptibility of animals to SCM. (**Author's abstract**)

Keywords: *BRCA1 gene, Somatic cell, Subclinical mastitis, Water buffalo, Biology*

Philippine Journal of Science, Volume No. 146 Issue No. 3, 293-298
2017 September,
(Filipiniana Analytics)
Fil(S) Q1 P55 146/3 2017

Monographic studies and checklist of Philippine littoral echinoderms
, Domantay, J

The interporiferous zone of the ambulacra is deep purple, less pronounced in smaller specimen. In large specimen measuring 24 IIIJII. sand, shells and gravel. Locality: Vicinlty of Jolo (Sulu), 36 m.-42 m., sand and shells; Tawi-tawi Group, Sulu Archipelago, 22-44 m. Specimens Specimens agree closely with the typical glandulosa except for the fact that not a single large globiferous pedicellaria was observed on them. The large globi ferous pedicellariae were subject to freak variation in their occurence in cidarids. in diameter, some of the primary spines distinctly curved upward, not in the smaller ones. Oral primaries distinctly "capped" in the larger specimen, less so in the smaller. coral, sand and shell; Surigao Strait vicinity between Samar and Leyte, 111 m. - 122m.

Keywords: *Littoral echinoderms , Biology*

Acta Manilana, Volume No. A Issue No. 15, pages 91-149
 1976, November,
 (Filipiniana Analytics)
 Fil(S) Q181 A811

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Keywords: *Littoral echinoderms , Biology*

Acta Manilana, Volume No. A Issue No. 15, pages 91-149
 1976, November,
 (Filipiniana Analytics)
 Fil(S) Q181 A811

Two New Nepenthes Species from the Unexplored Mountains of Central Mindanao,
Philippines

Lagunday, Noel E. , Acma, Florfe M. , Cabana, Veneracion G. , Sabas, Novo M. , Amoroso, Victor B.

Nepenthes L. is the sole genus of the family Nepenthaceae. Having the highest rate of endemism of this family, the Philippines is considered a center of diversity of the genus *Nepenthes* along with Sumatra and Borneo. Recent

explorations in Mindanao and Luzon raised the number of Philippine *Nepenthes* species to 50. This study reports the discovery of two new *Nepenthes* species, *N. malimumuensis* and *N. manobo* in the unexplored region of the Pantaron range of central Mindanao making the range a home to eight species. Habitat destruction has the biggest impact on the population of *Nepenthes* spp. in the Pantaron range. The Pantaron range is not a protected area therefore the diversity, distribution, conservation and habitat preservation of the new endemic *Nepenthes* species reported herein need to be monitored closely. (Author's abstract)

Keywords: Central Mindanao, *Nepenthes*, New species, Philippines, Biology

Philippine Journal of Science, Volume No. 146 Issue No. 2, 159-165
2017 June,
(Filipiniana Analytics)
Fil(S) Q1 P55 146/2 2017

0214

Optimization of Chlorophyll *a* Production of Some Cyanobacteria from Rice Paddies in Manipur, India Through Nutritional and Environmental Factors
Thingujam, Indrama , Keithellakpam, Ojit Singh , Oinam, Avijeet Singh , Oinam, Gunapati , Nath, Tiwari Onkar , Dutt, Sharma Gauri

Experiments were carried out to examine the production of chlorophyll *a* by cyanobacteria against various concentrations of nitrate, phosphate, pH and light qualities. It was observed that highest chlorophyll *a* was produced by *Anabaena spiroides* in 0N concentration of sodium nitrate followed by *Phormidium arthurensis* in 1½N concentration of sodium nitrate during 30th day of growth. Pertaining to the effect of phosphate, maximum chlorophyll *a* production was observed by *Nostoc piscinale* in 1½N followed by *Nostoc muscorum* in 2N concentration of dipotassium hydrogen phosphate during 30th day of growth. Photochromatic adaptation studies revealed that maximum chlorophyll *a* production was observed in *Nostoc muscorum* in white light (31.10 µg g⁻¹) followed by red light (14.70 µg g⁻¹) and blue light (8.53 µg g⁻¹) during 30th day of growth. In green light, chlorophyll *a* production was minimum (4.85 µg g⁻¹) during 30th day of growth. The strain *Nostoc muscorum* produced maximum chlorophyll *a* production at pH 8.0 (26.9 29 µg g⁻¹), whereas *Nostoc piscinale* yielded maximum chlorophyll *a* at pH 8.5 (26.30 µg g⁻¹). *Nostoc muscorum* showed comparatively higher chlorophyll *a* content at all pH values. (Author's abstract)

Keywords: Chlorophylla, cyanobacteria, Indo-Burma, light qualities, nutrients, pH, Biology

Philippine Journal of Science, Volume No. 145 Issue No. 4, 373-383
2016 December,
(Filipiniana Analytics)
Fil(S) Q1 P55 145/4 2016

0215

Prevalence of *Leptospira*-agglutinating Antibodies in Abattoir Workers and Slaughtered Animals in Selected Slaughterhouses in Cavite, Philippines
Glorian, Nina G. , Villanueva, Sharon Yvette Angelina M. , Tabo, Nor

Leptospirosis is known to be endemic in the Philippines with high incidence during rainy season or after heavy rains in flood-prone areas. The aim of this study was to determine the prevalence of antibodies against *Leptospira* in

abattoir workers and slaughtered animals in selected slaughterhouses in Cavite, Philippines. Serum samples obtained from 46 abattoir workers and 69 slaughtered animals were subjected to microscopic agglutination test. Results showed that 15.2% of abattoir workers in the study sites were positive for *Leptospira*-agglutinating antibodies against *L. interrogans* serovar (sv) Canicola, Losbanos, and Ratnapura; *L. fainei* sv Hurtsbridge; and *L. borgpetersenii* sv Poi. On the other hand, the overall *Leptospira*-seropositivity in slaughtered animals was 58.0%, 61.7% of which was in pigs and 33.3% in cows. The most frequently occurring serovar in pigs was Poi with 38.3%, followed by *L. interrogans* sv Icterohaemorrhagiae strain Ictero No. 1 (18.3%), Copenhageni (16.7%), and Icterohaemorrhagiae strain RGA (8.3%). On the other hand, the most frequently occurring serovar in cows was Poi (22.2%). The presence of common serovars in abattoir worker-slaughtered animal interface could indicate continual source of leptospires and could pose problems on human health. These serovars could be potential candidates for the development of vaccines and diagnostic tests. **(Author's abstract)**

Keywords: *Abattoir workers, Leptospira-agglutinating antibodies, Microscopic agglutination test, Prevalence, Slaughtered animals, Biology*

Philippine Journal of Science, Volume No. 147 Issue No. 1, 27-35
2018,
(Filipiniana Analytics)
NP

0216

Records of Fungal Endophytes from *Canarium ovatum* Engl. (Family Burseraceae) Leaves General, Mheljor A. , Guerrero, Jonathan Jaime G.

The present study investigated the endophytic fungi in pili (*Canarium ovatum* Engl.), an important tropical tree of Family Burseraceae in the Bicol region. It aimed to identify the species of fungi living as endophytes in the leaves, providing records of such association with the pili tree. It likewise compared the presence of the endophytes in young and mature leaves. Five mature and five young leaves per tree from among five sampled trees were taken as samples. Leaf discs were cut using a 0.64 cm diameter sterilized puncher on two areas within the leaf blade. Sample plant tissues were sterilized using 95% ethanol, 0.4% NaCl, and distilled H₂O, at varying time intervals. The plant tissues were transferred to a solidified Potato Dextrose Agar and incubated for seven days at room temperature (26-32 °C). Results yielded the following species: *Aspergillus fumigatus* Fresen., *A. niger* Tiegh., *A. parasiticus* Speare, *Geotrichium candidum* Link:Fr., *Byssoschlamys fulva* Olliver and G.Sm. and *Absidia corymbifera* Sacc. & Trotter. It was also noted that endophytes were only present in mature leaves. Research on the potentials for bio-activities of the fungal isolates is recommended. **(Author's abstract)**

Keywords: *Burseraceae, Canarium ovatum, Endophytes, Fungi, Pili, Biology*

Philippine Journal of Science, Volume No. 146 Issue No. 1, 1-5
2017 March,
(Filipiniana Analytics)
Fil(S) Q1 P55 146/1 2017

0217

***Rhipicephalus (Boophilus) microplus* Ticks (Family Ixodidae) in Goats Raised in a Small Private Farm in San Jose del Monte, Bulacan, Central Luzon, Philippines Swann, Priscilla Hope Poblete , Claveria, Florencia Garcia**

This study was carried out to ascertain tick infestation of goats (*Capra aegagrus hircus*) grown in a small private farm in San Jose del Monte, Bulacan, Central Luzon, Philippines. Prevalence of infestation was assessed based on ticks collected, soaked in Boardman's solution, and fixed in EtOH with glycerol. Ticks were evaluated as per their developmental stages and gender, and were identified as *Rhipicephalus (Boophilus) microplus*. Prevalence was 62.5% with an average mean intensity of eight ticks/goat. Throughout the study, male goats had higher mean intensity (6-11 ticks/goat) compared to females (4-7 ticks/goat). **(Author's abstract)**

Keywords: *Bulacan, goats, Rhipicephalus (Boophilus) microplus, ticks, Biology*

Philippine Journal of Science, Volume No. 146 Issue No. 4, 493-496
2017 December,
(Filipiniana Analytics)
Fil(S) Q1 P55 146/4 2017

0218

Seroprevalence and risk factor analysis of *Toxoplasma gondii* Among Stray and Domesticated Dogs (*Canis familiaris*) in Antipolo and Metro Manila
Guy, Lowell Reich M., Penuliar, Gil M.

Toxoplasma gondii is a protozoan parasite that causes toxoplasmosis. It infects a variety of warmblooded animals, due to its low level of host specificity, and can cause miscarriage and other birth problems. In the Philippines, the seroprevalence of the parasite among dogs is unknown. To fill this research gap, the objectives of the study were to determine the seroprevalence of *T. gondii* among stray and domesticated dogs in Antipolo and Metro Manila and the risk factors involved in transmission. From the 158 blood samples collected, 24 were seropositive for *T. gondii* and the overall seroprevalence was 15.2%. Seropositivity was higher among strays (26.9%) compared to domesticated dogs (8.3%). Most of the risk factors analyzed had no direct correlation with *T. gondii* seropositivity, but animal welfare was found to have significant association with parasite transmission among stray dogs (OR = 4.041 95% CI 1.494-10.931, P=0.006). **(Author's abstract)**

Keywords: *Risk factors, Seroprevalence, Toxoplasma gondii, Biology*

Philippine Journal of Science, Volume No. 145 Issue No. 1, 49-55
2016 March,
(Filipiniana Analytics)
Fil(S) Q1 P55 145/1 2016

0219

Seventeen years of media reportage of modern biotechnology in the Philippines
Tome, Kristine Grace N., Navarro, Mariechel J., Mercado, Sophia M., Villena, Maria Monina Cecilia A.

A 17-year (2000-2016) study was conducted to understand the print media representation of modern biotechnology in the Philippines. The first 10 years (2000-2009) of print media reportage was published in 2011 covering the development and commercialization of biotech corn in the country. An addition of seven years (2010-2016) of print and online news articles covering the recent happenings in the biotechnology arena of the country such as the research and development of biotech food crops (Bt eggplant and Golden Rice) were analyzed to investigate if there was a change in the manner of news reporting about biotechnology. A total of 2,219 articles on biotechnology from the leading national newspapers, Manila Bulletin, Philippine Daily Inquirer, Philippine Star, and Business Mirror,

covering a total of 17 years (2000-2016), were analyzed in terms of article type (news, feature, opinion, and photo release), tone (positive, neutral, or negative), news sources, message frames, and metaphors used. Results showed that Manila Bulletin published the most number of articles during the 17-year time period. The majority of the articles in the four newspapers were local in focus, and appeared in dedicated sections of the newspaper. The number of articles with positive tone increased from 41% in the first decade to 59% in 2010-2016, mostly published by Manila Bulletin. National government agencies and representatives were consistently cited as main sources of information for both time periods. Biotechnology and genetic modification were the major keywords used since 2000. In the recent seven years (2010-2016), less number of negative keywords such as "Frankenfood" and "poison", were used in the articles, thus the decline in the use of fear appeal. Another dominant metaphor domain used was potential or promise using phrases such as "new hope", "answer to farmers' dreams", and "light of hope". The number of articles framed towards social progress also increased significantly over the last seven years (2010-2016), indicating a more positive discussion of biotechnology in the media. These results show a gradual progression of editorial perspective in the Philippine newspapers towards modern biotechnology. **(Author's abstract)**

Keywords: *Biotechnology, Media monitoring, Print media, News framing, Biology*

Philippine Journal of Crop Science (PJCS), Volume No. 42 Issue No. 1, 41-50
2017 April,
(Filipiniana Analytics)
Fil(S) SB189 P5 42/1 2017

0220

Shallow-water Sea Cucumbers (Echinodermata:Holothuroidea) in Sarangani Bay, Mindanao, Philippines with Notes on Their Relative Abundance
Pitogo, Kier Mitchel E. , Sumin, Jennelyn P. , Ortiz, Ariel T.

The Philippines is known for its high diversity of sea cucumbers; however, there is little done on sea cucumber diversity in the southern Philippines. To augment this paucity of information, a rapid survey of the shallow-water sea cucumbers was carried out in three sites in Sarangani Bay by using the transect method for four months in both the seagrass and coral reef habitats. We recorded 21 species of sea cucumbers – 17 of these species were found in the seagrass beds and 10 species in the coral reef areas. The three most abundant species observed were the *Holothuria scabra* (29.2%), *Bohadschia marmorata* (21.2%), and *Actinopyga echinites* (17.6%) (n=1,969). Aside from some economically important sea cucumbers observed, we also noted rare species such as the *Holothuria immobilis* and *Actinopyga capillata*, which only have a few records in the Philippines. We are also the first to document *Holothuria isuga* in the Philippines, which is previously known only from five localities. The results offer opportunities for sea cucumber studies in the southern Philippines, especially on the biology and ecology of the rare and newly recorded species. **(Author's abstract)**

Keywords: *Actinopyga capillata, Holothuria immobilis, Holothuria isuga, Holothurian, New species record, Sarangani, Biology*

Philippine Journal of Science, Volume No. 147 Issue No. 3, 453-461
2018 September,
(Filipiniana Analytics)
Fil(S) Q1 P55 147/3 2018

0221

Species Identification of Thermo-tolerant *Bacillus* Isolates Using 16S rDNA, *gyrB* Gene (*gyrB*) and Enzyme Gene Sequence Analysis

Hedreyda, Cynthia T. , Monsalud, Rosario G.

Twenty four thermo-tolerant *Bacillus* isolates that tested positive in preliminary enzyme plate assays were subjected to 16S rDNA sequence analysis, which revealed that identification results were not consistent with conventional biochemical identification in eighteen isolates. Identification inconsistencies were resolved in sixteen isolates by *gyrB* sequence analysis that gave single species identification, consistent with 16S rDNA sequence analysis. One isolate was identified as *B. subtilis* based on similar results from the conventional approach and 16S rDNA analysis. Ambiguous identification was observed in seven isolates with 16S rDNA and *gyrB* sequences exhibiting 96-100% sequence identity with two or more closely related *Bacillus* species. Four isolates with ambiguous identification exhibited significant 16S rDNA and *gyrB* sequence identity with a group of *Bacillus* that includes *B. cereus*, *B. thuringiensis*, and *B. anthracis*. Each of three remaining isolates with ambiguous identification exhibited significant rDNA and/or *gyrB* sequence identity with a different group, a group of bacteria that includes *B. vietnamensis* and *B. aquimaris*, a group with *B. safensis* and *B. pumilus* and another with *B. methylotrophicus* and *B. amyloliquefaciens*. Enzyme gene-targeted polymerase chain reaction (PCR) amplified partial gene sequences of at least one of the enzymes protease, cellulase, amylase, and phytase in each of fourteen isolates. The enzyme genes exhibited 98-99% sequence identity with genes reported in the database for *Bacillus* species that matched the identification results. Additional phenotypic and molecular markers that could distinguish closely related *Bacillus* species are necessary to resolve ambiguous identification. (Author's abstract)

Keywords: *Amylase, Bacillus, gyrB, Protease, 16S rDNA, Thermo-tolerant, Biology*

Philippine Journal of Science, Volume No. 146 Issue No. 4, 361-369
2017 December,
(Filipiniana Analytics)
Fil(S) Q1 P55 146/4 2017

0222

Species Richness and Conservation Status of Ferns and Lycophytes in Mt. Hamiguitan Range Wildlife Sanctuary, Davao Oriental, Philippines

Amoroso, Victor B. , Coritico, Fulgent P. , Fritsch, Peter W.

An updated species list and conservation assessment of ferns and lycophytes in Mt. Hamiguitan Range Wildlife Sanctuary, Davao Oriental were provided on the basis of recent field survey and examination of herbarium specimens. One hundred and fifty-two species, belonging to 27 families and 72 genera, were recorded. The species figure is about 13% of the total number of fern and lycophyte species in the Philippines and nearly 20% of the total number on Mindanao Island. Twelve species are broadly distributed Philippine endemics and three more are found only on Mindanao. Nine species are new records for Mindanao. A site-endemic species, *Lindsaea hamiguitanensis*, was also documented. Of the 18 threatened species recorded, one is critically endangered, seven are endangered, and 10 are vulnerable. (Author's abstract)

Keywords: *diversity, pteridophytes, Southern Philippines, threatened species, Biology*

Philippine Journal of Science, Volume No. 145 Issue No. 2, 127-137
2016 June,
(Filipiniana Analytics)
Fil(S) Q1 P55 145/2 2016

***Staphylococcus aureus* and Methicillin-resistant *S. aureus* (MRSA) carriage in Public Computer Service Providers and Utility Jeepneys in UP Diliman**

Ayala, Mary Grace B. , Subejano, Ma. Socorro Edden P. , Almirol, Ricardo Benedict C. , Daquioag, Jann Eldy L., Penuliar, Gi

Staphylococcus aureus is a Gram-positive bacterium that causes minor skin infections to life-threatening diseases. It is transmitted through direct contact with fomites, such as computer peripherals and handrails. Treatment of *S. aureus* infections is generally straightforward, but is complicated by drug-resistant strains, particularly methicillin-resistant *S. aureus* (MRSA). The University of the Philippines Diliman (UP Diliman) has hundreds of computer service providers (CSPs) and public utility jeepneys (PUJs) regularly used by faculty, students, staff, and visitors. While no outbreaks of *S. aureus* and MRSA have been reported, the possibility of infection with this pathogen through CSPs and PUJs is very likely. The objectives of this study are to determine the carriage rates of *S. aureus* and MRSA in CSPs, computer peripherals, and handrails of PUJs inside UP Diliman, and to identify the risk factors associated with *S. aureus* and MRSA contamination. A total of 162 computer peripherals from 27 CSPs and 196 PUJ handrails were swabbed. *S. aureus* isolates were identified using colony morphology, biochemical tests, and amplification of the *nuc* gene, whereas MRSA isolates were identified using the ceftioxin challenge and amplification of the *mecA* gene. *S. aureus* was identified in 92.6% of CSPs, 36.4% of computer peripherals, and 7.1% of PUJs, while MRSA carriage was 3.1% in CSPs and 2% in PUJs. No significant associations between *S. aureus*/MRSA and the assessed risk factors were observed ($p > 0.05$). Results indicate that while *S. aureus* prevalence is relatively high, MRSA carriage is low in CSPs and PUJs in UP Diliman. (Author's abstract)

Keywords: *Staphylococcus aureus, MRSA, Computer peripherals, Handrails, Biology*

Science Diliman a journal of pure and applied sciences, Volume No. 30 Issue No. 1, 60-73
2018,
(Filipiniana Analytics)
NP

Strategy for making safer opioids bolstered

Majumdar, Susruta, Devi, Laks

Compounds have been made that activate only the G-protein signalling pathway when bound to the μ -opioid receptor -- the target of opioid pain relievers. These compounds lack one of the main side effects of currently used opioids.

Keywords: *Morphine, Fentanyl, Opioids, Pain killers, Biology*

Nature, Volume No. 553 Issue No. 7688, pages 286-288
2018,
(Filipiniana Analytics)
F(S) QH1 N2 553/7688 2018

Temporal Variability of Abundance, Morphological and Reproductive Traits of the Invasive *Arctodiaptomus dorsalis* (Marsh 1907) (Copepoda: Calanoida: Diaptomidae) in Relation to the Reduction of Aquaculture in Lake Taal (2008 & 2013)

de Leon, Justine R. , de Vera, Henberson G. , Giron, Earvin Justin A. , Guerrero, Hazel Joyce A. , Chambord, Sophie , Souissi, Anissa , Souissi, Sami , Papa, Rey Donne S.

Calanoid copepods are the dominant zooplankton group of pelagic ecosystems and act as an intermediary between producers and higher level consumers. The abundance of copepods can be an indicator of favorable conditions in an aquatic environment. *Arctodiaptomus dorsalis* is an invasive calanoid species that thrives in many eutrophic lakes in the Philippines. This study aims to determine the differences between the morphometrics, abundance, and reproductive traits of *A. dorsalis* samples from 2008 and 2013 and if these changes were influenced by environmental factors in Lake Taal. Morphometric analysis and abundance were compared between samples collected in 2008 and 2013. Similar temporal trends in abundance were observed for both years. However, the abundance decreased in the 2013 samples except for the mature male *A. dorsalis*. Morphometric measurements showed that total length and total width were larger in 2013 compared to 2008. Reproductive traits such as egg size and clutch size did not vary between years. Secondary data on physico-chemical variables obtained from the Bureau of Fisheries and Aquatic Resources (BFAR) and the Philippine Atmospheric Geophysical and Astronomical Services Administration (PAGASA) did not vary between the 2 years as well. The data seems to indicate that the reduction of aquaculture and the prevailing water quality in Lake Taal did not directly affect the increased body size of *A. dorsalis* in 2013. The results propose that the increase in body size and lower populations of *A. dorsalis* may have been affected by factors such as fish predation and the trophic status of the lake. **(Author's abstract)**

Keywords: *Eutrophication, limnetic zooplankton, morphometrics, non-indigenous zooplankton, Tropical Caldera Lake , Biology*

Philippine Journal of Science, Volume No. 145 Issue No. 1, 37-47
2016 March,
(Filipiniana Analytics)
Fil(S) Q1 P55 145/1 2016

The Treatment of Motile Aeromonad Septicemia in Nile Tilapia (*Oreochromis niloticus*) Using Phage Cocktail Therapy with Notes on the Isolation and Description of a Novel Phage B614

Dela Cruz-Papa, Donna May A. , Baquiran, Justine Mary R. , Pineda, Christelle J. , Susi, Lindley C. , Papa, Rey Donne S.

The resurgence of antibiotic resistance concerning industrially and medically significant pathogens such as *Aeromonas hydrophila*, affecting both farmed fish and humans, poses risks and intensifies the unending search for novel therapeutics. Bacteriophages possessing lytic activity towards bacteria provide the most feasible alternative in such cases. The potential of two phages- UP87 and 8614 (Family *Myoviridae*) - as therapeutic agents in bacterial disease control was tested in motile aeromonad septicemia (MAS)-infected *Oreochromis niloticus* (Nile tilapia). Septicemia was experimentally induced by intraperitoneal injection of 108 colony-forming units (CFU)/mL in juvenile tilapia. Efficacy testing was performed 24 h after infection by oral administration of antibiotic-impregnated feeds and phage-impregnated feeds both for monotherapy and cocktail therapy using the said phages.

Blood analysis by plate count method revealed no significant difference between reductions in bacterial colony growth for all the treatments. Although all treatments produced the same effects, cocktail therapy manifested the fastest rate of bactericidal activity with observed bacterial colony growth clearance after 4 d of treatment. Hence, the results suggested that even though the curative efficacy of phage cocktail therapy is similar to that of antibiotherapy and phage monotherapy, faster rates of bactericidal activity point to the potential of phage cocktail therapy to immediately control the potential negative impacts of MAS. This paper reports the first successful attempt to use phage cocktail therapy in treating MAS-infected *Oreochromis niloticus* in the Philippine setting. **(Author's abstract)**

Keywords: *Aeromonas hyhila*, Antibiotic resistance, Aquaculture, Bacteriophage, Phage cocktail therapy, Biology

The Philippine Agricultural Scientist, Volume No. 100 Issue No. 3, 324-331
2017 September,
(Filipiniana Analytics)
Fil(S) S19 P53 100/3 2017

0227

The Zoogeographic Significance of Caraballo Mountain Range, Luzon Island, Philippines With Focus on the Biogeography of Luzon's Herpetofauna

Gojo Cruz, Paul Henric P., Afuang, Leticia E.

Our recent survey in the Caraballo Mountain Range contributed knowledge about the distribution of herpetofauna of Luzon Island, and allowed comparison of species composition among Luzon's biogeographic regions. Data collection was done using intensive herpetofaunal survey in the sampling area in Pantabangan-Carranglan Watershed in Carranglan, Nueva Ecija in the Caraballo Mountains. Comparison with Luzon's mountain ranges was done using presence-based Jaccard similarity index. Extensive literature survey of available distribution data for Luzon's herpetofauna revealed 153 native and non-native species (45 species of frogs, 65 lizards, 40 snakes, and 3 turtles) representing about 44% of the Philippine herpetofauna. Twenty-five (25) species of frogs and 71 species of reptiles are considered as restricted range, found only in one to three biogeographic regions. Jaccard similarity index showed that the herpetofauna of the Caraballo is most similar to that of the northern Sierra Madre ($J=0.50$) and Cordillera Mountain Ranges ($J=0.45$). The available data showed that the Caraballo has a variable role with regards to Luzon's herpetofaunal biogeography. The Caraballo possess frogs and snakes that are also found in the Sierra Madre and Cordillera, implying that the mountain range is a site of amalgamation for these faunas. On the other hand, it serves as a filter zone and dispersal barrier for burrowing and diminutive skinks and frugivorous varanids, based on the observed distribution of some members of the genus *Brachymeles*, *Parvosцинus*, and *Varanus*. This result confirms the importance of the Caraballo Range as an important biogeographic link between Sierra Madre and Cordilleras. This maybe attributed to the physical connection that provides shared topography and bioclimatic conditions among the biogeographic regions. **(Author's abstract)**

Keywords: *Caraballo*, *Herpetofauna*, *Pleistocene aggregate island complexes*, *Similarity index*, *Zoogeography*, *Biology*

Philippine Journal of Science, Volume No. 147 Issue No. 3, 393-409
2018 September,
(Filipiniana Analytics)
Fil(S) Q1 P55 147/3 2018

BOTANY

0228

Physico-chemical and sensory evaluation of Bilimbi (*Averrhoa bilimbi* L.) powder as souring ingredient

Limbaga, Joyce C.

Bilimbi, commonly known as kamias, is an indigenous, underutilized fruit of the Philippines which is used as a souring ingredient in Filipino dishes such as sinigang and paksiw. Its fruit-bearing is seasonal, thus processing it into a dried form was realized to make it available year-round and minimize harvest losses. In this study, bilimbi was processed into powder to be used as souring ingredient in food. The powder was evaluated for its physico-chemical and sensory characteristics. Production recovery and cost of production were also determined. Hot air oven-drying was employed using two drying temperature, 50 c and 60 c to dry the slices of blanched and unblanched bilimbi fruits for 24h. There was no significant change in pH. TSS and % TA of bilimbi when processed into powder. Results indicated that the use of 50 c drying temperature resulted in lighter more green and yellow color of powder compared to using 60 c. The pH ranged from 2.6 to 3.1, TSS from 2.747 to 2.963 B, TA from 10.06 to 14.577% solubility from 17.823 to 21.717% moisture content from 5.325 to 11.05 and percent recovery from 4.75 to 5.39%. Production cost per gram powder was in the range of PhP 1.93-PhP 2.25 based on prices as of November 2014. Sensory evaluation show that the dilution used was to sour. The acceptability was in the ranged of dislike slightly to like moderately in the 9-point Hedonic scale.

Keywords: *Bilimbi powder , Blanching, Drying, Kamias , Total acidity, Botany*

Journal of Human Ecology, Volume No. 3 Issue No. 1, 55-64
2014 January - December,
(Filipiniana Analytics)
Fil(S) GF1 C65

CHEMISTRY

0229

Antimicrobial Property of Sodium Alginate/TiO₂ Nanocomposite Film

Fundador, Erwin Oliver V. , Villanueva, Jessa Mae A. , Fundador, Noreen Grace V. , de Cadiz, Aleyla E.

Food poisoning outbreaks are commonly caused by bacterial contamination. These incidents can be minimized by using antimicrobial films that are suitable for use as packaging material. These films can be made by immobilizing an antibacterial agent to a non-toxic polymer matrix. Titanium dioxide (TiO₂), when irradiated with ultraviolet light, produces free radicals capable of killing bacteria. Sodium alginate (SA) is an edible polymer taken from brown algae. Both TiO₂ and SA are approved by the U.S. Food and Drug Administration as an additive in food. Therefore, composites made from SA and TiO₂ are considered safe. SA/TiO₂ nanocomposite films can be activated by both fluorescent and black light lamps. As evidenced by the percent color removal of methylene blue, the photocatalytic activity appeared to be higher when exposed to black light. SA/TiO₂ composite films were exposed to fluorescent and black light lamps for 5 h in the presence of *Escherichia coli* and *Staphylococcus aureus*. Under fluorescent lamps, the photocatalytic activity of the SA/TiO₂ composite films was enough to at least inhibit the proliferation of both bacteria. However, exposure of the 5% SA/TiO₂ composite film to black light resulted to a 0 log count for both bacteria. These results showed that SA/TiO₂ composite films can therefore be used in the food industry as an antibacterial film. (**Author's abstract**)

Keywords: Antibacterial film, Food packaging, Methylene blue, Sodium alginate, Titanium dioxide, Chemistry

Philippine Journal of Science, Volume No. 147 Issue No. 3,
2018 September,
(Filipiniana Analytics)
Fil(S) Q1 P55 147/3 2018

0230

Blood Iron Concentration and Status in Pregnant Filipino Women with Single Nucleotide Polymorphisms in *HFE*, *TMPRSS6*, and *TF*

Capanzana, Mario V. , Rodriguez, Marietta P. , Marcos, Juanita M. , Nacis, Jacus S. , Dalmacio, Leslie Michelle M. , Timoteo, Vanessa

Anemia is a significant health problem in the Philippines, especially in pregnant women. Investigation of single nucleotide polymorphisms (SNPs) that are associated with blood iron concentration and status may identify the underlying genetic factors contributing to incidences of anemia, iron deficiency, and iron deficiency anemia (IDA) in pregnant Filipino women. This study determined the genotype distribution of SNPs in the hemochromatosis gene (*HFE*), transmembrane protease, serine 6 gene (*TMPRSS6*), and transferrin gene (*TF*) in pregnant Filipino women and their effects on levels of hemoglobin (Hb), hematocrit (Hct), serum ferritin (SF), serum iron (SI), total iron binding capacity (TIBC), unsaturated iron binding capacity (UIBC), and percent transferrin saturation (TS%). Non-parametric Mann Whitney U test and Analysis of Covariance were performed to evaluate the effect of SNPs on blood iron levels, where maternal age, age of gestation, iron supplementation, and area of residence were considered as covariates. The minor allele frequencies of SNPs in *TMPRSS6* and *TF* among the 109 pregnant women living in Quezon, Palawan are higher than previously reported values. Comparison across SNP genotypes show that: (1) carriers of the heterozygous CG of *HFE* rs1799945 have significantly lower Hct levels than carriers of the wild-type CC, (2) carriers of the homozygous risk genotypes of *TMPRSS6* rs855791 (TT) and rs4820268 (GG) have significantly higher UIBC levels than carriers of the wild-type CC and AA genotypes, (3) carriers of CT and risk TT genotypes of *TMPRSS6* rs855791 and AG and risk GG genotypes of rs4820268 have lower TS% than carriers of the wild-type genotypes, and (4) carriers of AG and risk AA genotypes of *TF* rs3811647 have significantly higher TIBC and UIBC levels than carriers of the wild-type GG genotype. These findings imply that SNPs in *TMPRSS6* and *TF* are potential genetic risk factors for anemia, iron deficiency, and IDA in Filipinos. (**Author's abstract**)

Keywords: Blood iron levels, *HFE*, Pregnant Filipino women, SNPs, *TF*, *TMPRSS6*, Chemistry

Philippine Journal of Science, Volume No. 147 Issue No. 1, 99-112
2018 March,
(Filipiniana Analytics)
NP

0231

Cellulolytic Activities of a Novel *Fomitopsis* sp. and *Aspergillus tubingensis* isolated from Philippine Mangroves

Bacal, Christine Jurene O. , Yu, Eizadora T.

The ability to deconstruct plant cell wall polysaccharides is inherent in fungal endophytes. As such, discovering organisms that secrete potent cocktails of carbohydrate-active enzymes may hold the key to deconstructing waste

agricultural biomass for industrial applications. Based on CMC-Congo red plate based assay, two fungal isolates derived from mangrove trees (JB10 and JB11) showed high enzymatic indices (as high as 5.6 ± 0.18 for JB10). Both isolates were then grown in potato dextrose (PD), carboxymethylcellulose(CMC), and beechwood xylan (XY), and the corresponding endoglucanase, xylanase, and β -glucosidase activities of the enzymes present in crude culture supernatants were determined. JB11 showed significant increase in endoglucanase activity (0.36 ± 0.04 U/mL) in PD, while JB10 endoglucanase activity was similar between the three media. Interestingly, xylanase activity of both isolates was relatively high (ranging 0.26-1.0 U/mL), with JB10 xylanase activity five-fold higher in PD. Lastly, there was 2-4 fold increase detected in β -glucosidase activities (0.59-0.8 U/mL) in both isolates when grown in CMC or XY media. Phylogenetic analysis of the ITS sequences show that JB11 is *Aspergillus tubingensis*, while JB10 is a novel *Fomitopsis* sp. isolate. (**Author's abstract**)

Keywords: *B-glucosidase, Aspergillus, Endoglucanase, Fomitopsis, Mangrove, Xylanase, Chemistry*

Philippine Journal of Science, Volume No. 146 Issue No. 4, 403-410
2017,
(Filipiniana Analytics)
Fil(S) Q1 P55 146/4 2017

0232

The Dietary Guidelines and its Implications for Coconut Oil

Dayrit, Fabian M.

The dietary advice that is generally followed nationally and internationally closely follows the *Dietary Guidelines for Americans* which was first published in 1980 and which has been through eight editions. All of the editions of the *Dietary Guidelines* recommend a diet that is low in fat, and most editions recommend the replacement of saturated fat with polyunsaturated fat. This recommendation is based on the saturated fat-cholesterol-heart disease hypothesis that was first proposed by Ancel Keys in the 1950s. Coconut oil was labeled as unhealthy because of its high saturated fat composition. However, this label is unwarranted. Re-analysis of the work that Keys undertook reveals that he used some inappropriate assumptions that invalidate his hypothesis. Keys undertook a large controlled feeding study, called the Minnesota Coronary Survey (MCS), to prove his hypothesis but he did not publish the results of this work. A recent re-analysis of this work has shown that his results do not support his hypothesis. Further, historical documentary evidence has revealed the significant involvement of the American sugar industry in influencing dietary policy by blaming saturated fat for heart disease. Populations that have adhered to the low-saturated fat dietary recommendation have become significantly overweight and obese. In contrast, populations that continue to follow their traditional diet which includes coconut have not had high rates of obesity. The Keys hypothesis needs to be abandoned. (**Author's abstract**)

Keywords: *Ancel Keys, Coconut oil, Dietary guidelines, Dietary fat-heart disease hypothesis, Chemistry*

Philippine Journal of Science, Volume No. 146 Issue No. 3, 305-314
2017 September,
(Filipiniana Analytics)
Fil(S) Q1 P55 146/3 2017

0233

Effects of cow dung ash-supplemented media on the micropropagation of banana (*Musa acuminata*, Colla) cv. lakatan in the Philippines

Nuñez, Tessie C. , Calibo, Candelario L. , Villaber, Ronald Arlet P. , Gayem, Al Domenic R

Micropropagation of banana (*Musa acuminata*) cv. Lakatan was conducted using different concentrations of cow dung ash suspension as Murashige and Skoog (MS) medium supplements or inorganic macronutrient substitute. The objectives of the study was to determine the macro and micro nutrients present in the cow dung ash, assess the efficiency of different levels of cow dung ash supplements used in tissue culture medium on the growth of banana explant, and evaluate the performance of cow dung ash as substitute to the inorganic macronutrients component of the culture medium used in banana micropropagation. Out of five treatments used, analysis of variance indicated comparable shoot growth and leaf development of supplemented and replaced modified media with the standard medium. For the production of roots, highly significant subsequent rooting of plantlets in the medium with a mixture of 50% MS inorganic macronutrient and 50% cow dung ash was observed. The significance assessment was at 5% level.

In terms of cow dung ash nutrient content it was determined that the sample was composed of 3.536×10^3 mg/kg nitrogen, 2.4170×10^4 mg/kg phosphorus, 3.1831×10^4 mg/kg potassium, 2.9931×10^4 mg/kg calcium, 2.9282×10^4 mg/kg magnesium, 134.75 mg/kg iron, 49.50 mg/kg manganese, 5.50 mg/kg copper, and 127.45 mg/kg zinc. The measured quantities of essential nutrients in cow dung ash show the sufficiency of the organic matter as supplement and inorganic macronutrient substitute to support in vitro growth of Lakatan plantlets. (**Author's abstract**)

Keywords: Cow dung ash, Shoot growth, Leaf development, Production of roots, Nutrient content, Chemistry

Transactions of the National Academy of Science and Technology, Volume No. 39 Issue No. 1, 49
2017 July,
(Filipiniana Analytics)
NP

0234

Evaluation of Growth and Biomass Productivity of Marine Microalga *Nannochloropsis* sp. Cultured in Palm Oil Mill Effluent (POME)

Hadiyanto, Hadiyanto , Soetrinanto, Danny , Silviana, Silviana , Mahdi, Muhamad Zaini , Titisari, Yasinta Nikita

The objective of this study was to evaluate the growth and productivity of marine algae *Nannochloropsis* sp. cultured in palm oil mill effluent (POME) medium. The POME was varied in concentration of 10%, 30%, and 50% (vol POME/vol water) while the comparison with fresh and saline medium was also investigated. The relative performance of the different concentrations of fresh POME were investigated with respect to their productivity, specific growth rate and biomass production. *Nannochloropsis* sp. cultured in 30% (v/v) fresh POME had significantly ($p < 0.05$) higher growth rate (0.31 ± 0.06) d⁻¹ and productivity (0.034 ± 0.01) g $\hat{a}^{\text{TM}} \text{L}^{-1} \text{d}^{-1}$) as compared to fresh medium and other treatments (10% and 50% v/v). These results indicated the potential of microalga *Nannochloropsis* sp. for biomass production and POME nutrients removals. Further research on optimizing biomass productivity and nutrients removal in POME medium should be done prior to its scale up for industrial application. (**Author's abstract**)

Keywords: Biomass, Growth rate, Marine algae, *Nannochloropsis* sp., POME, Chemistry

Feeding habits of *Mobula japanica* (Chondrichthyes, Mobulidae) in Butuan Bay, Mindanao Island, Philippines

Nishida, Shuhei , Tamada, Satoru , Masangcay, Shirlamaine Irina G., Metillo, Sephrime

The diet of the Spinetail Devil Ray *Mobula japanica* Müller and Henle 1841 from Butuan Bay, Philippines was investigated from January to May 2016 using data on its stomach contents, and C and N stable isotope analyses, in order to contribute to the scarce information on the feeding biology of the threatened tropical populations of the *Mobula* species. Examination of 16 *M. japanica* stomachs revealed ingestion of the euphausiid *Pseudeuphausia latifrons*, sergestid shrimps *Acetes intermedius* and *Lucifer* spp., copepods, and other rare prey items. The tropical krill *P. latifrons* was the most common, often the sole food, that increases body length of individuals towards the warmer months of April and May, which coincide with the peak season of *M. japanica* fisheries. Results from $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ stable isotope analysis are consistent with the assimilation of large zooplankton and micronektonic crustaceans. This study is the first report on the feeding of *M. japanica* in tropical waters and the identification of euphausiid *P. latifrons* as its dominant prey. **(Author's abstract)**

Keywords: *Stomach content, Mobula, Pseudeuphausia latifrons, Population structure, Tropical, Chemistry*

Forensic Science in the Prosecution of Illegal Drugs Cases

Diokno, Maria Soco

In light of the current “war on drugs,” forensic science plays a significant role in the prosecution of cases involving illegal drugs to ensure that no innocent persons are ever wrongfully convicted. Prohibited drugs have been a problem in the country since the 1800s. The Philippines has been recognized as “a significant source of high potency crystalline methamphetamine (shabu) used both domestically and exported to locations in East and Southeast Asia and Oceania.” Yet, the prosecution of those involved with dangerous drugs has not been largely successful. Forensic chemists are crucial to successful drug prosecution but current forensic capabilities could be enhanced. Also, the vital role forensic laboratories play in the area of drug control is under-recognized. Forensic laboratories could – and should – provide scientific guidance and advice to strengthen law enforcement, activate early warning systems, enhance regulatory and monitoring capabilities, and develop responsive and effective drug control, prevention, and treatment policies. **(Author's abstract)**

Keywords: *Chain of custody, Current forensic capabilities, Dangerous drugs, Drug control, Forensic chemist, Prosecution, Chemistry*

***In silico* Studies on *N*- (Pyridin-2-yl) Thiobenzamides as NNRTIs against Wild and Mutant HIV-1 Strains**

Singh Ramendra K. , Verma, Rajesh , Singh, Vishal Kumar , Singh, An

In the present study, keeping the Lipinski's Rule of Five in focus, a series of new 4-(4-benzenesulfonylamino)-*N*-(5-substituted-pyridin-2-yl)-thiobenzamides bearing different substituents at the *C*-4 position of benzenesulfonylamino ring have been designed as NNRTIs of wild-type (WT) and mutant HIV-1 strains. Molecules having drug-like character were further docked into the active domain of wild-type (WT) RT/1 with entry code (PDB: ID 3mec) and K103N/TYR181 mutant RT/2 complex (PDB: ID 3BGR) using Discovery Studio 2.5 software. Analysis of the docking results revealed that all molecules formed hydrogen bonds with active amino acids (Lys101, Lys103, Tyr181, and Tyr318) and exhibited π -stacking interactions with Tyr181, Tyr188, Phe227, and Trp229 present in the NNIBP with both WT and mutant HIV-1 RT. The designed ligands adopted 'horseshoe/seahorse' conformation inside the NNIBP like other second generation NNRTIs and formed more stable complexes (total interaction energy found in the range of (-) 54 – (-) 77 kcal/mol) with HIV-1 RT in comparison to etravirine and rilpivirine (-)61.43 and (-)50.23 Kcal/mol, respectively. Consequently, lower EC₅₀ values were predicted for *N*- (Pyridin-2-yl) derivatives. Structure-activity relationships (SARs) are discussed in terms of a possible interaction with the RT binding site, depending on the nature of substituent at ring A and ring C. (Author's abstract)

Keywords: *In silico*, *N*- (Pyridin-2-yl) Thiobenzamides, *C*-4 position, Chemistry

***In Vitro* Controlled Drug Release of Anticancer Drugs Deguelin and Cisplatin by Lauric Acid Derived Polyanhydride as Carrier**

Mateo, John Marty , Sumera, Florentino C.

New lauric acid derived polyanhydride was used in wafer form as carrier in the study of drug release of two anticancer drugs. Its degradation and drug release behavior was herein studied in phosphate buffer solution at pH 7.4 and 37° C. Anticancer drugs deguelin and cisplatin were loaded into wafers made of the new polyanhydride, poly(sebacic acid-co-hydroxylauric acid maleate) anhydride for controlled drug release studies and comparison. The polyanhydride showed that it is degradable, biocompatible and non cytotoxic. Using poly(sebacic acid-cohydroxylauric acid maleate) anhydride wafers containing 5% deguelin, the device can provide a controlled release of deguelin in 20 days delivering 84.6% cumulative release of the drug while following a zero order model of release kinetics. Similarly the device can also provide

a controlled release of cisplatin in 7 days delivering 71.22% cumulative release of the drug following also a zero order model of release kinetics. The mechanism of both drug releases was determined to be by diffusion. This drug-loaded polyanhydride system could find application in localized treatment such as in decreasing tumor size, in preventing tumor recurrence or in post-operative cancerous tumor extraction. (**Author's abstract**)

Keywords: *Anticancer, Cisplatin, Deguelin, Controlled drug release, Hydroxylauric acid, Polyanhydride, Chemistry*

Philippine Journal of Science, Volume No. 145 Issue No. 3, 215-223
2016 September,
(Filipiniana Analytics)
Fil(S) Q1 P55 145/3 2016

0239

Physicochemical and Functional Properties of Wheat (*Triticum aestivum*) and Selected Local Flours in the Philippines

Alviola, Juma Novie A. , Monterde, Viena G.

Exploring locally available wheat alternatives will be advantageous to the domestic flour and baking industry and to the Filipino farmers. This will also offer value-added products to the growing gluten-free market. The physicochemical and functional properties of different flours (non-glutinous and glutinous rice, sweet potato, mung bean, banana, and *sago*) were determined and compared with all-purpose wheat flour. The bread quality parameters of these flours were correlated with flour properties. The commercially available flours (wheat, rice, sweet potato) were significantly whiter than the mung bean, banana, and *sago* flours. In terms of proximate composition, mung bean flour had the highest protein (22.57%), fiber (2.19%), and ash (4.72%) contents among the flours. Sweet potato flour, on the other hand, had the highest total carbohydrates (85.22%), starch (81.50%), and amylose (26.30%) contents. It was the most viscous but was unstable upon heating (i.e., highest peak and breakdown viscosities). Banana flour had the highest water absorption capacity and the second highest swelling power at 85°C next to *sago* flour. The absence of gluten in the non-wheat flours led to firmer and denser bread. Bread from inherently pigmented flours had a significantly darker crumb, but only mung bean flour produced a significantly darker crust than the control (100% wheat). Correlation analysis revealed that using flours with relatively lower fiber and amylose contents, smaller particle size, and lower breakdown viscosity – but higher water absorption capacity – lowers the chances of producing firm and dense bread. (**Author's abstract**)

Keywords: *Bread quality, Functional properties, Gluten-free flours, Physicochemical properties, Wheat flour, Chemistry*

Philippine Journal of Science, Volume No. 147 Issue No. 3, 419-430
2018 September,
(Filipiniana Analytics)
Fil(S) Q1 P55 147/3 2018

0240

Preliminary Investigation of the Carotenoid Composition of *Erythrobacter* sp. Strain KJ5 by High-Performance Liquid Chromatography and Mass Spectrometry

Limantara, Leenawaty , Shioi, Yuzo , Radjasa, Ocky Karna , Salim, Katarina Purnomo , Heriyanto, , Pringgenies, Delianis , Juliadiningtyas, Ayu Dita, Brotosudarmo, Tatas Hardo Paninting

Separation and identification of carotenoids (Cars) from aerobic marine bacterium *Erythrobacter* sp. strain KJ5 are reported. The cells of *Erythrobacter* sp. were grown in a Shioi medium at 28.5°C for three days. Among the four solvents tested, the mixture of methanol and acetone (3:7, v/v) was determined as the optimum solvent for Car extraction from the cells by measuring its absorption spectrum. The Cars were separated via reversed-phase high-performance liquid chromatography using a C8 column and identified by a UV-Vis photodiode array detector and an electrospray ionization mass spectrometry. Bacteriochlorophyll *a* was not detected from the extracts of cells grown under both light and dark conditions. At least 16 peaks of Cars were separated, wherein eleven peaks showed the same absorption spectrum with λ_{\max} at 452-453 nm and at 478-480 nm. The other five peaks had an additional absorption peak at 340 nm, which belongs to *cis*-isomeric form. Two peaks of Cars were identified to be zeaxanthin and β -carotene. (Author's abstract)

Keywords: #946-carotene, Carotenoids, *Erythrobacter* sp., High-performance liquid chromatography, Mass spectrometry, Zeaxanthin, Chemistry

Philippine Journal of Science, Volume No. 147 Issue No. 1, 91-98
2018 March,
(Filipiniana Analytics)
NP

0241

***Pyrodinium bahamense* var. *compressum* Böhm Survival in High and Low Cadmium Levels**
Obena, Rofeamor P. , Arco, Susan dR. , Azanza, Rhodora V.

Pyrodinium bahamense var. *compressum* (*Pbc*) is a major public health concern particularly in the Southeast Asian region, and increasing threat brought by heavy metal pollution has greatly disturbed and altered the ecological balance of the region's marine waters. Herein, we report the effect of cadmium, a biotoxic metal, to cell cultures of *Pbc*. Within 72 h after treatment with high cadmium concentration (50 ppm Cd^{2+}), the cell density dramatically declined. Chlorophylls *a* and *c*₂ also decreased after 30-day exposure. However, the low Cd^{2+} (1 ppm)-treated cells had comparable response to the untreated cultures. Thus, the organism's ability to survive under low dose of cadmium implies a built-in stress response mechanism, but higher concentration is lethal to its survival and growth. The result of this study may lead to clearer insight on the role of metal ions in the growth and bloom dynamics of this important dinoflagellate. (Author's abstract)

Keywords: Cadmium, Cell density, Chlorophyll, growth, *Pyrodinium bahamense*, Uptake , Chemistry

Philippine Journal of Science, Volume No. 146 Issue No. 3, 287-292
2017 September,
(Filipiniana Analytics)
Fil(S) Q1 P55 146/3 2017

0242

Raw Starch-Digesting Amylase from *Saccharomycopsis fibuligera* 2074 Isolated from
***Bubod* Starter**
Jennifer Pena Fronteras, Bullo, Lani Lee R.

Eight microbial isolates from *bubod* starter purchased from the Philippine National Collection of Microorganisms displayed amylolytic activity on raw sago starch indicating that they are possible sources of raw starch-digesting

amylases (RSDA). *Saccharomycopsis fibuligera* 2074 showed the highest activity followed by *Saccharomycopsis bubodii* 2066 as determined through Dinitrosalicylic Acid Method. For *Saccharomycopsis fibuligera* 2074, maximum amylase production was obtained from 36-hour culture using 1% raw sago starch as carbon source under static incubation. The enzyme was purified via two-step purification protocol involving ammonium sulfate precipitation and diethylaminoethyl cellulose chromatography to give a specific activity of 180.49 U/mg and 2.57 purification fold. Further characterization of the enzyme showed that the amylase activity was optimum at pH 6 and temperature of 40°C. Although the enzyme was inhibited by Cu²⁺, Zn²⁺, and Al³⁺, it was activated by Ca²⁺, Fe³⁺, Ba²⁺, phenylmethylsulfonyl fluoride and ethylenediaminetetraacetic acid. On the other hand, iodoacetic acid, K⁺, Cd²⁺, and Mg²⁺, showed no significant effect on the amylase activity. *Saccharomycopsis fibuligera* 2074 showed to be a promising source of RSDA to allow the direct and less costly conversion of raw sago starch to glucose. (Author's abstract)

Keywords: Amylolytic activity, Bubod starter, RSDA, *Saccharomycopsis fibuligera*, Sago starch, Chemistry

Philippine Journal of Science, Volume No. 146 Issue No. 1, 27-35
2017 March,
(Filipiniana Analytics)
Fil(S) Q1 P55 146/1 2017

0243

Review of Biopharmaceuticals and Nutraceuticals from Rice Grain: Exploiting the Endosperm, Germ and Bran for High-value Innovation Rice By-products

San Juan, Amor A.

Applying biotechnology innovation in rice is shown to produce promising biopharmaceuticals. The focus of this review is to critically examine the rice-derived biopharmaceuticals in contrast with rice-based therapeutics, its current progress, and future prospects. The article highlights the function-based analogy of an automobile car with the rice grain, aiming to understand the complexity of rice-based innovation encompassing biopharmaceutical and therapeutics. The combined endosperm, germ, and bran of rice consist of several bioactive compounds that result to a synergistic mechanism effect responsible for its health benefits. This article review shall hopefully encourage further relevant studies on rice product innovation as an added highend value to the rice industry. The perspective ends with a discussion on the challenges and opportunities for biopharmaceuticals and nutraceuticals. (Author's abstract)

Keywords: Biopharmaceutical, Innovation, Molecular farming, MucoRice, Rice, Therapeutics, Transgenic rice, Chemistry

Philippine Journal of Science, Volume No. 147 Issue No. 3, 431-439
2018 September,
(Filipiniana Analytics)
Fil(S) Q1 P55 147/3 2018

0244

Synthesis and Characterization of Pyrazinamide Analogs of Acetylsalicylic Acid and Salicylic Acid

Alea, Glenn V. , Laguna, Faith Marie G. , Ajero, Michael Dominic M.

Pyrazinamide (PZA) is one of the first-line of drugs used to treat tuberculosis. It is an important player in shortening the treatment time of the disease from almost a year to only about six months. The occurrence of resistant strains of the bacteria towards PZA threatens its effectiveness in killing semi-dormant and persistent bacilli in the current and future therapy methods to combat the disease. In this study, PZA analogs of salicylic acid (compounds 5a and 5b) and acetylsalicylic acid (compounds 6a and 6b) were synthesized and characterized. The synthesis involved the preparation of salicylic acid and acetylsalicylic acid derivatives with varying acyl chains via Friedel-Crafts acylation of methyl salicylate, followed by subsequent hydrolysis and acetylation to produce the respective precursor compounds. These were then coupled with 2-pyrazinehydrazide to produce the desired PZA analogs. These analogs may exhibit increased potency against PZA-resistant and susceptible strains of *Mycobacterium tuberculosis*. Characterizations of the compounds were done by IR spectroscopy, high-resolution mass spectrometry, and 1H-NMR spectroscopy. (**Author's abstract**)

Keywords: aspirin, Friedel-Crafts acylation, imine formation, pyrazinamide, salicylic acid, tuberculosis, Chemistry

Philippine Journal of Science, Volume No. 146 Issue No. 4, 457-468
2017 December,
(Filipiniana Analytics)
Fil(S) Q1 P55 146/4 2017

0245

Synthesis of Magnetite-Graphite Oxide Diatomite as an Alternative Adsorbent for Heavy Metal Ions

Dalagan, Juliet Q. , Ibale, Romelisa A.

In this recent work, magnetite-graphite oxide-diatomite (Mag-GO-diatomite) composite was produced and was used to remove heavy metal ions, Cr^{3+} , Cu^{2+} and Pb^{2+} , in aqueous solution. GO was prepared by modified Hummer's method and characterized by Fourier Transform Infrared (FTIR) and Scanning Electron microscopy (SEM). Mag-GO-diatomite was synthesized using a facile method and characterized by FTIR and SEM-energy dispersive Xray (EDX). Results of IR analysis revealed presence of Fe-O at 750 cm^{-1} which indicates strong interaction between iron oxide particles of magnetite with the ester O of GO. This was confirmed by EDX analysis which showed strong signals for Fe and O. SEM images corroborated with the IR and EDX analyses with the occurrence of a rough textural surface indicating the presence of magnetite. Adsorption of the heavy metal ions Cr^{3+} , Cu^{2+} , and Pb^{2+} on GO-diatomite revealed a greater amount of heavy metals adsorbed on the adsorbent with magnetite than the one without magnetite. Furthermore, the adsorption of the 3 metal ions on Mag-GO-diatomite in the presence of each other was investigated and results showed that there is no significant competitive adsorption between Cu^{2+} and Pb^{2+} . However, Cr^{3+} manifested a competitive adsorption behavior with the divalent cations. (**Author's abstract**)

Keywords: adsorption, diatomite, graphite oxide, heavy metal, magnetite, silica, Chemistry

Philippine Journal of Science, Volume No. 145 Issue No. 1, 79-88
2016 March,
(Filipiniana Analytics)
Fil(S) Q1 P55 145/1 2016

0246

Temperature- and pH-Dependent Drug Release of Block Copolymers of Methacrylic Acid and Poly(Ethylene Glycol) Methyl Ether Methacrylates

Atayde, Jr., Eduardo C. , Montalbo, Reynaldo Carlos K. , Arco, Susan D.

The block copolymers, poly(methacrylic acid)-b-poly(di(ethylene glycol) methyl ether methacrylate) (Block-D) and poly(methacrylic acid)-b-poly(poly(ethylene glycol) methyl ether methacrylate) (Block-P) were synthesized via reversible addition-fragmentation chain transfer (RAFT) polymerization towards the development of stimuli-responsive carriers of poorly water-soluble drugs. The structures of the copolymers and the confirmation of successful block copolymerization were studied using proton nuclear magnetic resonance (¹H-NMR) spectroscopy. Data from gel permeation chromatography (GPC) then showed polydispersity indices (PDI) close to 1.0, characteristic of RAFT polymerization. Stimuli-response studies revealed Block-D was responsive at pH 5.15 and 26°C while Block-P was responsive at pH 5.15 and 72°C. The corresponding micelles had particle sizes of 92.95-201.4 nm, as determined by dynamic light scattering (DLS), with critical micelle concentration (CMC) at about 10-1 mg/mL, per fluorescence studies. Using ibuprofen as the model drug, the drug loading content reached 11.76%, at 66.65% efficiency. In vitro release profiles then demonstrated 18% drug release within 5 h at stomach-like conditions, and 65% release within 5 h at small intestine-like conditions. Ultimately, cell viability assays of the blank and loaded micelles confirmed that neither is cytotoxic. These results show the immense potential and capability of the synthesized material as a drug delivery system for poorly water-insoluble drugs. (**Author's abstract**)

Keywords: *Block copolymer, Drug delivery, pH-responsive, RAFT, Thermo-responsive, Chemistry*

Philippine Journal of Science, Volume No. 147 Issue No. 3, 363-372
2018,
(Filipiniana Analytics)
Fil(S) Q1 P55 147/3 2018

0247

Total Phenolic and Total Flavonoid Contents of Selected Fruits in the Philippines

Recuenco, Mariam C. , Lacsamana, Marivic S. , Hurtada, Wilma A. , Sabularse, Veronica C.

The total phenolic and total flavonoid contents of 30 fruits available in the Philippines were studied. Jamaica cherry (aratiles, *Muntingia calabura*), velvet apple (mabolo, *Diospyros blancoi*), tamarind (sampalok, *Tamarindus indica*) and lolly fruit (santol, *Sandoricum koetjape*) had the highest phenolic contents with >350 mg gallic acid equivalents (GAE)/100 g fresh matter (FM). Tamarind, velvet apple, lolly fruit and sugar apple (atis, *Annona squamosa*) had the highest flavonoid contents with >200 mg catechin equivalents (CE)/100g FM. A strong positive correlation was confirmed between the phenolic and flavonoid contents ($r=0.745$, $p<0.0001$). The abilities of the fruits to act as antioxidants were evaluated by the β -carotene bleaching assay. The % inhibitions of β -carotene bleaching varied largely and correlated weakly to the total phenolics and total flavonoids. This could indicate the partial contribution of phenolic and flavonoid contents to the antioxidant abilities of the fruit samples. This study showed that fruits available in the Philippines could be good sources of phenolics and flavonoids. (**Author's abstract**)

Keywords: *#946-carotene bleaching, flavonoid, fruits, phenolics, Chemistry*

Philippine Journal of Science, Volume No. 145 Issue No. 3, 275-281
2016 September,
(Filipiniana Analytics)
Fil(S) Q1 P55 145/3 2016

Assembly Program Performance Analysis Metrics: Instructions Performed and Program Latency Exemplified on Loop Unroll

Cempron, Jonathan Paul , Salinas, Chudrack Shalym , Uy, Roger Luis

Software program optimization for improved execution speed can be achieved through modifying the program. Said program is usually written in High-Level languages then later translated into Low-Level languages, a language specific to the processor used. A larger coverage of optimization can be achieved through optimizing in Low-Level Language – rather than in the High-Level language – because all High-Level languages are eventually translated to Low-Level. One method that has been used in the past is Loop Unrolling, which is done by transforming iterative looping blocks into longer sequential code blocks. This method of optimization increases code length but reduces branching instructions and the latencies introduced by said instructions. However, measuring the performance difference between the original code against the loop unroll optimized code cannot be exposed using current static performance metrics, which rely on IC. Alternative metrics – Instructions Performed and Instruction Latency – are proposed for examining the effectivity of optimization due to the limitations in traditional metrics based on IC. As an extension of loop unrolling, its specific explanation in this paper is discussed as a pre-processor for autovectorization. The specific methods of vectorization, however, will not be a part of this paper’s scope. (**Author's abstract**)

Keywords: Assembly programming, Instruction set architecture, Loop unroll, Metric, Optimization, Vectorization, Computer science

Philippine Journal of Science, Volume No. 147 Issue No. 3, 441-452
2018 September,
(Filipiniana Analytics)
Fil(S) Q1 P55 147/3 2018

Content management system for APC ISO/QMS

Yong, Einst

A Content Management System was designed and implemented for Asia Pacific College Quality Management System (APC-QMS). This is in line with the requirements of the International Organization of Standardization (ISO) 9001:2008. This was done in order to provide a web-based facility for creation and revision of procedures, policies, and annexes and to facilitate in the audit processes of APC-QMS. The problem with the current system used by APC-QMS was first identified. Interviews were conducted to come up with the design and analysis. After the analysis and design, the proposed system was implemented. During implementation, it was found out that some portions of the design are not feasible and some layouts of interfaces needed to be revised for a more professional look. Some modules and processes were added, removed, and modified. The proponents, hence, were able to design and implement a Content Management System for APC-QMS.

Keywords: Content Management System, Quality Management System, International Organization for Standardization, APC-QMS, Computer science

Cost-Effective Programming of Electric Demand in the University of the Philippines Diliman

Araneta, Maureen Anne , Carreon, Mario , Rozul, Amador , Saloma, Caesar

We analyze the electric energy usage and improve the electric demand programming of the University of the Philippines Diliman which maintains more than a hundred separate agreements for the sale of energy by Meralco to its academic buildings. Each agreement covers a unique power-meter account and obligates UP Diliman to pay a monthly electric demand charge that depends only on guaranteed minimum billing demand (GMBD) and not on actual electric demand. In 2010, the actual monthly demand in 34 of 109 accounts always stayed below their GMBD ratings. UP Diliman and Meralco reviewed the agreements and modified the GMBD ratings of 26 accounts to depend on maximum actual monthly electricity consumption in the previous billing year. The new GMBD ratings were first applied in March 2012 and the total electricity bill for the 26 accounts from March to September 2012 was approximately 30% less than what would have been paid using the original GMBD ratings for the same consumption, electricity cost and overhead charges. The 2013 bill of UP Diliman was 2.5% higher than that in 2012 while those in the 2012 and 2011 were higher by 7% and 2.8%, respectively. In contrast, relative consumption increased by 5.6%, 4% and -1.9% in 2013, 2012 and 2011, respectively. A consumption-based GMBD rating scheme is essential if the adoption of more efficient devices and energy-saving measures is to actually lower the electricity bill. Our work illustrates the benefits of accurate demand programming and meaningful public-private partnership in the operation of a public academic institution. (**Author's abstract**)

Keywords: *Campus operations, Electricity consumption pattern, Energy usage programming, Guaranteed minimum billing demand, Public-private partnership, Computer science*

Time-Series Link Prediction Using Support Vector Machines

Co, Jan Miles , Fernandez, Proceso

The prominence of social networks motivates developments in network analysis, such as link prediction, which deals with predicting the existence or emergence of links on a given network. The Vector Auto Regression (VAR) technique has been shown to be one of the best for time-series based link prediction. One VAR technique implementation uses an unweighted adjacency matrix and five additional matrices based on the similarity metrics of Common Neighbor, Adamic-Adar, Jaccard's Coefficient, Preferential Attachment and Research Allocation Index. In our previous work, we proposed the use of the Support Vector Machines (SVM) for such prediction task, and, using the same set of matrices, we gained better results. A dataset from DBLP was used to test the performance of the VAR and SVM link prediction models for two lags. In this study, we extended the VAR and SVM models by using three, four, and five lags, and these showed that both VAR and SVM improved with more data from the lags.

The VAR and SVM models achieved their highest ROC-AUC values of 84.96% and 86.32% respectively using five lags compared to lower AUC values of 84.26% and 84.98% using two lags. Moreover, we identified that improving the predictive abilities of both models is constrained by the difficulty in the prediction of new links, which we define as links that do not exist in any of the corresponding lags. Hence, we created separate VAR and SVM models for the prediction of new links. The highest ROC-AUC was still achieved by using SVM with five lags, although at a lower value of 73.85%. The significant drop in the performance of VAR and SVM predictors for the prediction of new links indicate the need for more research in this problem space. Moreover, results showed that SVM can be used as an alternative method for time-series based link prediction. (**Author's abstract**)

Keywords: *Classification, Link prediction, New links, Support vector machine, Vector auto regression, Computer science*

Philippine Journal of Science, Volume No. 146 Issue No. 2, 105-116
2017 June,
(Filipiniana Analytics)
Fil(S) Q1 P55 146/2 2017

ECOLOGY

0252

An Assessment of the University of the Philippines Los Banos BS Human Ecology Academic Program from 1978-2012 *Sandalo, Rica*

Two hundred and six (206) BS Human Ecology (BSHE) alumni of the University of the Philippines Los Banos (UPLB) College of Human Ecology (CHE) served as the respondents of the study. The research (1) determined the employability of the BSHE graduates in terms of relevance of human ecology to jobs, time spent in securing their first job, salary, tenure, job type, type of employer/sector and workplace; (2) examined factors affecting the respondents employability which included useful skills/knowledge acquired during and after college core competencies of graduates, perceptions of employers and public awareness regarding CHE's objectives and thrusts, and the aim of human ecology as a discipline and as a profession; and (3) gathered feedback from the graduates on ways to improve the implementation of the BSHE program. The respondents accomplished self-administered questionnaires. Data were then encoded and analyzed using frequency counts and percentages. The study found that other determinants of employability of BSHE graduates included skills/knowledge acquired and the major which the respondents took during college, the postgraduate course/training pursued and the public awareness and prospective employers' knowledge on human ecology and the capabilities of human ecology graduates.

Keywords: *Human ecology curriculum, Tracer study, Employability of graduates, Ecology*

Journal of Human Ecology, Volume No. 2 Issue No. 2, 78-90
2012,
(Filipiniana Analytics)
Fil(S) GF1 C65 2/2 2012

0253

Changes in the Antioxidant Activity, Total Phenolics, and Saponin Contents of different Varieties of Roasted Seeds of Sesame (*Sesamum indicum* L.)

Hurtada, Wilma A., Rodriguez, Felicuto M., Yee, Mari

Five varieties of sesame (*Sesamum indicum* L.) seeds differentiated from one another by color of white, brown, dark brown, gray and black were analyzed for changes in the antioxidants activity, total phenolic, and saponin contents during roasting. The anti-oxidant activity expressed as reducing power, measured from 33.20 to 41.70% T. Among them black sesame seeds had the lowest at 38.25% T. The total phenolic content of sesame seed sample ranged from 0.35 to 1.31 mg g⁻¹. On the average, black sesame seeds had the highest total phenolic content of 0.99 mg g⁻¹ while white sesame seeds had the lowest of 0.68 mg g⁻¹. The saponin content of sesame seeds ranged from 0.04 to 0.26 mg g⁻¹. White sesame seeds on the average had the highest saponin content of 0.24 mg g⁻¹ while black sesame seeds had the lowest at 0.08 mg g⁻¹. Compared to raw sesame seeds, roasted sesame seeds had the lower antioxidants activity at 34.82% T, total phenolic content of 0.51 mg g⁻¹ and saponin content of 0.12 mg g⁻¹. Generally antioxidant activity and total phenolic content were higher varieties with darker pigments while the opposite was observed for the saponin content. Roasting may have promoted the degradation of the phenolic compounds in the sesame seeds there by significantly decreasing the antioxidants activity, total phenolic and saponin contents of different varieties of sesame seeds.

Keywords: *Antioxidants, Roastings, Saponins, Sesame seeds, total phenols, Ecology*

Journal of Human Ecology, Volume No. 2 Issue No. 2, 91-98
2012,
(Filipiniana Analytics)
Fil(S) GF1 C65 2/2 2012

0254

Community Social Vulnerability to Climate Change Related Hazards in Selected Municipalities in Laguna, Philippines

Mendoza, Maria Emilinda T, Jr. Ballaran, Vicente G., Arias, Jaimie

The study examined the vulnerability of selected communities in the province of Laguna in the Philippines as a basis for knowledge-based decisions in planned adaptations. Specifically, it endeavored to describe the communities relative vulnerability to typhoons and flooding as climate change-related hazards, analyze the main indicators contributory to their vulnerability, and generate recommendations for vulnerability research and adaptations policies. Using a combination of data gathering and analytical procedures, the study examined 194 barangays in terms of their exposure to flooding and typhoons as climate hazards, their sensitivity to, and their capacities to adapt in the light of these hazards. Based on specific indicators, the study recommended the conduct of more researches on climate change related vulnerabilities with emphasis on social human indicators of sensitivity and adaptive capacities. Adaptation policies must seriously consider localized social vulnerabilities of our communities.

Keywords: *Climate Change, Vulnerability, Social Vulnerability, Hazards, Ecology*

Journal of Human Ecology, Volume No. 2 Issue No. 2, 63-77
2012,
(Filipiniana Analytics)
Fil(S) GF1 C65 2/2 2012

0255

Incarceration and its Effects Towards Family Life Cycle: Selected Cases of New Bilibid Prison Inmates in Muntinlupa City, Philippines

Lobo, Kristine Gail C., Dy, Mari

This study aimed to determine the effects of incarceration on family functioning based on family life cycle (FLC) stages as experienced by inmates. A qualitative research design was used to look into the lives of five medium security prisoners who are currently enrolled in baccalaureate programs. In-depth interviews were conducted to develop the respondents' cases representing each FLC stage. Findings showed that in the Beginning Family Stage, the inmate's emotional aspects are the main concern because his family of orientation cannot visit him. Despite this, the inmate and his wife focused on building their own family. In the Child Bearing Stage, the problem was observed with the inmate's financial aspects because he cannot provide adequately for his own family. Still, the family members managed to reorganize and redefine their roles to remain functioning as a family. At the end of Child Bearing Stage, the inmate is concerned with the emotional and economic aspects because they cannot perform his financial obligations to his family. As a result, the family became dysfunctional due to their emotional distancing. Furthermore, in the Empty Nest and Family Dissolution Stages, their problems were also on the emotional and financial aspects. Stages, their problems were also on the emotional and financial aspects. Both inmates experienced abandonment from their families and financial difficulties inside the prison. Family intervention programs for the family left behind by the inmates need to be considered as a part of the rehabilitation programs offered by the government so that while the inmates are rehabilitated within, the family is also supported in coping with the father's incarceration.

Keywords: *Inmate, Incarceration, Family functions, Ecology*

Journal of Human Ecology, Volume No. 2 Issue No. 2, 49-62
2012,
(Filipiniana Analytics)
Fil(S) GF1 C65 2/2 2012

0256

Localization of the Alkaloid Content of the Different Varieties of Ampalaya (*Momordica charantia* Linn)

Hurtada, Wilma A., Rodriguez, Felicito M., Barrion, Aimee Sheree A., Yee, Mari

Twelve "ampalaya" (*Momordica charantia* L.) varieties namely: Native Taiwan White, Galaxy, Jade star 1, jade star 2, Million Green, Verde Buenas, Verde Suerte, OP 01-127, OP 01-068 and OP 02-367 were tested for the presence of alkaloids in the different parts of the fruit and the plant. The alkaloids were extracted with methanol and the presence of alkaloids was determined by the precipitation method. Thin layer chromatography (TLC) of crude extract was also done to confirm the presence of the alkaloids in the ampalaya fruit and leaves. The study found that alkaloids were not detected in the fruit pulp but were present in fruit flesh and the seeds. The seed of the Native variety had higher amounts of alkaloids in the leaves regardless of varieties may be attributed to some factors like the localization of alkaloids, levels of maturity and function of the alkaloids to the plants. TLC further showed the high concentration of alkaloids in leaves than in any other part of the ampalaya plant.

Keywords: *Alkaloid, Ampalaya, Bitter gourd, charantin, Diabetes mellitus, Momordicine, Ecology*

Journal of Human Ecology, Volume No. 2 Issue No. 2, 99-106
2012,
(Filipiniana Analytics)
Fil(S) GF1 C65 2/2 2012

Social enterprise Pathways as a Tool in Achieving the Triple Bottom Line: The Case of Philippine Business for Social Progress (PBSP) Business in development (BiD) Participants
Geges, Dhino B., Javier, A

This study evaluated six social enterprises (SEs) based in Metro Manila and Naga City in terms of their pathways and adherence following the triple bottom line (TBL) or people, planet and profit (3Ps) dimension. Specifically, it characterized the six SEs and describe their perspective TBL's program management perspectives. Data were gathered through key informant interviews (KIIs), focus group discussion (FGDs), direct observation and document reviews. Results showed that half of the enterprises were categorized as corporation. The SEs employ 4 to 26 men and women from the area and all of them targeted local market for their products and services. It was also revealed that these enterprises adhere to the TBL's planet, and profit (3Ps) as manifested by the financial sustainability, social and environmental issues they addressed. Likewise, the SEs, followed Thompson's (2002) four-stage process of TBL pathway. These engaging, enabling, and enacting. It was found out however that the SEs adherence to TBL though necessary for long-term sustainability, proved to be challenging. This is because they need to ensure the synergy of the 3Ps. While innovative enterprises birth pains during growth stage became significant factors to consider if they wish to further pursue their desired enterprise objectives. Also, the SEs partnership with local; government units (LGU's) is a potential solution to make the SEs sustainable. This can be carried out through policy support and provision of enabling environment among social enterprise. A strategic framework for SE directions and operations to guide the stakeholders is also necessary.

Keywords: *Social enterprises, Sustainability, Triple-bottom-Line perspective, Ecology*

Journal of Human Ecology, Volume No. 2 Issue No. 2, 31-48
 2012,
 (Filipiniana Analytics)
 Fil(S) GF1 C65 2/2 2012

EDUCATION

The 4-4 plan
, Kalaw, Estra

The new secondary curriculum shall abolish the dual avenues which lead to social cleavage. Filipinos, like all other members of this mortal species, look to education, too, as their most potent and most reliable instrument, not only for social and economic progress ; but even for fulfillment of their age old dream of greatness.

Keywords: *Curriculum, Education*

Education Quarterly, Volume No. XVII Issue No. 1, pages 6-23
 1969, September,
 (Filipiniana Analytics)
 Fil(S) L601 P5 1969 c.2

Age category perception as a factor in social role perception and behavior of preschoolers in multi-age groups

Tordecilla, Maria Jennifer B.

The study was conducted to determine the age category of preschoolers in multi-age groups, the bases they used in the age categorization task, and its significant relationship with social role perception and social role behavior. The sample was composed of thirty-three 3 -to - 5 year old children attending the multi-age classes at UP Child Development Center (UP CDC). Preschoolers' perception of age categories was assessed by asking the children to categorize their peers in terms of age- whether they are younger, older or of the same age as them. The reason for such categorization was also asked. Social role perception, on the other hand, was determined by asking the children to choose which of the two complementary tasks shown in the three cards best represents the behavior of their peers. Data on children's social role behavior were gathered through naturalistic observation. The study found out that preschool children were able to categorize peers in terms of age. Percentage computation showed that size was the basis most commonly used by children in the age categorization task. The chi-square test, on the other hand, revealed that age category perception had significant relationship with social role perception and behavior only in the area of teaching. Perceived older children were viewed as performing the role of the teacher while perceived younger peers were perceived as learners. In terms of social role behavior, children performed the leader role more frequently when they interacted with perceived younger peers and follower role during their interaction with perceived older peers. No significant relationship was found between these variables in the areas of sharing and helping. Furthermore, the study also revealed that social roles ascribed to children did not automatically dictate their behaviors.

Keywords: *Preschoolers, Social role perception, Preschoolers -- social role behavior, Education*

The U.P Home Economics Journal, Volume No. Issue No. , 67-89
1998,
(Filipiniana Analytics)
Fil(S) TX165 A1 U3

0260

Building on strong points or what's right with Philippine education , *Martires, Concepcion*

The point is that somewhere, in the teacher training process this sense of concern gets built into the student-teacher's mental process. With their help, the Filipino school child will one day become much more the innovator than he is today: through amplifying these strengths, the Filipino educator can build the system he deems most effective . But one can travel in Asia without finding so frequently: such a sense of the importance of teaching and teaching the best one knows how. In any case, something very difficult is being approached all over the country and it's working. ,Perhaps the experience of teaching in two tongues provides some insights most of us teachers from monolingual situations never gain.

Keywords: *Philippine education, Teaching, Teachers, Education*

Education Quarterly, Volume No. XV Issue No. 2, pages 102-105
1967, December,
(Filipiniana Analytics)
Fil.(S) L601 P5 15/2 1967

0261

Career Planning: · Its implication for parental involvement *, Morales, Alfr*

It seems clear that high school seniors are not expected to make irrevocable decisions about what they should do after graduation. Thus, the best way to assist in a youth's vocational development is through letting him find the answers to the questions: What am I good for? FAMILY RESPONSIBILITY IN THE YOUTH'S VOCATIONAL DEVELOPMENT Basic attitudes are formed in the family. Two crucial questions for the high ability student to answer are: (1) Of the many things which I can do, what do I like to do best? The high school attempts to crystallize in the student his life goals. All these are highly paying occupations, but require high level of training. special high school, this question is narrowed down.

Keywords: *Education*

Education Quarterly, Volume No. XVII Issue No. 1, pages 40-51
1969, September,
(Filipiniana Analytics)
Fil(S) L601 P5 17/1 1969 c.2

0262

Career Planning: · Its implication for parental involvement

It seems clear that high school seniors are not expected to make irrevocable decisions about what they should do after graduation. Thus, the best way to assist in a youth's vocational development is through letting him find the answers to the questions: What am I good for? FAMILY RESPONSIBILITY IN THE YOUTH'S VOCATIONAL DEVELOPMENT Basic attitudes are formed in the family. Two crucial questions for the high ability student to answer are: (1) Of the many things which I can do, what do I like to do best? The high school attempts to crystallize in the student his life goals. All these are highly paying occupations, but require high level of training. special high school, this question is narrowed down.

Keywords: *Education*

Education Quarterly, Volume No. XVII Issue No. 1, pages 40-51
1969, September,
(Filipiniana Analytics)
Fil(S) L601 P5 1969 c.2

0263

The college of education in perspective *Carr, Alde*

The University's Bo-ard of Regents established the CoUege· of Liberal Arts in 1910. Regrettably, as the University President r:eported in 1912, this programme for secondary teacher training did not attract many students. The pre-war pattern of teacher education in the College came under vigorous attack from the reformers because . The normal course for elementary teacher training at that time was a four-year postelementary education programme, which led to an Elementary Teacher Certificate. This programme was taken over and administered by the separate College of

Education which was established in 1918. Paul Monroe of Teachers College, Columbia University, it was administered by the School of Education, organized in 1913 under the College of Liberal Arts.

Keywords: *Tertiary education, Education issues, Individualized instruction, Education*

Education Quarterly, Volume No. XVII Issue No. 1, pages 30-40
1969, September,
(Filipiniana Analytics)
Fil(S) L601 P5 17/1 1969 c.2

0264

The community schools in the Philippines: An appraisal

The second motivation was a learning process, and made teachers, pupils, and parents participants in a multi-faceted enterprise called community education. the three-factor combination on the so-called miracle rice, an effect which had also been obtained in past community school experience for other activities. Motivation toward the languages significant in the operation of the community school. the broader purposes inherent in the community-school idea. of the rapid rise of the Philippine community school, it is probably correct to say that its own internal weakness, not the creation of the PACD, hindered healthy growth. These facts refer to school conditions, but the rural community, more than the urban, has greater need for participation in school activities.

Keywords: *Education*

Education Quarterly, Volume No. XV Issue No. 1, pages 33-41
1967, September,
(Filipiniana Analytics)
Fil.(S) L601 P5 15/1 1967

0265

Continuous progression and accountability , Soriano, Liceria Bril

I am sure that you will get many more ideas about continuous progression from the said memorandum. A number of studies have shown that the more common causes of educational wastage are grade repetition and dropouts. I have requested the organizers of this Conference - the Research, Guidance and Evaluation Division of our Bureau - to distribute to the delegates advance copies of our memorandum on continuous progression. May this national convention, the first since 1966 awaken you to your true role as research supervisors in this increasingly more complicated public school system of ours and make yourselves felt as agents of change. At the end of the current school year, all public elementary schools shall adopt a continuous progression scheme with certain modifications.

Keywords: *Philippine education, Teaching, Education*

Education Quarterly, Volume No. XIX Issue No. 1-2, pages 12-18
1971, July - December,
(Filipiniana Analytics)
Fil(S) L601 P5 1971

Curriculum trends in Asia: Ruralization of higher education
, Patel, M

It is here that the major conflict over the professional curriculum arises. Curriculum will have to be adapted to the needs of rural areas. Those of purely professional education lack in general knowledge and culture, which are the hallmarks of a well educated person. A purely liberal curriculum or a purely professional curriculum is a thing of the past, when the society consisted of masters and slaves. Curriculum development in rural institutions has to make use of these learning experiences. Their curricula have to be geared to social and economic development of the rural areas. MOS'!' MOS'!' OF THE problems of higher education in Asia centers around curriculum new force in contemporary society in developing countries of Asia .

Keywords: Philippine education, Teaching, Education

Education Quarterly, Volume No. XIX Issue No. 1-2, pages 3-11
 1971, July - December,
 (Filipiniana Analytics)
 Fil(S) L601 P5 1971

Developing creativity in children
, Guillermo, Virgi

The environmental conditions alone, however, do not make children creative. This is the third stage of the creative process. The second stage in the creative process is incubation. The next point to consider is the creative process. In the creative process, this is not so. There is, however, a great difference between the incubation period for eggs and that of the creative process. The most widely accepted description of the creative process includes the following: preparation, incubation, illumination, and verification. Since learning starts as soon as the baby is born, this preparation stage of the creative process is the responsibility of the home, the school, and the community. This period of illumination or inspiration comes when it is least expected.

Keywords: Student behaviors, Education

Education Quarterly, Volume No. XVII Issue No. 1, pages 56-61
 1969, September,
 (Filipiniana Analytics)
 Fil(S) L601 P5 1969 c.2

Education for thinking
, Sta. Maria, Felixbe

That is why intellectual conflict, rather than uniformity of thought, is the mark of a truly liberal university. A high school or college education is not designed to put an all-powerful key in one's hands to open all doors. Liberal education has the advantage of providing the needed balance between the thinking and the doing. College education has the distinct obligation of identifying these men, developing them, and creating a climate which would enable them to use their talents to the maximum. Education Education should basically be a process to teach the person how to think rather than how to do. Thus the emphasis on ideas and thinking in a liberal university presumes an attitude of tolerance. When the liberal college or university.

Keywords: *Teaching, College education, Education*

Education Quarterly, Volume No. XV Issue No. 2, pages 6-11
1967, December,
(Filipiniana Analytics)
Fil.(S) L601 P5 15/2 1967

0269

Education in democracy versus culture in the Philippines *Lawless, Robert*

Writer claims the Philippine education system is not integrated into Filipino society and it does not reflect the desires and needs of the people because it is the propaganda arm of an alienated government.

Keywords: *Philippine education, Philippine education system, Education*

Education Quarterly, Volume No. XV Issue No. 1, pages 14-32
1967, September,
(Filipiniana Analytics)
Fil.(S) L601 P5 15/1 1967

0270

Educational reforms in the constitution

The focus of this study is on the needed educational reforms in the fundamental law of the land, the Constitution. It will therefore be limited to reforms on basic educational policies and structure for decision-making on educational goals rather than on specific educational programs and projects. The Constitution is not and should not be concerned with details but only with the fundamental issues of policies and structures.

Keywords: *Philippine education, Teaching, Educational policies, Education*

Education Quarterly, Volume No. XIX Issue No. 1-2, pages 33-40
1971, July - December,
(Filipiniana Analytics)
Fil.(S) L601 P5 1971

On emergence of logical thinking: a pilot study
, Aurora, Emil

The findings yielded by statistical analysis do warrant the combined criteria (logico-mathematical experience and verbal rule instruction) in facilitating the development of early logical structures.

Keywords: *Philippine education, Teaching, Education theories, Education*

Education Quarterly, Volume No. XIX Issue No. 1-2, pages 41-59
 1971, July - December,
 (Filipiniana Analytics)
 Fil(S) L601 P5 1971

Formal and informal theories of administration
, Eslao, Ruf

Human relations approach is characterized by the belief that man in an organizational setting is not easily predictable. If the current setup of our national local progress; if this generation of leaders in politics, business, and the professions; if the present generation of voters and consumers, represent the cream of the product of the public school system. On the other hand, we fail miserably to promote better educational programs, which is the legitimate reason for having good human relations. From Human Relations Model, we may ask these questions: 1) How far is the human relations approach applied in the public school system? The Human Relations Approach is the model most appropriate for democracy. Human Relations approach is the forte of most public school's administrators.

Keywords: *Administration, Educational Theories, Education*

Education Quarterly, Volume No. XV Issue No. 2, pages 65-75
 1967, December,
 (Filipiniana Analytics)
 Fil(S) L601 P5 15/2 1967

Some guidelines for introducing population-related materials into the mathematics curriculum at the high school level
, Jayasuriya, J

It is recognized that in the development of these materials, the writers were influenced by various mathematics curriculum abroad. This series is used in the High School of the University of the Philippines and in many other high schools. This attempt to develop a continuum of curriculum materials in science and mathematics involved the collaborative efforts of various disciplines and of a number of agencies external to the University. It is hoped, however, that they would be relevant in the context of other countries, and also in relation to whatever textbooks are in use for teaching mathematics at the high school level. Action taken in the Philippines so far to introduce population-related materials has been through the following fields of study: health, home economics, science and social studies.

Keywords: *Philippine education, Teaching, Curriculum, High school, Education*

Education Quarterly, Volume No. XIX Issue No. 1-2, pages 19-32
1971, July - December,
(Filipiniana Analytics)
Fil(S) L601 P5 1971

0274

Historical research: a foundation for effective writing
, Lacuesta, Man

To improve the quality of historical writing, it will help . From the standpoint of historical writing, history may be divided into three classes : the poetical, the philosophical, and the purely historical. There is hardly any historical writing today that does not have a bit of historical research involved. The procedure of historical research includes: (a) formulating the problem, (b) collecting source materials, including primary and secondary sources, (c) criticisms . The critical requirement, is a distinctive contribution of the historical method to historical writing. How then, should the historian tackle his job of writing history?

Keywords: *Philippine education, Teaching, Writing, Education*

Education Quarterly, Volume No. XIX Issue No. 1-2, pages 60-71
1971, July - December,
(Filipiniana Analytics)
Fil(S) L601 P5 1971

0275

International education for mutual understanding
, Morales, Alfr

Its economics, its science, its cultures, its religions, and also its mission of world peace and cooperation through international education for mutual understanding and friendship. One of these is the preparation of the participants in the performance of the professional tasks of leaders for organizing and improving programs and institutions of teacher education in their countries. To them, educational and cultural ends gained supremacy and became focused on the improvement of the quality of their profession as teacher-educators, and on their civic purpose as leaders in their country. The broader program of the Asian Institute for Teacher_ Educators adopted two general objectives. Burma and Mongolia are two more Asian Member States, hnt they have not sent any participants to the Asian Institute fo:: Teacher Educators, so far.

Keywords: *Teaching, Teachers education, Education*

Education Quarterly, Volume No. XV Issue No. 1, pages 47-57
1967, September,
(Filipiniana Analytics)
Fil(S) L601 P5 15/1 1967

Mathematics education
, Alarilla, L

Familiar and understandable problems should be given children which, once they have been solved, become tools in solving more complicated problems. Hence a reversal to the status quo, the easiest way, of teaching arithmetic. More comprehensive in use are the cuisenaire rods for teaching arithmetic. Further improvement in the vernacular version of teaching materials may prove beneficial not only in teaching mathematics but also other subjects. To better prepare teachers in teaching modern mathematics the Bureau of Public Schools issued Memorandum No. The researcher recommended that teachers with units in mathematics should be given preference in the assignment of teachers of arithmetic. and hatred of mathematics among children can be accomplished through the guidance of an interested and enthusiastic .

Keywords: *Education*

Education Quarterly, Volume No. XVII Issue No. 1, pages 68-77
1969, September,
(Filipiniana Analytics)
Fil(S) L601 P5 1969 c.2

**MULTIPLE-CHOICE QUESTION (MCQ) ASSESSMENT METHOD FOR IMPROVED
ACADEMIC PERFORMANCE IN PHYSICS OF SHS-STEM STUDENTS AND THEIR
COGNITIVE STYLE: A COMPETITIVE AND COLLABORATIVE APPROACH**

Sabuag, Nicole Antoinette S. , Dumo, Andreana Nicole K. , Luna, Reynold V.

Several assessment methods arise from the need of better instruction especially in teaching General Physics. One of these assessments is the use of multiple-choice question (MCQ). In this paper we investigated the use of MCQ Assessment method on the apparent improvement on students' performance in physics. The students (N=228) involved in =study were from SHS-STEM of PUP Manila, all of whom took the Cognitive Style Inventory, pre-test, a lecture, MCQ Assessment which involves students grouped in two while making their own MCQs- to be answered by the opponent group with justification of answers, and a proceeding post-test. Results show that there was an increase of mean scores on their pre-test and post-test after performing the MCQ Assessment method. Their General Physics 1 grade too is a factor on the student's post-test score and MCC Assessment group score. However, the students performed poor based on the passing rate since only 128 MCQs were generated by the students and that the assessment method was only administered once. It was also found that those who made MCQs have a Split Cognitive Style and there exists an improvement of their test scores than those who die not and those with other Cognitive Style. (**Author's abstract**)

Keywords: *Pedagogy, Action research, cognitive style, Assessment, Active learning, Education*

Philippine Physics Journal, Volume No. Issue No. , 150-157
2018,
(Filipiniana Analytics)
Fil(S) QC1.P6 P45 vol. 40 2018

Personality patterns and problems of college students leaders

This investigation of the personality traits, leadership patterns, mental ability, and problems of college student leaders is the only one of its kind which has, so far, been undertaken in the Philippines. At least, there is no record to date of a Philippine study of a similar nature. The subjects of the study were one hundred sixteen (116) college student leaders elected to the positions of the highest student organizations in sixteen schools, colleges and universities in Cebu City, the second largest city in the country. The project started in March of 1967 when, in connection with a seminar on student leadership training in this city, the participants were given psychological tests and a questionnaire.

Keywords: *Personality, College Students, Education*

Education Quarterly, Volume No. XV Issue No. 2, pages 96-101
1967, December,
(Filipiniana Analytics)
Fil.(S) L601 P5 15/2 1967

Philippine education: Problems and prospects

There is a lack, in other words, of an investment calculus in making career choices for higher education. Now it is quite possible therefore that a developing country might actually over invest in higher education. In the middle, 55% are in private high schools and 45% in public or government high schools. All government high schools in the country, except vocational high schools, are financed by the provincial governments, and by the national government. Some of the problems of higher education seem to be as follows: first, the nature of the demand for higher education. And lack of this investment calculus has resulted in a wild distribution of enrollees and graduates in higher education in the Philippines.

Keywords: *Education*

Education Quarterly, Volume No. XV Issue No. 1, pages 6-14
1967, September,
(Filipiniana Analytics)
Fil.(S) L601 P5 15/1 1967

Piaget's equilibration principles: Its theoretical, empirical, and educational implications for cognitive development of the child , Miao,

He says: Within the domain of Piaget's invariant process of accommodation and assimilation, sight processes may be identified: 1. Thus Piaget's posits that experience, or environment- derived knowledge, per se as a factor in cognitive development is an equivocal one. A Schematic Model of Piaget's Equilibrium Principle Chief features of the model are: 1. Similarly, the instability of the transitional forms as described by Bertalanffy is analogous to the relative impression of Piaget's intermediary stages. Thus in order to stay within the context of Piaget's system and examine

certain of its constructs, one should before proceeding to a more precise analysis . Thus in order to stay within the context of Piaget s system and examine certain of its constructs, one should before proceeding to a more precise analysis

Keywords: *Piaget, Education*

Education Quarterly, Volume No. XVII Issue No. 2, pages 67-84
1969, December,
(Filipiniana Analytics)
Fil(S) L601 P5 17/2 1969 c.2

0281

Planning and administration of the off-campus student teaching program of the U.P college education , Cadelina, Ge

It is only logical, therefore, that more expectations from the student teacher's participation in the program are determined by the institution. A litany of these student teaching objectives, while numerous and so widely written about by expert authorities, do reveal four prominent categorizations. In the College of Education, University of the Philippines, there lies within the organizational framework of off campus student teaching certain inherent difficulties which should be recognized. Who has not learned something from being in the charismatic presence of the great personality? Influencing the student teacher to act professionally, personally, socially, culturally, and morally. Experience has taught me as a college supervisor of student teachers for the past five years, that these responsibilities cannot be solely in terms of particular techniques or procedures.

Keywords: *Philippine education, Teaching, U.P College of Education, Education*

Education Quarterly, Volume No. XIX Issue No. 1-2, pages 72-79
1971, July - December,
(Filipiniana Analytics)
Fil(S) L601 P5 1971

0282

Problems of Filipino college students

The adults never seem satisfied with the behavior of the young generation. In many instances, when brought to the field of education, these evaluations have taken another form in teacher and student relationship. The manner by which adults evaluate the young seems to follow the same pattern from generation to generation. But oftentimes they are written down by teachers in documents like the BPS Forms, guidance forms, and other records o.f students. A number of social scientists have explored the existing data about students with the objective of understanding them better. They have bad manners, contempt for authority, they show disrespect for elders and love chatters in place of exercise.

Keywords: *Filipino college students, Education*

Education Quarterly, Volume No. XVII Issue No. 1, pages 43-55
1969, September,

A realistic look at the guidance today
, La-Cuesta, Manu

But surely, there is not enough evidence to support the "degree of mystery in which the process has been wrapped by enthusiastic participants" in the guidance process. It stems from the mistake of identifying the guidance process with currently fashionable techniques of collecting and systematizing the information which is considered useful in the process. Even our old teachers, who never took any course in guidance, have used many, if not most, of the recognized guidance techniques for many years, without their knowing it. Among the techniques used are non-directive counseling, permissive guidance activities, and other forms of group dynamics, such as shared leadership. But as society becomes more advanced and complex, guidance becomes increasingly specific in nature and becomes the responsibility of experts.

Keywords: *Guidance , Counseling, Philippine education, Education*

Education Quarterly, Volume No. XV Issue No. 1, pages 73-78
1967, September,
(Filipiniana Analytics)
Fil.(S) L601 P5 15/1 1967

Self-efficacy development in School Principal Enhancement Programs
Albor, Rufo Gil Z.

This mixed methods study aimed to describe the elements in Principal Enhancement Programs; identify specific elements in Principal Enhancement Programs which contributed to self-efficacy of principals; identify unplanned experiences during the Principal Enhancement Programs which contribute to self-efficacy development; and, recommend ways on how Principal Enhancement Programs may further design experiences promoting self-efficacy development. A total of 21 randomly selected principals from a municipality in Southern Tagalog Region of the Philippines were identified as eligible respondents for this study. They rated the effectiveness of their Principal Enhancement Programs and their self-efficacy were chosen for qualitative interviews. Principal Enhancement Programs were perceived to be most effective in encouraging collegial relationships and self-reflection practices., promoting policy or procedure knowledge and practiced supervision. The Spearman Correlation Analysis showed that instruction, relevancy of coursework to practice and field experience elements were significantly associated with self-efficacy. Interview transcripts revealed that instructional experiences and leadership experiences before principalship are crucial to self-efficacy development. To purposefully create efficacy-building experiences that cause students to work with other people; develop extensive field experiences; and, make leadership experiences prerequisite to principalship.

Keywords: *Principal enhancement programs, Principal, Self-efficacy, Leadership, Spearman Correlation Analysis, Education*

Journal of Human Ecology, Volume No. 2 Issue No. 2, 1-12
2012 July - December,

The student teacher and the U.P high school student
, Socrates, J

High School student. What is the nature of this circumstance which demands nothing less than excellence on the part of the student teacher? High School students, she must be properly equipped with the necessary knowledge, at least of subject matter and methods. She is also subject to supervision by the Coordinator of Student Teaching; she may even be informally evaluated by her own co-studied teachers. To her advantage it adds to the feeling of self-confidence so necessary in a teacher's life. They call for nothing less than excellence on the part of the student teacher. High School, she actually becomes a member of the faculty and not just an apprentice in it.

Keywords: *Teachers education, Teaching, Education*

Education Quarterly, Volume No. XV Issue No. 1, pages 68-72
1967, September,
(Filipiniana Analytics)
Fil.(S) L601 P5 1967

The teachers and the problem of values
, Andolong, Flor

Outside of the classroom, the young student's life is made up of family, friends, people he meets and places he goes to. It is a rare chance that comes within the time and scope of the teacher's job wherein he can demonstrate very effectively the rewards of virtue. They have, in their own way, become "practical" young people through the example of the "practical" adults. Somehow, values we vow to uphold and seek to inculcate seem not practicable nor applicable to the society in which we exist. The problem has never been, or should not be, what to teach but, rather, how to guide the students in forming the right values. Not even the most classical argument is guaranteed to promptly convert a student and unseat him from his smug cynicism.

Keywords: *Values, Teachers, Education*

Education Quarterly, Volume No. XVII Issue No. 1, pages 62-67
1969, September,
(Filipiniana Analytics)
Fil(S) L601 P5 1969 c.2

Trends and needed research in teacher education
, Elequin, Elea

The traditions of the normal school and the multi-purpose university dictate an eclectic approach to research on teacher education.

Keywords: *Teacher education, Education*

Education Quarterly, Volume No. XVII Issue No. 1, pages 24-34
1969, September,
(Filipiniana Analytics)
Fil(S) L601 P5 1969 c.2

0288

The youth and responsible leadership , *Sta. Maria, Felixbe*

Discussed here are the involvement of the Filipino youth in the nationalistic movements here in the Philippines.

Keywords: *Youth leadership, Education*

Education Quarterly, Volume No. XVII Issue No. 1, pages 35-42
1969, September,
(Filipiniana Analytics)
Fil(S) L601 P5 1969 c.2

ENGINEERING

0289

Arma modelling of a stochastic process appropriate for the Angat reservoir *Dizon, Cornelio Q.*

Modelling a hydrologic time series is generating a synthetic sequence that can be used in the operation of a water resource system. Most time series are stochastic in that future values are only partly determined by past values. The paper presented the ARMA model selection process that was used by this author in a previous study and showed that the selected autoregressive model of the Angat Reservoir inflows was appropriate by comparing the generated model outputs with recent observed measurements from 1986 to 2008.

Keywords: *Autoregressive model, Angat Reservoir inflows, ARMA modeling, Hydrologic model, Streamflow forecasting, Engineering*

Philippine Engineering Journal, Volume No. 28 Issue No. 1, 1-20
2007 June,
(Filipiniana Analytics)
Fil(S) TA4 P532

**Determining the operating condition for maximum bio-oil production from
pyrolysis of *Nannochloropsis oculata***
Maguyon-Detras, Monet Concepcion , Capareda, Sergio C.

The extent of bio-oil production from pyrolysis of *Nannochloropsis oculata* was investigated at varying temperatures. (400, 500, 600°C) and pressures (0, 50, 100 psig) to establish operating conditions that maximizes bio-oil yield. Results showed that bio-oil production is greatly dependent on temperature ($p < 0.001$) and pressure ($p = 0.0048$). Using Response Surface Analysis, the best conditions for bio-oil production were determined to be equal to 540°C and 0 psig. At best conditions, liquid product yield was about 43% wt (20% wt aqueous; 23% wt bio-oil) while char and gas yields were approximately equal to 32% wt and 12% wt, respectively. Bio-oil characteristics (i.e. heating value, chemical composition) indicate that it could be a potential replacement for crude oil after further processing. Char and gaseous product on the other hand, contain considerable energy contents of about 20 MJ kg⁻¹ and 21 MJ m⁻³, respectively which indicate that these products can also be used as alternative energy sources.
(Author's abstract)

Keywords: *Bio-oil, Char, Nannochloropsis oculata, Pyrolysis, Response surface analysis, Engineering*

Philippine Journal of Crop Science (PJCS), Volume No. 42 Issue No. 2, 37-47
2017 August,
(Filipiniana Analytics)
Fil(S) SB189 P5 42/2 2017

Development of a training module for electrostatics - a prototype
Dizon, Mark Ern

One of the most difficult areas to learn and to teach is Electrostatic due to its highly abstract nature. Students have a hard time visualizing electric forces, fields and energies. The project aims to create a low-cost, portable, safe effective, and interactive training module which consists of unique laboratory equipment, experiment, and instructor's manual with corresponding micro-computer based tutorials. After conducting series of survey, pre and post testing to evaluate the design of the Electrostatic training module, it is concluded that the objective was met. Furthermore, the proponents were able to produce laboratory equipment and experiments with corresponding micro-computer based tutorials that give visual perception on the concepts in Static Electricity following the CHED M.O. no 24 series of 2008 on laboratory requirements for the Physics 2 course.

Keywords: *Training module, Electrostatic, Virtual Teacher Vki, Distance-variable suspender, Engineering*

School of Engineering Journal, Volume No. 3 Issue No. 1, 14-24
2016 December,
(Filipiniana Analytics)
Fil(S) TK7800 S36

Development of an auto rental and leasing application: Click application *Cua, Mark Edi*

An Auto Rental and Leasing Application was developed for Autohub Group of Companies. The proponents aim to create a mobile application that will replace the foreign E-hailing applications. The application's difference with foreign E-hailing applications, such as Grab and Uber, is that it cannot decline a booking once the driver has been assigned to a rider, it allows the rider to view its receipts or past transactions via booking history and its fare price is dependent on the fuel price and distance. The administrator can also generate reports to give the company an opportunity to improve its services. Interviews were conducted to further understand the system. After finishing the system, test were conducted and errors or revisions regarding the logic of the application were identified. These errors or revisions were addressed before conducting another series of tests. In conclusion, the proponents were able to create a mobile application that could replace foreign E-hailing applications.

Keywords: *Android, Auto rental, E-hailing, Leasing, Mobile application, Engineering*

School of Engineering Journal, Volume No. 3 Issue No. 1, 25-36
2016 December,
(Filipiniana Analytics)
Fil(S) TK7800 S36

0293

Development of internet-ready raspberry-pi-based multimedia projector with android-supported smart phones remote controller: web projector *Samaniego Jr., Leona*

The project started with the idea of a projector without the need of bringing a laptop nor a flash drive. VGA cable deterioration is also considered as the reason why there is a change of color in the projected image of the projector. With these projected-related problems, the proponents established the idea of making a wireless internet-capable projector that does not need a laptop or a computer for it to be used. A projector that can be controlled by a smart phone via VNC, has access to the internet and can be used with just inserting one's flash drive. The Raspberry Pi serves as the mini-computer of the project which handles the processes that a computer normally do, only that it is integrated inside the projector; thus eliminating the need for an external device. The project chassis was made from a black-painted wood for better heat absorption to contribute in controlling the temperature inside the unit. The light source that was used is LED for it is more efficient and it emits less heat. Prime lens, Fresnel lens, and LCD was also used for the projection mechanism. Given the circumstances, it is then recommended to the future researchers who will make the project to use a better version of Raspberry Pi for faster data processing, make a smaller yet well-ventilated chassis, use more efficient power supplies to avoid power shortage, and use powerful yet silent fans for the air-cooling system.

Keywords: *Web projector, Raspberry pi, Smart phone, Internet, Engineering*

School of Engineering Journal, Volume No. 3 Issue No. 1, 34-47
2016 December,
(Filipiniana Analytics)
Fil(S) TK7800 S36

0294

Effectiveness of Commercially Available Vibration Dampeners in Reducing Hand-Arm Vibrations on Diesel-Powered and Gasoline-Powered Hand Tractor

Binarao, Jan Karl P. , Layaoen, Haerold Dean Z. , Revilla, Josefa Angelie D. , Ani, Angelo C. , Caroché, Maria Liezel P.

Hand tractors are among the major agricultural machines used by Filipino farmers. They aid farmers in the laborious process of preparing the land prior to planting. Though hand tractors enhance efficiency and productivity of farming, they still pose some threat to the user, specifically with the vibration they generate during operation. Prolonged exposure to vibration from hand tractors may lead to the health risk called hand-arm vibration syndrome (HAVS). This study compared the effectiveness of vibration dampeners available in the market when operating a diesel- and a gasoline-powered hand tractor. The experiment was done in a stationary position based on the standards set by IS/ISO S349: 2001. Baseline measurements of vibration at 2100, 2700, and 3300 rpm were as follows: 6.60, 7.12 and 10.50 m/s^2 for diesel-powered hand tractor, and 6.81, 4.65 and 11.04 m/s^2 for gasoline-powered hand tractor, respectively. Combinations of handle grips and engine mounts were tested to determine the optimal reduction of transmitted hand-arm vibration. The combination of BMX handle grip with mount model FSA had the highest reduction in vibration by 35.23% when a diesel-powered hand tractor was used. Mountain bike handle grip with mount model FSA yielded the highest reduction by 52.29% when a gasoline-powered hand tractor was used. **(Author's abstract)**

Keywords: *Commercially available hand grips, Hand-arm vibration syndrome, Vibration dampeners, Engineering*

The Philippine Agricultural Scientist, Volume No. 100 Issue No. 2, pages 133-142
2017 June,
(Filipiniana Analytics)
Fil(S) S19 P53 100/2 2017

0295

Emission Characteristics of a Diesel Engine Fuelled with Preheated Vegetable Oil and Biodiesel

Hoang, Anh Tuan , Nguyen, Van Thu

Currently, there are many studies carried out aimed at finding alternative fuels. These renewable resources are potentially useful for the environment since they could replace the depleting fossil fuels. The emission characteristics of diesel engine fuelled with diesel oil (DO), biodiesel from Jatropha oil (JOME), and preheated coconut oil (PCO) were used for comparative analysis. The fuels were tested at full load and different revolution, from 1000 rpm to 2000 rpm of engine speed. The exhaust gas temperature (T_{ex}) and emission parameters such as carbon monoxide (CO), unburnt hydrocarbons (HCs), smoke, and oxides of nitrogen (NO_x) were measured and compared. Results showed that, relative to diesel fuel, the CO and HC emissions were higher in the case of using preheated coconut oil and lower in the case of using JOME. The NO_x emissions were also seen higher for JOME and lower for PCO in comparison with DO. Findings of this paper denote that JOME and preheated coconut oil up to 100° C (PCO_{t100}) can be considered as fuels for diesel engines. **(Author's abstract)**

Keywords: *biodiesel, bioenergy, bio-fuels, emission, vegetable oil, Engineering*

Philippine Journal of Science, Volume No. 146 Issue No. 4, 475-482
2017 December,
(Filipiniana Analytics)
Fil(S) Q1 P55 146/4 2017

Engineering properties of Calaca Batangas bottom ash

Antonio Jr., Oscar Victor M.

The coal-fired power plant of the National Power Corporation (NAPOCOR) in Calaca, Batangas emits an estimated 62.62 tons of coal combustion products (CCPs) per hour on a 24-hour daily basis. Like other coal power plants, the continuous disposal of coal combustions products such as fly ash, bottom ash and boiler slag in landfills or surface impounds creates environmental problems to people living in the neighboring areas. The accumulation of these byproducts are being generated. The objective of this study is to determine the engineering properties of Calaca, Batangas bottom ash. These engineering properties can be used to find and assess the possible ways of utilizing and maximizing the potential of such byproduct in a manner that is both environmentally friendly as well as economically viable. Apart from solving the environmental problems related to its disposal, the use of coal combustion byproduct also saves natural resources and energy because it makes composition, as well as physical and mechanical properties of bottom ash.

Keywords: *Coal Combustion Byproducts, Bottom ash, Coal-fired power plant, Calaca, Batangas, ASTM D 854, Engineering*

Philippine Engineering Journal, Volume No. 28 Issue No. 1, 37-56
2007 June,
(Filipiniana Analytics)
Fil(S) TA4 P532

A GIS-Based Earthquake Damage Prediction in Different Earthquake Models: A Case Study at the University of the Philippines Los Baños, Philippines

Alam, Lubna , Dakey, Shruthi , Bantayan, Nathaniel C. , Aguirre, Jedidiah Joel C. , Muksin, Umar , Gallardo-Zafra, Richelle , Faustino-Eslava, Decibel V. , Rusydy

The University of the Philippines Los Baños (UPLB) is located in an earthquake-prone region and there are numerous earthquake sources that can possibly cause an earthquake at any magnitude anytime. A study of the earthquake damage prediction in several earthquake magnitude and time scenarios in GIS model analysis has been conducted for the UPLB's campus. This study aims to produce several scenarios of the earthquake models and an intensity map for UPLB's campus; to determine the damage ratio of the buildings and its distribution in different earthquake scenarios; and to estimate the casualty in the UPLB's community; as well as to validate the earthquake model with historical earthquakes in the Philippines. Data preparation included the earthquake scenario model using shallow crustal shaking attenuation to produce an intensity map on the bedrock and the surface after site coefficient correction. The earthquake model in different scenarios is generated from the West Valley Fault (with Segment IV as the assumed locus). The damage ratio in different types of buildings was calculated using fragility curves of buildings of the Philippines. Population data of each building in different occupancy times, damage ratios, and injury ratios is used to compute the number of the injured due to an earthquake. The results reveal that UPLB's building are subject to intensity range of MMI (Modified Mercalli Intensity) 6.7-8.1 due to 6.1-7.7 Mw earthquake coming from different sources along the West Valley Fault. The worst event of an earthquake is 7.7 Mw from Segment IV, which can cause 32-51% damage to buildings and injure 12-24.6% of a building population in a daytime (2 PM) event and injure 8-158 students in a dormitory at 2 AM (nighttime). The validation process shows that the mean square error between the calculated intensity and the actual intensity in the Philippines is 0.35. **(Author's abstract)**

Keywords: *Damage prediction, Earthquake, Earthquake loss scenario, GIS, University of the Philippines Los Banos (UPLB), Engineering*

GIS-based Estimation of Catchment Basin Parameters and Maximum Discharge Calculation using Rational Method of Luinab Catchment in Iligan City

Malales, Vincent , Tudio, Ruben , Sanchez, Kristine , Mostrales, Daniel , dela Rama-Liwanag, Florife, Ignacio, Ma. Te

Urban flooding is triggered when surface runoff exceeds the capacity of drainage systems, which happens when heavy rainfall pours on to drainage areas with limited capacity, or on medium rainfall that falls on poorly planned or maintained drainage systems. Due to accelerated population growth and change in land use patterns, human vulnerability to floods has increased, and it is likely to increase further unless changes are made on the urban drainage system. The use of surface runoff and drainage modeling would help to identify- areas that are susceptible to flooding and to determine the dynamic capabilities of urban drainage network. The use of GIS-based software and hydrologic modeling will provide fast and reviewable assessment of the existing drainage system of the catchment. GIS generated results – especially in the delineation of catchment and sub-catchments and in identifying drainage networks – were validated in the field. Field observations also showed the presence of pollutants and heavy vegetation in the drainage system. Corrected and updated data were then used to calculate of peak discharges using the rational method. The use of rational method in the calculation of the design peak discharges for the catchment resulted in the following values: 21.59, 29.07, 33.82, and 40.31 m³/s for return periods of 2-yr, 5-yr, 10-yr, and 25-yr respectively. The main canal towards the outlet of the catchment is calculated to have a maximum capacity of 7.35 m³/s. This is only 35% of the peak discharge of the storm with a two-year return period. Improvement of the drainage system could be achieved by a) increasing the capacity of main canal and/or b) providing an additional outlet from identified flood-prone areas. The improvement could be further analyzed and evaluated in succeeding hydrologic studies. **(Author's abstract)**

Keywords: *Geographic information system, LiDAR, Sub-catchments, Urban drainage, Urban flooding, Watershed, Engineering*

Hospital management system for Our Lady of Porziuncola Inc.: OLP-HMS *Wong, James M*

A Hospital Management System was designed and implemented for Our Lady of Porziuncola Hospital Inc. This was done to automate the processing system in the said hospital through a web-based system. The problems with the existing processes which are done manually, are the inefficiency of the system and the lack of security for the records. Interviews were conducted by the proponents to design and analyze the system. After the analysis and design, the proposed system was implemented. During the implementation phase, it was found out that some portions of the

design were unfeasible and some layouts of interfaces needed to be revised for a more professional appearance and as a result, modules and processes were added, removed, and modified. Once these changes has been made, test cases and test scripts were executed to ensure that all possible scenarios and errors has been considered. With this, the proponents were able to design and implement a Hospital Management System for the use of Our Lady of Porziuncola Hospital Inc.

Keywords: *Hospital Management System, Our Lady of Porziuncola Hospital Inc., Web-based system, OLP-HMS, Engineering*

School of Engineering Journal, Volume No. 3 Issue No. 1, 48-54
2016 December,
(Filipiniana Analytics)
Fil(S) TK7800 S36

0300

Hydrothermal Synthesis of Hierarchical Hematite (α -Fe₂O₃) Microstructures for Photocatalytic Degradation of Methyl Orange *Rapadas, Nick Joaquin , Balela, Mary Donnabelle L.*

Hematite (α -Fe₂O₃) hierarchical microstructures were prepared by a simple and inexpensive hydrothermal method using a mixture of FeCl₃ and Na₂SO₄ as precursors, followed by annealing at 400°C for 2 h. α -Fe₂O₃ microspheres with an average diameter of 1.07 μ m were formed in the solution. Microrods with an average length of 0.46 μ m were also observed on the surface of the microspheres, forming an urchin-like morphology. The amounts of Fe³⁺ and (SO₄)²⁻ in the solution significantly influence the morphology of the α -Fe₂O₃ urchin-like microstructures. An optimum amount of Fe³⁺ and (SO₄)²⁻ leads to the formation of urchin-like microstructures. The α -Fe₂O₃ microstructures successfully degraded methyl orange after 1h of UV irradiation in the presence of a minute amount of hydrogen peroxide (H₂O₂). The α -Fe₂O₃ microstructures also exhibit excellent reusability and stability making it an ideal photocatalyst for wastewater treatment. (**Author's abstract**)

Keywords: *dye, hematite, hierarchical microstructures, hydrothermal treatment, photocatalyst, Engineering*

Philippine Journal of Science, Volume No. 146 Issue No. 4, 395-402
2017 December,
(Filipiniana Analytics)
Fil(S) Q1 P55 146/4 2017

0301

Improving the amount of sound energy in noise harnessing: Electrical noise *Yong, Einst*

The need for alternative sources of energy has been a trend in this era. Experts are certain that the main sources are non-renewable and therefore has limitation. The problem now is how to find a source that is present every single day and is always occurring. The answer is noise. Noise is a form of sound that is unwanted but by definition, its a type of mechanical energy that produces vibrations when it travels through air. The idea is promising but there is no way to capture noise in such a manner that a large amount of it is harnessed and converted into useful applications. The proponents of this research formulated a way into how sound energy can be concentrated and collected into larger quantitative values in order to increase the amount of mechanical energy to be converted into useful electrical

applications. The solution that the group has considered is the integration of a designed parabolic reflector into a tube that has harmonic capabilities that acts as a resonator to further concentrate sound. As the prototypes were tested, material variations were also considered, namely, steel, copper, and aluminum. Among the three, the aluminum produced the largest increase in the harnessed amount of sound. It was able to demonstrate that the sound was concentrated and collected into one target location which increased the amount of harnessed mechanical energy by the piezoelectric transducer. The proponent's research proved a positive output since the requirement of the client of a ten percent was surpassed and was able to achieve an increase of approximately 606 percent increase in power gain and 92 percent gain in terms of voltage. The outputs that were gathered are based from the findings of the Powerhouse group that became the basis for the final data that were presented.

Keywords: *Noise, Piezoelectric transducer, Sound energy, Harnessing energy, Engineering*

School of Engineering Journal, Volume No. 3 Issue No. 1, 55-64
2016 December,
(Filipiniana Analytics)
Fil(S) TK7800 S36

0302

Low-complexity physical layer security scheme for heterogeneous cellular networks based on coordinated precoding design and artificial noise generation

Bernardo, Neil Irwin M., de Leon, Fr

The undertaking for higher capacity and seamless wireless connectivity in next-generation mobile networks while maintaining an energy efficient transmission requires a fundamental redesign of the existing cellular architecture. Heterogeneous network (HetNet) deployment is a promising architectural framework for meeting these design goals. However, an increase in cellular capacity and device connectivity would also result in an increase of sensitive data and classified information being exchanged over the network, thus making security another critical aspect in cellular network design. In this study, a convex optimization model was formulated that minimizes the total power consumption of the network while satisfying certain level of per-user data rate requirement and information secrecy at the physical layer. From this model, a low-complexity physical layer security scheme was developed that exploits coordinated precoding design, artificial noise generation, and a suboptimal sleep mode strategy in HetNets. Simulation results show that joint optimization of coordinated precoding scheme and artificial noise generation is an effective approach for increasing cellular capacity while simultaneously lowering the transmit power of the base stations and risk of eavesdropping attacks. Incorporating sleep mode mechanism in physical layer security transmission scheme of HetNets also reduced the total power consumption while maintaining a secured and reliable communication during low traffic periods. Furthermore, our proposed physical layer security scheme exhibited significant reduction in computational complexity, but at the expense of slight performance degradation in terms of energy efficiency. **(Author's abstract)**

Keywords: *Physical layer security, Heterogeneous networks, Small cells, 5G, Engineering*

Science Diliman A Journal of Pure and Applied Sciences, Volume No. 30 Issue No. 1, 5-23
2018,
(Filipiniana Analytics)
NP

0303

Marikina Flood Hazard Models Using Historical Data of Water Level
de Lara-Tuprio, Elvira P. , Bautista, Evangeline P. , Marcelo, Reginaldo M. , Bataller, Ramil T. , Esteban, Divino Angelo B. , Yutuc, Yvanne Paolo B.

In this paper, ten-year historical data of water levels recorded at Sto. Niño, Marikina station of MMDA-EFCOS were analysed and processed to determine the number of times per year (annual frequency) that critical levels of the Marikina River near the Sto. Niño station were reached and for how long (duration). Probability distributions for the annual frequency and duration were then fitted to the samples obtained. Monte Carlo simulation was applied in order to generate possible realizations of the random variables. Summary statistics were then obtained from the simulated values. Finally, backtesting using historical data of water levels after the period of model development was performed to check the validity of the models. The results showed that the models obtained were reliable. The results of this study may be used to guide the local government of Marikina in planning the needed resources in order to sufficiently respond in times of flooding incidents. (**Author's abstract**)

Keywords: *Annual frequency, Flood, Monte Carlo simulation, Probability distribution, Engineering*

Philippine Journal of Science, Volume No. 147 Issue No. 3, 373-382
2018,
(Filipiniana Analytics)
Fil(S) Q1 P55 147/3 2018

0304

Modeling of cross-shore wave propagation with moving shoreline
Cruz, Eric C.

A numerical model for the transformation of nonlinear waves in the cross-shore direction towards the shore is developed by incorporating a moving shoreline boundary condition. The shoreline formulation is based on the net volumetric change effected by the translating shoreline front. Initial numerical results indicated the need to recast the (\hat{I}, u) wave model to a (\hat{I}, Q) form to remove the numerical instabilities due to discretization of the physical shoreline condition. It is also imperative to apply a threshold depth at the moving front to avoid singularities due to the very small total depth at the last wet point. Subsequent numerical simulations of nonbreaking wave runup on a plane sloping beach indicate that the moving boundary treatment reproduces the important wave evolution features revealed by past analytic studies. Results of numerical simulations of wave runup-rundown induced by nonlinear incident waves on beach slopes as high as 1/20 show the applicability of the moving shoreline treatment and the reformulated wave model.

Keywords: *Cross-shore Wave Propagation, Wave models, Wave process, Moving shoreline, Engineering*

Philippine Engineering Journal, Volume No. 28 Issue No. 1, 57-76
2007 June,
(Filipiniana Analytics)
Fil(S) TA4 P532

0305

Physico-chemical Characteristics of Wastewater from a Ball Mill Facility in Small-Scale Gold Mining Area of Paracale, Camarines Norte, Philippines

Samaniego, Jessie O. , Tanchuling, Maria Antonia N.

Small-scale gold miners in Paracale, Camarines Norte use amalgamation process to recover gold from mined ores. In the process, they dispose untreated wastewater to water bodies. In this study, wastewater from an active SSGM ball mill facility in the area was analyzed for physico-chemical parameters and heavy metal concentrations. A total of 40 samples were gathered from the ball mill facility while in full operation and were analyzed for heavy metals (As, Ba, Cd, Hg, Pb). Results showed that all metals (except for Ba) exceed the effluent regulatory limits including Hg (0.1768 mg/L) and Pb (9.3821 mg/L), which are 44 and 94 times higher than the limit, respectively. Presence of Hg concentration in the wastewater confirms the miners' illegal use of Hg in amalgamation process. Based on the mercury balance in amalgamation, around 16.8% of total Hg input goes to the sediment and some 0.21% mixed with wastewater and the bulk 82.99% is in the form of amalgam that becomes Hg vapor after burning. Physico-chemical parameters – temperature, pH, and true color – are within their respective effluent regulatory limits for Class C waters, while TSS (3,596.9 mg/L) is 36 times higher than the 100 mg/L limit. Other parameters, though not regulated, such as ORP (343.9 mV), turbidity (> 800 NTU), and apparent color (9,880 PCU) were analyzed with high concentrations. From this study, wastewater treatment is recommended before disposing of to the receiving waters to reduce the concentration of heavy metals and TSS. Also, the full and strict implementation of the people's small-scale mining law must be maintained to protect human health as well as the environment from the adverse effect of the use of Hg in SSGM processes. (**Author's abstract**)

Keywords: *Amalgamation, Heavy metals, Physico-chemical parameters, SSGM, Wastewater, Engineering*

Philippine Journal of Science, Volume No. 147 Issue No. 3, 343-356
2018 September,
(Filipiniana Analytics)
Fil(S) Q1 P55 147/3 2018

0306

Recovery of Uranium from Philippine Wet Phosphoric Acid Using D2EHPA-TOPO Solvent Extraction

Diwa, Reyman R. , Intoy, Socorro P. , Vargas, Edmundo P. , Marcelo, Editha A. , Tabora, Estrellita U. , Ramirez, Jennyvi D. , Palattao, Botvinnik L., Reyes, Rolando

Recovery of uranium from Philippine wet phosphoric acid was studied using a synergistic mixture of 0.5 M D2EHPA - 0.125 M TOPO diluted in kerosene. Results from characterization of materials in phosphate processing revealed the presence of valuable elements such as uranium and rare earths in both raw materials and fertilizer products. Variation of operating parameters on extraction such as P₂O₅ content and optical density was found to be inversely proportional with the extraction efficiency. The reaction was found to establish rapid equilibrium and is exothermic in nature. Distribution coefficient for the extraction of uranium from 27% P₂O₅ phosphoric acid was determined to be at 10.71 at about 25°C. Analysis of the equilibrium data and McCabe-Thiele plot based on batch testing indicates a 92.59% recovery rate could be achieved in three-ideal extraction stages at an aqueous to organic phase volume ratio of 4:1. (**Author's abstract**)

Keywords: *D2EHPA-TOPO, Philippines, Phosphate fertilizer, Phosphoric acid, Uranium extraction, Engineering*

Philippine Journal of Science, Volume No. 147 Issue No. 2, 275-284
2018 June,
(Filipiniana Analytics)

Removal of Heavy Metal Compounds from Industrial Wastes Using a Novel Locally-Isolated *Vanrija* sp. HMAT2

Coronado, Fe F. , Unciano, Noel M. , Cabacang, Romeo M. , Hernandez, Josefina T.

A novel yeast, *Vanrija* sp. HMAT2 was isolated from the PHILEX mine site, which was capable of adsorbing heavy metals (chromium, copper, manganese, nickel, and zinc); neutralizing acidic wastewaters and was effective as either free or immobilized cells for laboratory bioreactor for bioremediation. Using the novel strain, its efficiency to treat different industrial wastewater streams including simulated acid mine tailings, actual untreated electroplating waste effluents, and untreated or treated tannery effluents were evaluated. Heavy metal removal efficiencies after 48 h were for Cu (97.29%) and Mn (94.22%) from simulated acid mine tailings; after five days for Zn (97.55%), Cr (68.65%), Cu (87.28%) and Ni (82.69%) from actual electroplating effluents. Highly efficient chromium removal rates of 99.15% (for untreated tannery) and 100% (for pre-treated tannery wastewater) were obtained using corncob-immobilized HMAT2

after five days and 20 h, respectively. The change in pH was greatest for simulated acid mine tailings from 3.7 to 8.9; intermediate for electroplating effluents from 3.0 to 6.6 and for untreated tannery effluents from 3.0 to 6.8; least for the treated tannery effluents from 7.2 to 7.3. These results suggested that the HMAT2 strain could be used for treatment of chromium-laden tannery waste effluents and help mitigate the source of heavy metal pollution of the Meycauayan River. (**Author's abstract**)

Keywords: acid mine tailings, exhaust, heavy metals, yeast strain (*Vanrija* sp. HMAT2), Engineering

Philippine Journal of Science, Volume No. 145 Issue No. 4, 327-338
2016 December,
(Filipiniana Analytics)
Fil(S) Q1 P55 145/4 2016

Road safety performance index in Metro Manila, Philippines: 2011-2015

Lu, Sophia Frances

Background and Objective: Road safety in the Philippines has been increasingly significant with the increasing level of industrialization and urbanization over the last decade. The main objective of the study is to determine the road safety performance for Metro Manila by computing for an index based on data and variables of road traffic over the past years.

Methodology: The variables for index calculation included speed, alcohol, infrastructure, vehicle defect, and other unsafe driver behavior were drawn from the Metro Manila Development (MMDA) database complemented with literature review from several sources. Equal Weighting method was utilized, as this is the simplest yet least biased measurement suitable for the data at hand.

Results and Conclusion: The Road Safety Performance Index for Metro Manila remains more or less constant over a five-year period, increasing and decreasing from 0.45 to 0.59 which means that Metropolitan Manila has fared poorly in all indicators. Metro Manila has a poor road safety performance as evidenced by the road safety index. There is a

need to improve on all components of road safety identified in this study for the safety of road users. (**Authors' abstract**)

Keywords: *Road safety, Road safety performance, Metro Manila, Traffic condition, Road mortality rate, Engineering*

Philippine Journal of Health Research and Development (formerly the UP Manila Journal), Volume No. 22 Issue No. 1, 2018,
(Filipiniana Analytics)
NP

0309

Sound to electrical energy conversion

Yong, Einst

This study investigates an emerging renewable energy source - the sound energy. The focus of this study is on determining how to improve the conversion of sound energy into electricity by designing different combinations and configurations of piezoelectric transducers. The measurement of the output is in terms of voltage and current. For the conversion to electricity, connecting four piezoelectric transducers in series configuration produced the highest output voltage with 1.5 Volts. Connecting two piezoelectric transducers in parallel produced the highest output current with 65.5×10^{-6} Ampere. Also, there were output voltage and current. The results of this research may be used as a model for further studies regarding sound to electrical energy conversion.

Keywords: *Piezoelectric transducers, Sound energy, Configuration, Energy conversion, Engineering*

School of Engineering Journal, Volume No. 3 Issue No. 1, 65-75
2016 December,
(Filipiniana Analytics)
Fil(S) TK7800 S36

0310

A Study of translation lookaside buffer structures for low power consumption

Ballesil, Anastacia P.

Modern microprocessors consume large amounts of energy, majority of which comes from the processor's clock and memory hierarchy. One particular area that can be explored for possible power reduction is the translation lookaside buffer (TLB). TLBs are small caches used to speed up virtual-to-physical address translation. The aim of this study is to design and implement different TLB design structures using VHDL. The structures are laid-out using $0.25\mu\text{m}$ CMOS standard cells and then analyzed and characterized in terms of area, performance and power consumption. Results show that, compared to the different structures considered in this study, fully associative structures consume the least amount of power and produce the lowest miss rate. Banked associative structures, on the other hand, occupy the smallest silicon area, with a power consumption that is slightly higher than that of a fully associative structure.

Keywords: *Translation Lookaside Buffer, Memory Management Unit, Virtual Page Number, Content Addressable Memory, Engineering*

Torsion of a rectangular prismatic bar: solution using a power fit model
Danao, Louis Angelo M.

The torsion problem of a rectangular prismatic bar is solved using the Saint-Venant's warping function method and analytic solutions to the twisting moment and the non-vanishing shear stresses are presented. Approximate solutions to the torsion problem are derived by curve-fitting the analytic solutions using a power fit model with the lengths of the rectangle sides as parameters. Errors observed did not exceed 0.6%. The study successfully presents a solution to the maximum non-vanishing shear stress at the narrow side of the rectangular section. Such a solution will be useful for the assessment of the critical points on a section that experiences combined bending and torsion loads.

Keywords: *Torsion, Warping function, Shear stress, Saint-Venant, Rectangular prismatic bar, Engineering*

ENVIRONMENTAL SCIENCE

The Change in Rainfall from Tropical Cyclones Due to Orographic Effect of the Sierra Madre Mountain Range in Luzon, Philippines
Racoma, Bernard Alan B. , David, Carlos Primo C. , Crisolago, Irene A. , Bagtasa, Gerry

This paper discusses the Sierra Madre Mountain Range of the Philippines and its associated influence on the intensity and distribution of rainfall during tropical cyclones. Based on Weather and Research Forecasting model simulations, a shift in rainfall was observed in different portions of the country, due to the reduction of the topography of the mountain. Besides increasing the rainfall along the mountain range, a shift in precipitation was observed during Tropical Storm Ondoy, Typhoon Labuyo, and Tropical Storm Mario. It was also observed that the presence of the Sierra Madre Mountain Range slows down the movement of a tropical cyclones, and as such allowing more time for precipitation to form over the country. Wind profiles also suggest that the windward and leeward sides of mountain ranges during Tropical Cyclones changes depending on the storm path. It has been suggested that in predicting the distribution of rainfall, the direction of movement of a tropical cyclones as well as its adjacent areas be taken into great consideration. While the study shows high amounts of variation in the characteristics of different tropical cyclones with respect of the Sierra Madre Mountain Range, the results of this study can provide insights to pre-disaster operations before tropical cyclones approaches land. The decrease in tropical cyclones speed introduced by the Sierra Madre Mountain Range can be used to identify the possible areas that can experience prolonged rains due to the mountain range. Disaster management authorities can also prepare in advance by identifying which locations can experience orographic

enhanced precipitation. However, due to the lack of available data and resources, further studies are recommended due to the study presenting limited cases. **(Author's abstract)**

Keywords: *geomorphology, numerical weather prediction, orographic effect, precipitation, tropical cyclones, weather and research forecasting modelling, Environmental science*

Philippine Journal of Science, Volume No. 145 Issue No. 4, 313-326
2016 December,
(Filipiniana Analytics)
Fil(S) Q1 P55 145/4 2016

0313

The Ecology of an Incipient Marine Biological Invasion: The Charru Mussel *Mytella charruana* d'Orbigny, 1846 (Bivalvia: Mytilidae) in Manila Bay, Luzon, Philippines
Vallejo, Jr., Benjamin , Conejar-Espedido, Jeniffer , Manubag, Leanna

The study documents the initial colonization ecology of the Western Hemisphere's non-indigenous mytilid *Mytella charruana* in the Port of Manila, Manila Bay. As part of a monitoring effort to document fouling communities using PICES collectors, a recruitment pulse of *Mytella charruana* was detected in Jul 2014. The recruits have persisted and established in the port. Also noted was the possible recruitment competition with other indigenous and non-indigenous bivalve species. *Mytella* recruits during the onset of the southwest monsoon rainy season. Based on Canonical Correspondence Analysis of recruit abundances with water quality parameters, *Mytella*, the green mussel *Perna viridis*, *Musculista*, and *Brachidontes* have a lower salinity niche and recruits on *Amphibalanus* and *Hydroides* biogenic substrates. Also examined was the possible competition between *Mytella* and *Perna viridis*, since these species have been used for mariculture. *Perna* is traditionally cultured in Manila Bay, while *Mytella* is proposed as a new species for mariculture in the Philippines. Based on the results and its physiological ecology, *Mytella* is likely to have a competitive advantage over *Perna* in estuaries like Manila Bay. **(Author's abstract)**

Keywords: *estuaries, fouling communities, invasive species, mariculture, marine non-indigenous species, mussels, Environmental science*

Philippine Journal of Science, Volume No. 146 Issue No. 4, 483-492
2017 December,
(Filipiniana Analytics)
Fil(S) Q1 P55 146/4 2017

0314

Ingestion of Marine Plastic Debris by Green Turtle (*Chelonia mydas*) in Davao Gulf, Mindanao, Philippines
Abreo, Neil Angelo S. , Macusi, Edison D. , Blatchley, Darrell D. , Cuenca, Ginalyn C.

Marine plastic debris is a global problem that is threatening marine biodiversity. Different marine organisms have been exposed to the lethal and sub-lethal effects of this problem. Sub-lethal effects include reduced fitness due to reduced feeding, reduced reproductive output, limb amputation, and exposure to diseases and toxic materials, while lethal effects include drowning, gastro-intestinal blockage, and stomach rupture. Marine turtles are very vulnerable to these effects since these organisms actively ingest plastic mistaking it as prey. This adds stress to the declining

population of marine turtles. On 17 April 2015, a dead adult female green turtle was recovered in Brgy. Lapu-lapu, Agdao, Davao City, Philippines. Necropsy showed that several plastic materials caused blockage in the pyloric end of the stomach which may have caused the turtle's mortality. **(Author's abstract)**

Keywords: *Davao gulf, Green turtle, plastic debris, plastic ingestion, pollution, Environmental science*

Philippine Journal of Science, Volume No. 145 Issue No. 1, 17-23
2016 March,
(Filipiniana Analytics)
Fil(S) Q1 P55 145/1 2016

0315

Soil and sadn binding grasses in the Philippines and its conservation , Madulid, Domi

Various sites in the Philippines were surveyed to find the different grasses exhibiting qualities of effective sand or soil binders. Forty species are here presented and discussed as to their habit, habitat, local and geographical distribution, local names, botanical description, and value in conservation work.

Keywords: *Soil , Grass binding grasses , Environmental science*

Acta Manilana, Volume No. A Issue No. 14, pages 76
1975, November,
(Filipiniana Analytics)
Fil(S) Q181 A811

FISHERIES

0316

Analysis of Pigment Composition of Brown Seaweeds Collected from Panjang Island, Central Java, Indonesia

***Heriyanto, Juliadiningtyas, Ayu Dita , Shioi, Yuzo , Limantara, Leenawaty , Brotosudarmo, Tatas Hardo
Panintingjati***

Composition of pigments from four species of brown seaweeds (Phaeophyceae) collected from Panjang Island, Central Java, Indonesia, was investigated with spectroscopic method and reverse-phase high-performance liquid chromatography (RP-HPLC). Identification of pigments was based on their spectral and chromatographic properties and also confirmed by electrospray ionization-mass spectrometry (ESI-MS/MS) analysis. The experimental results showed that concentrations of chlorophyll *a* (Chl *a*) and total carotenoids (Cars) from brown seaweeds, estimated by spectroscopic method, varied depending on species from 1.73 mg · g⁻¹ to 8.84 mg · g⁻¹ and from 0.55 mg · g⁻¹ to 4.06 mg · g⁻¹ dry weight (dw), respectively. In addition, the order of concentrations of Chl *a* and total Cars in four species of seaweed was as follows: *Dictyota dentata* > *Padina australis* > *Sargassum crassifolium* > *Turbinaria conoides*. This order was in agreement with the concentrations of dominant pigments calculated by HPLC method, i.e., fucoxanthin (Fuco) (0.43 mg · g⁻¹ to 4.11 mg · g⁻¹ dw), Chl *a* (1.70 mg · g⁻¹ to 7.89 mg · g⁻¹ dw), β-carotene (0.16 mg · g⁻¹ to 0.78 mg · g⁻¹ dw). These results suggest that *D. dentata* is likely potential source

material to explore the industrial utilization, especially functional food and biomedical ingredients, of Fuco and Chl *a*. **(Author's abstract)**

Keywords: *Brown seaweed, Chlorophyll a, ESI-MS/MS, Fucoxanthin, Panjang Island, Pigment composition, Fisheries*

Philippine Journal of Science, Volume No. 146 Issue No. 3, 323-330
2017 September,
(Filipiniana Analytics)
Fil(S) Q1 P55 146/3 2017

0317

Application of Edible Oyster Mushroom, *Pleurotus ostreatus* Extract to Control Postharvest Melanosis in Shrimp, *Penaeus vannamei*
Encarnacion, Angel B. , Llanto, Mari

Control of the deteriorative effects of melanosis has been a challenge to the industry. Melanosis in crustaceans is normally controlled by means of direct application of various inhibitors such as 4-hexylresorcinol, sulfites, and phosphates. However, direct application of synthetic inhibitors to melanosis and antioxidants in food processing is usually restricted by considerations relevant to safety and effects on the food quality. This study attempted to apply a hot water extract prepared from the trimmings of edible oyster mushroom, *Pleurotus ostreatus* fruiting body to control melanosis in cultured Pacific white shrimp, *Penaeus vannamei*, through immersion technique. The antioxidative and antimelanotic properties of a hot water extract prepared from the trimmings of edible mushroom fruiting body were evaluated. The study compared the potential of the aqueous mushroom extract to prevent melanosis in cultured Pacific white shrimp with other antimelanotic compounds through immersion technique. The mushroom extract has high antioxidative and antimelanotic activity. Immersion of marketable size shrimp in a 1.0% w/v solution of mushroom extract for 60 min significantly controlled melanosis in the treated shrimp during ice storage and comparable with the effects of 0.05% w/v ascorbic acid or sodium sulfite treatments. This study suggests that in vivo application of *P. ostreatus* extract through immersion technique can be an alternative to synthetic antimelanotic agents to inhibit postmortem melanosis in shrimp. **(Author's abstract)**

Keywords: *Melanosis, Mushroom extract, Penaeus vannamei, Pleurotus ostreatus, Polyphenol oxidase, Scavenging activity, Fisheries*

Philippine Journal of Science, Volume No. 147 Issue No. 2, 231-238
2018, June,
(Filipiniana Analytics)
NP

0318

Assessing the Formulation and Implementation of the Closed Fishing Season Policy for Sardines in Zamboanga Peninsula, Philippines
Brillo, Bing Baltazar C. , Elazegui, Dulce D. , Cervantes, Catherine P. , Rola, Agnes C.

The Closed Fishing Season Policy is a fishing regulation adopted by the national agency and local stakeholders to conserve the sardines species and sustain the operations of the industry in Zamboanga Peninsula. Fisheries regulation

in the Philippines, particularly the formulation and implementation of closed fishing season, is a little explored area. Premised on this, the study assessed the creating subsequent enforcement of Joint DA-DILG Administrative Order No. 1 Series of 2011. Employing a case study design, the article illustrates the interaction among the stakeholders and elucidates the issues as well as the constraining and facilitating factors in the formulation and implementation of the fishing regulation. In formulation, the study contends that the conservation policy was facilitated by precursor circumstances and practices (such as the decline of the tuna industry, the fishing closure in the Visayan Sea, the three-day fishing ban, and the “self-regulation” measures) while the main issue was the starting period of the three-month fishing closure. In implementation, it contends that the fishing regulation suffered from poor dissemination, insufficient safety nets, cooperation problems, industry unpreparedness, and lack of evaluative studies. The favourable factors include the availability of resources, support from stakeholders, few violations, employment of strategic alternatives, and improvement in provision of safety nets. Overall, the three-year closed season was deemed favourably as the stakeholders acknowledge the problem and recognize the appropriateness of the measure. (**Author's abstract**)

Keywords: *Closed Fishing Season, fisheries regulation, Philippines, policy making, sardines, Zamboanga Peninsula, Fisheries*

Philippine Journal of Science, Volume No. 145 Issue No. 4, 395-404
2016 December,
(Filipiniana Analytics)
Fil(S) Q1 P55 145/4 2016

0319

A brief on the comprehensive agricultural loan fund and its implications
, Tolentino, Bruce J., V., Caneda,

The Comprehensive Agricultural Loan Fund was formally launched on February 19, 1987 to address the problems facing the agricultural credit system and to sustain/support the initiative already taken to promote the flow of credit to agriculture. Specifically, the CALF aims to: 1) first and foremost, encourage lending to small agricultural projects by private banks by assuming 85% of the risks involved; and (2) it involves the integration of several agricultural loan funds into a single fund and professionalizes the management of these funds, minimizes their administration costs and nurtures their growth through optimum investments. The ultimate consolidation of about forty-nine separate agricultural loan funds under the CALF is likewise expected to enable the Department of Agricultural, the principal administrator of the Fund, to respond not only to the production but also to the broader requirements of farmers (i.e. provision/expansion of agricultural processing and marketing credit).

Keywords: *Commercial loans, Agricultural loans, Comprehensive Agricultural Loan Fund, Fisheries*

Compilation of Conference Papers, Volume No. Issue No. , 6 pages
(Filipiniana Analytics)
Fil(S) SH117.P5 N2 v.3

0320

Building post-harvest linkages for the fishing industry
, Sarmiento, Malco

Past government efforts have been focused mainly on increasing our fishery production level. But despite these Filipinos still contend with the irony of supply inadequacy and high fish prices. The combined effects of inadequate landing facilities, crude handling practices and lack of refrigeration network resulted in the lowering of fish quality, slow rate of fish dispatch and erratic behavior of prices.

Keywords: *Fishery production, Fishery resources, Fisheries*

Compilation of Conference Papers, Volume No. Issue No. , 5 pages
(Filipiniana Analytics)
Fil(S) SH117.P5 N2 v.3

0321

Controlling blastfishing and other illegal fishing practices , Cuevas, Makaraig A., Lt.,

This paper is an assessment of the Philippine Coast Guard's activities related to the enforcement of Fishery Laws in the Philippine waters. In general terms, the PCG organization, missions and function related to fishery law enforcement were discussed to acquaint the reader with the PCG as a law enforcement unit of the AFP. PCG accomplishments related to the subject matter were presented to define the parameter of PCG involvement in controlling blastfishing and other illegal fishing practices.

A brief discussion of Operational Plan code named "MANGINGISDA" serves to highlight current activities of the command geared towards providing protection for the marine environment. Finally, capability development programs and other projects which are envisioned to contribute significantly in the enforcement of applicable laws in the high seas and waters subject to the jurisdiction of the Republic of the Philippines, were announced.

Keywords: *Fishery law and legislation, Fishing methods, Fisheries*

Compilation of Conference Papers, Volume No. Issue No. , 10 pages
(Filipiniana Analytics)
Fil(S) SH117.P5 N2 v.3

0322

Creation of Fishery Development Council , Basmayor, Bernar

The fisheries sector which contributes 60% of the total protein requirement of Filipinos plays an important role in the economy. It contributes 4.6% to the country's Gross National Products (GNP), producing over 2.08 million m.t. of fish which are valued at P31 billion. Thirty-eight percent comes from the marine municipal fisheries sector, 25% from the marine commercial fisheries, 23% from aquaculture and 14% from inland fisheries, thus making the Philippines the 12th largest fish producing country in the world.

Keywords: *Fisheries, Fishery Development Council, Fisheries*

Compilation of Conference Papers, Volume No. Issue No. , 4 pages
(Filipiniana Analytics)

Developing marine fishery resources in Region XI , Basmayor, Bernar

Region XI is known as the Southern Mindanao Region. It is located at the southeastern most portion of the Philippines. It comprises the provinces of Surigao del Sur, Davao Oriental, Davao del Norte, Davao del Sur and South Cotabato; the cities of Davao and General Santos and the waters of Southeastern Mindanao, Celebes Sea, Pacific Ocean, Moro Gulf, Sarangani Bay and Davao Gulf.

Keywords: *Fishery resources, Marine resources, Fisheries*

Compilation of Conference Papers, Volume No. Issue No. , 9 pages
(Filipiniana Analytics)
Fil(S) SH117.P5 N2 v.3

Dietary protein level affects compensatory growth and feed efficiency in milkfish *Chanos chanos* juveniles under cyclic feeding Llameg, Marlyn B., Serrano, Jr., Augusto

An experiment was conducted to determine whether or not changes in dietary crude protein (CP) level could impact compensatory growth (CG) in milkfish juveniles under short-term fasting and refeeding cycle. Four experimental groups of milkfish were fed diets containing graded levels of CP; 30% CP (C30), 35% CP (C35), 40% CP (C40), and 45% CP (C45) fasted for 2 days and fed for 5 days in one week for a total of 8 weeks. A fifth diet containing 40% CP continually fed to the fish served as the control treatment (C). After 8 weeks of feeding trial, CG in terms of compensation coefficient calculated in terms of weight gain was observed only in the C40 group ($CC_{WG}=1.14$). However, CG in terms of total length (CC_{FTL}) was observed in all cycled milkfish with the peak at C40 ($CC=1.48$). Final weight, final total length, and specific growth rate increased as dietary CP level increased from 30% to 40% and decreased at 45% CP. The CP level that elicited maximum values of these responses was estimated using a quadratic regression analysis to be 38.5%. Results show that when dietary CP level was close to the optimum level of 40%, CG was observed under the cyclic feeding used (2:5). **(Author's abstract)**

Keywords: *Coefficient of compensatory growth, Optimum dietary protein, Refeeding, Short-term fasting, Fisheries*

Philippine Journal of Science, Volume No. 147 Issue No. 2, 195-200
2018 June,
(Filipiniana Analytics)
NP

Effect of Phytase on Growth Performance, Diet Utilization Efficiency and Nutrient Digestibility in Fingerlings of *Chanos chanos* (Forsskal 1775)

Rachmawati, Diana, Samidjan, Istiyanto, Mel, Maizirwan

This study evaluated the effect of phytase enzyme in supplemented diet on growth performance, diet utilization efficiency, and nutrient digestibility in *Chanos chanos* fingerlings. Fingerlings of *C. chanos* with an average body weight 3.55 ± 0.08 g with the density one fingerling per liter were fed with four different diets supplemented with phytase enzyme: A (0 FTU kg-diet), B (500 FTU kg-diet), C (1000 FTU/kg-diet), and D (1500 FTU kg- diet). The relative growth rate (RGR), feed conversion ratio (FCR), apparent digestibility coefficient protein (ADCP), apparent digestibility coefficient phosphor (ADC_F), survival rate (SR), and water quality parameters were determined. The results obtained after feeding trials significantly ($P < 0.01$) affected on RGR, FCR, ADC_P and ADC_F , on the other hand insignificantly ($P > 0.05$) affected on SR of milkfish (*C. chanos*) fingerlings. Based on the results, it is concluded that optimum doses of phytase enzyme diet in terms of RGR, PER, and nutrient digestibility of milkfish (*Chanos chanos*) fingerlings ranges 983 – 1010 FTU kg- diet, respectively. **(Author's abstract)**

Keywords: *Chanos chanos, Diet utilization efficiency, Digestibility, Growth performance, Phytase, Fisheries*

Philippine Journal of Science, Volume No. 146 Issue No. 3, 237-245
2017 September,
(Filipiniana Analytics)
Fil(S) Q1 P55 146/3 2017

0326

The fish processing industry in the Philippines: status, problems and prospects *, Guevara, Gloria, Camu, Consu*

This paper discusses the present situation of the fish processing industry in the Philippines. It gives an overview of the existing technologies on fish handling, traditional fish processing such as drying, smoking and salting; new processing methods; waste utilization, shellfish processing and other fishery-based industries. It includes government programs and projects related to the improvement and development of the industry and its potentials for further expansion. The needs, problems and related issues, including the recommendations, are also presented to form the basis for the formulation of policies and programs that would suit the demands of the fishery industry.

Keywords: *Fishery production, Fishery processing, Fisheries*

Compilation of Conference Papers, Volume No. Issue No. , 25 pages
(Filipiniana Analytics)
Fil(S) SH117.P5 N2 v.3

0327

Fisheries administration and policy in the Philippines: past and present *, Medina N. De*

Fish, next to rice, is the major staple food in the Philippines. It provides about 60% of the animal protein food of the people

Keywords: *Fisheries*

Compilation of Conference Papers, Volume No. Issue No. , 34 pages
(Filipiniana Analytics)
Fil(S) SH117.P5 N2 v.3

0328

Fisheries conservation and law enforcement
, Joya, Rodante, Lt.

Conservation is the planned management of a country's natural resources to ensure wise utilization of resultant produce.

In the BFAR, this is translated into a program to keep our aquatic resources healthy and in optimum productive condition

Keywords: *Fisheries, Fisheries*

Compilation of Conference Papers, Volume No. Issue No. , 11 pages
(Filipiniana Analytics)
Fil(S) SH117.P5 N2 v.3

0329

Fisheries education: issues, problems and recommendations
, Juliano, Rogeli

Fisheries education in the Philippines started in the Zoology Department, College of Liberal Arts, University of the Philippines, through the Bachelor of Science in Fisheries program just before World War II. There were 17 graduates from this program who finished their studies after the war (personal communication with Mr. Ricardo Esguerra, one of the graduates). However, this degree program was phased out by the University of the Philippines for unknown reasons.

Keywords: *Fishery education, Fisheries*

Compilation of Conference Papers, Volume No. Issue No. , page 21
(Filipiniana Analytics)
Fil(S) SH117.P5 N2 v.3

0330

Fisheries extension and training in the Philippines
, Tamesis, Pab

The national fisheries agency has been tasked with extension and training since the 1930s, when named as the Fish and Game administration, Division of Fisheries, Philippine Fisheries Commission and again, as Bureau of Fisheries in 1972. Of course, these activities were not designated as such but either as "demonstration services' or technical assistance."

Keywords: *Fishermen, Fisheries development, Fisheries*

Compilation of Conference Papers, Volume No. Issue No. , page 41
(Filipiniana Analytics)
Fil(S) SH117.P5 N2 v.3

0331

Fisheries import and export , Carrasco, Erli

Philippine export performance in 1985 amounting to US\$4.6 billion is a 15 percentage point decline from the 1984 figure of US\$5.3 billion. In 1986 our exports are projected to be at the same 1985 level or a little more. Pursuant to the goal of accelerating foreign trade expansion, government and private sector pooled their time, expertise and resources to formulate export targets and strategies to achieve these targets. It was agreed that the export target will be 15% annual growth for the next five years starting 1987 at US\$6.0 billion until 1991 at US\$10.0 billion. In Japan, the Philippines has only a 2.1% share of its US\$568 billion. The Philippines will attain these targets, considering that ASEAN neighbors average at present US\$10.0 billion export earnings. An integrated approach to export expansion covering the production, marketing, financing and administration of exports has been adopted. A responsive and credible government leadership is in place and has underscored the importance of the role of private initiative in a conducive business environment.

Keywords: *Fish importation, Fish, Fisheries*

Compilation of Conference Papers, Volume No. Issue No. , 5 pages
(Filipiniana Analytics)
Fil(S) SH117.P5 N2 v.3

0332

Fisheries statistics system in the Philippines Ramos, Candid

Fisheries statistics baseline data on commercial fisheries are generated through the administrative form called the Commercial Fishing Boat License. Only the government fishponds taken through the Fishpond Lease Agreement Forms. Baseline data of privately owned fishponds and municipal fisheries, etc. are being generated through the fishery censuses conducted by the National Census and Statistics Office.

Keywords: *Fisheries, Fisheries*

Compilation of Conference Papers, Volume No. Issue No. , 8 pages
(Filipiniana Analytics)
Fil(S) SH117.P5 N2 v.3

0333

A guide to discussion of principal fisheries development policy issues for the five-year plan of the Philippines (1987-1992)
, Bernacsek, Garry M

This document is intended to be a guide to discussion on policy issues. It does not in any way constitute a statement of policy by DA, BFAR or FAO. Principal policy issues have been indentified by the author and are discussed briefly in the article. Seminar participants may wish to add on other issues which they feel are not adequately covered below.

Keywords: *Fisheries , Fishery law and legislation, Fishery, Fisheries*

Compilation of Conference Papers, Volume No. Issue No. , 27 pages
(Filipiniana Analytics)
Fil(S) SH117.P5 N2 v.3

0334

Importation of fishing paraphernalia
, Thomas, Francis

The Philippine deep-sea or commercial fishery sector at present is composed of some 2,200 units, a large number of which are of second hand vintage, produced, chartered or imported from Japan, Taiwan or the USA. A conservative estimate of the average age of these fishing vessels would be 12-14 years. Sizes of theses vessels range from 30-75 GT in the case of tuna longliners and 100 to 400 GT in the case of purse seiners.

Keywords: *Fisheries, Fisheries*

Compilation of Conference Papers, Volume No. Issue No. , 3 pages
(Filipiniana Analytics)
Fil(S) SH117.P5 N2 v.3

0335

Investments incentives for the fisheries industry
, Esquieres, Pa

Governmental provision of incentives as a tool for accelerating economic growth has been in use in the Philippines since the implementation of R.A. No. 5186 by the Board of Investments in 1968. As years went by, this first incentives law was followed by the enactment of other incentives laws and/or amendments in order to hedge the changing direction and speed up the pace of development of this and that industry in accordance with our programmed economic goals.

Keywords: *Investments, Fisheries, Incentives, Fisheries*

Laguna lake situationer , *Espiritu, A*

From the beginning of human history, people with their tools have continuously transformed the world around them, creating three basic forms of civilization. These formations, the primitive, the agricultural, and the industrial, are still very much present in the world today . These are represented by the First World (U.S., Japan, Western Europe) and the second world (USSRM, Eastern Europe) which are predominantly industrial; the Third World(South) which is mainly agricultural with a few pockets of industrialization and some areas of primitive social formation.

Keywords: *Laguna lake, Lakes, Fisheries*

Larvae Identification and Development of the only Freshwater *Sardinella tawilis* Endemic to Taal Lake, Philippines

Mutia, Maria Theresa M. , Sarmiento, Katreena P. , Muyot, Myla C. , Mendiola, Michael John R. , Tordecilla, Benjie D. , Santos, Mudjekeewis D.

The only freshwater *Sardinella*, *Sardinella tawilis* (Herre 1927), endemic to Taal Lake, Philippines, continues to be an important food commodity and serves as a piece of cultural heritage within the country. However, the early life history of this species is unknown. In the present study, identification of the *S. tawilis* larvae has been finally confirmed through the utilization of the DNA barcode marker *cytochrome c oxidase I* (CO1) gene and the Kimura 2-parameter (K2P) distance model. Results showed 100% identity of three larvae samples with *S. tawilis* GenBank reference sequences based on clustering analysis, which was supported by mean genetic distance of 1%, suggesting accurate identification of the larvae samples. Subsequently, the larval developmental stages in pre-flexion, flexion, post-flexion and juvenile stage of *S. tawilis* were described and illustrated. Morphological analyses revealed that the larvae had elongated and straight gut with budding pectoral fin during pre-flexion stage, disappearance of fin-fold on the flexion stage, growth of fin rays during post-flexion stage and well developed fins in juvenile stage. This study serves as the first report on the identification of *S. tawilis* larvae as well as its morphological description during larval development. (**Author's abstract**)

Keywords: *DNA barcoding, Larval development, Sardinella aurita, Sardinella tawilis larvae, Fisheries*

0338

The law on fisheries and aquatic resources
, De Sagun, Robeo B.,

The seam, with its abundant wealth, is man's last frontier in his quest for food. The Philippines, so richly endowed by nature, is now the 12th largest fish-producing country in the world. If she could properly manage and conserve her marine fisheries, we may yet make the first step towards economic recovery, considering that, with declaration of the 200-mile exclusive economic zone, the Philippines has laid claim to some 2.2 million square kilometers of marine waters, roughly five times larger than the land area. The management of the country's fisheries and aquatic resources is a formidable task. The Philippines, being a developing country with a fast growing population, considers the importance and urgency of a judicious husbanding and conservation of the wealth of its fisheries and aquatic resources. The legal aspects of fisheries and aquatic resources cannot be obviously emphasized because they reinforce and fortify the other aspects of conservation, utilization and administration of other natural resources. All plans and programs to manage fisheries and aquatic resources, taking into consideration the requirements of ecology, the economic and physical constraints, the environmental, social and even political impacts including integrated and futuristic planning should, therefore, be properly embodied in laws and regulations which the people should obey faithfully and which the administrators supervising these resources should enforce efficiently and effectively to preserve them from both the present and future generations.

Keywords: *Fisheries, Fishery law and legislation, Fisheries*

Compilation of Conference Papers, Volume No. Issue No. , 45 pages
(Filipiniana Analytics)
Fil(S) SH117.P5 N2 v.3

0339

The need for high level institutional reform of the fisheries sector
, Thomas, Francis

The very fact that we are here today and will be here in the next several days on a National Conference on Fishery Policy and Planning is a tacit recognition of the big role the fishing industry plays on our country's economy and on our daily lives.

Keywords: *Fishery production, National Conference on Fishery Policy and Planning, Fisheries*

Compilation of Conference Papers, Volume No. Issue No. , 8 pages
(Filipiniana Analytics)
Fil(S) SH117.P5 N2 v.3

0340

Needs of the prawn hatchery industry *Jamandre,*

The survival of the Philippine aquaculture export industry will depend on hatchery produced seedstock. While there are over 200 penaeid hatcheries throughout the country with a combined theoretical monthly production of about 500 million animals, the supply of prawn fry to stock grow out ponds is still erratic. Recent months have shown increasing weakness as more pressure is applied on hatcheries to supply fry.

Keywords: *Fish hatcheries, Fish hatcheries, Fisheries*

Compilation of Conference Papers, Volume No. Issue No. , 6 pages
(Filipiniana Analytics)
Fil(S) SH117.P5 N2 v.3

0341

Odor-mediated Behavioral Responses of Hatchery-reared Blue Swimming Crab *Portunus pelagicus* (Malacostraca, Decapoda) Instars Exposed to Various Chemical Cues *Monteclaro, Harold M. , Ledesma, Anne Brige*

In this study, the ability of hatchery-reared blue swimming crab *Portunus pelagicus* instars to discriminate various odors was tested in a y-maze aquarium using the following chemical cues: 1) mussel odor, 2) snapper odor, 3) combination of mussel and snapper odors, and 4) seawater as control. Results showed that when given a choice between seawater and mussel odor, a higher percentage of instars preferred to stay along the mussel odor stream. In contrast, avoidance response was elicited when snapper odor was introduced to crab instars. When provided with a choice between mussel odor and snapper odor, the instars exhibited preference to the former. However, when presented with a combination of two conflicting odors (mussel and snapper odors), the crab instars favored to stay in the control chamber. These results suggest that even at its early developmental stage, blue swimming crab instars are highly responsive and can distinguish food from alarm odors, such as those odors coming from perceived potential predators. This study is important in understanding the behavioral capacities of hatcheryreared animals, their responses when released to a new and harsh environment, and possible applications of these behaviors in enabling restocking programs feasible. **(Author's abstract)**

Keywords: *Alarm odor, Chemoreception, Decision-making, Stock enhancement, Fisheries*

Philippine Journal of Science, Volume No. 147 Issue No. 2, 221-229
2018 June,
(Filipiniana Analytics)
NP

0342

An overview of planning and policy formulation in fisheries in the Philippines *, Tadeo, Dorot*

The paper presents an overview of the fisheries planning system in the Philippines, including a historical background of the planning process and a review of past and present policies, plans and programs. The discussion is primarily centered on the Integrated Fisheries Development Plan for 1980s which to this date remains to be the most

comprehensive planning document available for fisheries. Finally, the paper discusses a number of issues with implications on the planning process and makes recommendation on how these issues could be solved.

Keywords: *Fishery policy, Fisheries*

Compilation of Conference Papers, Volume No. Issue No. , 32 pages
(Filipiniana Analytics)
Fil(S) SH117.P5 N2 v.3

0343

An overview of the marine fishery resources of the Philippines *Ordonez, Jos*

The Marine waters of the Philippines provide a major contribution to the total fish production of the country, the 1985 production figures show that 63.19% come from the combined production of the commercial and municipal sectors. However, since 1975 trends tend to show that production in most of the traditional fishing grounds has been showing signs of overexploitation. Based on estimates, resource potentials indicate that the maximum sustainable yield(MSY) is already being reached. This forewarning could only mean that appropriate management measures should be applied if conservation of the resources is to be expected.

Keywords: *Marine fishes, Marine resources, Fisheries*

Compilation of Conference Papers, Volume No. Issue No. , pages 1-16, [9 leaves]
(Filipiniana Analytics)
Fil(S) SH117.P5 N2 v.3

0344

Past major and on-going foreign-assisted fisheries projects

The Philippines Fishery Program from 1947 to 1952 is considered the first official foreign-assisted project for fisheries. It was implemented by the U.S. Fish and Wildlife Service under the Philippine Rehabilitation Act of the U.S.A., American Public Law 320. It consisted of trainings on commercial fisheries, fish processing, biology, etc. awarded to and availed of by 124 Filipino pensionados. Marine resource and fishery surveys were also undertaken under the Program using the M/V/ Spencer Bird and M/V Jordan. The survey came up with a report on the Otter Trawl Exploration in the Philippines. Degree courses were pursued by some pensionados in addition to the on-the-job trainings undertaken

Keywords: *Fisheries, Fishery management, Fisheries*

Compilation of Conference Papers, Volume No. Issue No. , 12 pages
(Filipiniana Analytics)
Fil(S) SH117.P5 N2 v.3

Philippine Fisheries Research and Development Programme
, Gapasin, Dely P., Pagdilao, Cesa

Fish and other aquatic fishery products are among the cheapest sources of protein, contributing 54% of the total protein consumption of Filipinos. In 1984, the total fish production amounted to 2.08 mt, valued at P25.65 B. of the country's total fish production, 38% came from the marine municipal fisheries sector, 25% from from the marine commercial fisheries, 23% from aquaculture, and 14% from inland fisheries.

Keywords: *Fisheries, Fisheries*

Compilation of Conference Papers, Volume No. Issue No. , page 27
 (Filipiniana Analytics)
 Fil(S) SH117.P5 N2 v.3

Physical Properties of *Spirulina* Phycocyanin Microencapsulated with Maltodextrin and Carrageenan

Purnamayanti, Lukita , Kurniasih, Retno Ayu , Dewi, Eko Nu

Phycocyanin as a source of natural blue dye is unstable to light, temperature, and pH during processing and storage. Microencapsulation is used to protect phycocyanin from external influences where the type and formulation of coating materials used may affect the characteristics of phycocyanin microcapsules. This study aims to evaluate the physical properties of encapsulated phycocyanin from *Spirulina* and the potential of maltodextrin in combination with κ -carrageenan in its microencapsulation process by spray drying. Microcapsules were prepared with five different concentrations of maltodextrin and κ -carrageenan i.e., 10% : 0%; 9.75% : 0.25%; 9.5% : 0.5%; 9.25% : 0.75%, and 9% : 1% (w/w). Results indicated that microcapsules of phycocyanin with 9% of maltodextrin and 1% of κ -carrageenan as coating material produced the highest bulk density, particle size, and encapsulation efficiency, which were 1,501.27 kg m⁻³, 1,152.33 nm, and 48.87%, respectively. The differential scanning calorimeter thermogram and the Fourier Transform Infrared Spectroscopy measured the presence of phycocyanin, maltodextrin, and κ -carrageenan in microcapsules. **(Author's abstract)**

Keywords: *k-carrageenan, Maltodextrin, Phycocyanin, Physical properties, Fisheries*

Philippine Journal of Science, Volume No. 147 Issue No. 2, 201-207
 2018 June,
 (Filipiniana Analytics)
 NP

Possible Effects of El Niño on Some Philippine Marine Fisheries Resources
Damatac, II, Amor M. , Santos, Mudjekeewis D.

El Niño is the warm phase of extreme climatic phenomenon observed in the equatorial Pacific. Over the past decades, frequent El Niño events have been observed and pose great threat to biodiversity. Reporting mostly the effects from 1982-1983 and 1997-1998 events, El Niño affected factors involved in ocean- atmospheric interactions such as sea surface temperature, salinity, nutrient availability, precipitation rate, ocean currents, and tropical typhoons. The changes in these factors influenced marine organisms leading to an increased phytoplankton biomass and widespread coral bleaching, and possibly resulting to fish kills, occurrence of seaweed diseases and threats to marine mammals. It affected pelagic fishes leading to migration or change in catch production. The data in this paper raise concerns on the predicted impact of El Niño on food security. Considering our susceptibility, key researchable areas must be implemented to support management strategies that will mitigate the possible effects of El Niño in the country. **(Author's abstract)**

Keywords: *El Nino, fisheries, Pacific Ocean, Fisheries*

Philippine Journal of Science, Volume No. 145 Issue No. 3, 283-295
2016 September,
(Filipiniana Analytics)
Fil(S) Q1 P55 145/3 2016

0348

***Pyrodinium bahamense* and Other Dinoflagellate Cysts in Surface Sediments of Cancabato Bay, Leyte, Philippines**

Tan, Irene L. , Yap-Dejeto, Leni, Durante, Caryl Y. , Alonzo, Coleen

Cysts withstand hostile environmental conditions and are source of inoculum for recurrent blooms. In the Philippines, the first recorded bloom of the phytoplankton *Pyrodinium bahamense* was observed in Samar-Leyte areas, including Cancabato Bay in 1983. Since then, shellfish bans in these areas have been imposed periodically. Until the present however, there is no thorough cyst study done in this bay. This study has assessed the abundance and distribution of dinoflagellate cysts in the bay. Surface sediment samples collected and processed by palynological technique have revealed a total of 21 species of dinoflagellate cysts belonging to five groups: Gonyaulacoid, Protoperidinioid, Gymnodinioid, Calciodinellid, and Diplopsalid. Cysts have been detected in all stations, with cyst densities ranging from 1-80 cysts g-1 DW; and *Operculodinium centrocarpum* (*Protoceratium reticulatum*) dominated in four stations. Low levels of *P. bahamense* cysts, *Polysphaeridium zoharyi*, have been detected in 13 stations, the densest at 16 cysts g-1 DW. Concentrations of cysts that have been highest in the inner part of the bay could have been affected by several factors, including substrate type, bulk dry weight, and nitrogen content. This important stage of the lifecycle of dinoflagellates should be factored in future models to predict *P. bahamense* blooms in the bay. **(Author's abstract)**

Keywords: *Cyst, Dinoflagellate, Gonyaulax, Gymnodinium, Lingulodinium, Protoceratium, Pyrodinium, Fisheries*

Philippine Journal of Science, Volume No. 147 Issue No. 2, 209-220
2018,
(Filipiniana Analytics)
NP

0349

Seaweed industry in the Philippines , Ricohermoso, Max

The Philippines is one of the few countries in the world that have successfully grown marine algae (seaweeds) in substantial commercial quantities. Seaweeds and seaweed products now rank third after shrimps and tuna, among marine and fisheries product exports. Compared to shrimps and tuna, however, seaweeds provide greater direct economic benefits to a greater number of our people. Eucheuma seaweed species dominate the Philippine seaweed industry. While Sargassum, Gracilaria, Gelidium and a few other species are commercially important, limited information on them is available; thus, this paper will deal more on Eucheuma.

Keywords: *Seaweeds, Marine algae industry, Fisheries*

Compilation of Conference Papers, Volume No. Issue No. , 7 pages
(Filipiniana Analytics)
Fil(S) SH117.P5 N2 v.3

0350

The shrimp industry in Luzon, Philippine *, Abesamis, Saturnino A., Dr., Rabanal, Hermi*

Located between 5 °and 20° north latitude, the Philippines enjoy a tropical climate and warm water that provides ideal condition for shrimp production especially through shrimp farming. In general, the water quality in the Philippines is excellent, with the coastal salinity ranging from about 5 to 25 ppt (full strength sea water is about 32 to 34 ppt). Potential sites for black tiger shrimp culture requires freshwater sources to create the brackishwater condition required for optimal growth. Locations with pronounced dry and wet seasons longer than three months at a time have salinities either too low or too high. The Philippines is divided into four climatic zones. Two of these, which are prevalent in most of Luzon, have pronounced wet and dry seasons which make it difficult to maintain ideal salinities throughout the year. It was found out, however, that even in salinities as high as 34ppt, the tiger shrimp could survive and grow due to its osmoregulatory capacity. It is concede, however, that the growth in that salinity is less rapid than in salinities less that 25 ppt.

Keywords: *Shrimps, Shrimp fisheries, Fisheries*

Compilation of Conference Papers, Volume No. Issue No. , 6 pages
(Filipiniana Analytics)
Fil(S) SH117.P5 N2 v.3

0351

Shrimp industry in Region VI *, De Los Santos, Ceferino,*

The aquaculture scientists use the common name shrimp for all animals with a large head covered by a carapace, two lateral eyes, an elongated and tapering tail tipped with a telson, five pairs of walking legs and five pairs of swimmerets, regardless of size or salinity of habitat. Of many species of shrimps the larger ones belong to the family Penaeidae and Palaemonidae. The Filipinos call the larger size shrimp as prawn or sugpo, locon; and freshwater prawn as ulang, paje.

Keywords: *Shrimp fisheries, Shrimp cultures, Shrimps, Fisheries*

Situation of small-scale fisheries , *Cariasa-Arcinue,*

This paper aims to present a comprehensive understanding of the situation of the small fisherfolks based on a long history of actual direct organizing and linkages of SB9F. It is expected that this paper provides an impact to government policies and plans related to small fisherfolks.

Keywords: *Small scale industry, Fisheries*

Situationer on small-scale fisheries , *Dator, Co*

The aggregate of municipal fishermen constitutes the most potent force in the industry. Scattered among the many coastal villages throughout the country, the majority of these fisherman limits its trade to municipal waters, using antiquated/outmoded fishing areas and techniques. These fishermen, operating on small-scale, are confronted with difficulties in fish handling, transporting, marketing and financing. Knowing the plight of the sustenance of fishermen, the Development Academy of the Philippines with the assistance of the Bureau of Fisheries and Aquatic Resources launched the Fishery Resources Management Program (FIRM) in July 1975 to pursue municipal fisheries development. The program's concept revolves around the organization of fishermen's association(FAs). These FAs, which is organized along cooperative principles, serve as conduits for technical, economic, social and financial assistance from various government and private agencies as well as from institutions willing to take part in the uplift of the socio-economic status of the country's sustenance fishermen. To date there are 204 FAs, distributed in different provinces of the country, situated in Luzon, Visayas, and Mindanao. From the subsistence stage, the FAs have undergone different stages of development, such as institution-building stage, institution-based development, and intensive fishery development stage. To attain more institutional autonomy for the FAs and to foster self-reliance among FA members, the FAs were united into provincial and regional federations and later on federated into a national union called National Federation of Fishermen's Association (NFFA). In November 1985, through Program FIRM, the NFFA was changed to National Federation for Rural Interests Inc. (NAFRI) to expand its system of delivering development services and to facilitate the sourcing of funds. It includes not only the sustenance fishermen, but also other rural interest groups. NAFRI, having parallel direction with erstwhile NFFA with majority of its members composed of artisanal fishermen, will continue reinforcing its activities in the development of municipal fisheries along five major areas: fishery technology development, fishery infrastructure development, integrated marketing development, integrated financing scheme development and socio-cultural-political development.

Keywords: *Fishery management, Fisheries development, Fisheries*

State of Philippine tuna fisheries
, Aprieto, Virginia Dr., Ganaden, Reuben A.,

The development of the highly efficient purse seine method in combination with bamboo rafts or payao, a type of fish attracting device (FAD), triggered the rapid growth of the tuna fishery. This enabled the country to be self-sufficient in fish and the industry to supply the international market with tuna. Tuna production increase phenomenally from 9, 000 MT in 1970 to a peak production of 261, 000 MT in 1985, comprising 20% of the total marine fish catch that year (Table 1). Canned and frozen tuna presently ranks as the number one fisheries export with a production of about 37, 000 MT valued at Php 1.2 billion consequently the tuna fishery has remained the most valuable fishery in the country in terms of volume and value.

Keywords: *Tuna, Tuna fisheries, Fisheries*

The state of the Philippine tuna industry
, Hizon, V

The Philippine tuna industry is sick and in danger of dying. It is beset by problems brought about by inadequate resources, aging and outmoded fishing vessels, underutilized capacities and a highly competitive market.

Keywords: *Tuna fisheries, Tuna, Fisheries*

Status of inland fishery resources of the Philippines
Edra, Roland

This information is directed to representatives of the various sub-sectors in Philippine fisheries, governmental, non-governmental, academic and international institutions participating in the National Workshop on Fisheries Policy and

Planning in March, 1987. It seeks to assist participants and decision-makers in developing options for policy formulation which will benefit the majority of the people. It addresses the existing inland fishery resources and its production, potentials for development and problems/issues with corresponding recommendations. The existing resources include: (a) freshwater, covering 203, 338 ha lakes, 51, 128 ha reservoirs/dams, about 5, 399 ha small water impoundments, 348 major river basins, 45 marshes and about 14, 380 ha fishponds, (b) brackishwater, covering 220, 243 ha mangroves, saltbeds of undetermined area and 205, 000 ha fishponds, (c) marine, covering tidal flats of undetermined area, 497 ha mussel farms and 427 ha oyster farms, (d) 40 aquatic organisms of major economic important , and (e) 30 introduced species. Production in 1985 reached 15, 882 mt and 198, 546 mt in freshwater and brackishwater fishponds, respectively. The extent of freshwater marshes and irrigated rice fields, proposed brackishwater areas for development, and coastal and marine protected areas is indicative of its potential recommendations are presented.

Keywords: *Marine fishes, Marine resources, Fisheries*

Compilation of Conference Papers, Volume No. Issue No. , 24 pages
(Filipiniana Analytics)
Fil(S) SH117.P5 N2 v.3

0357

Status of joint venture fishing operations in the Philippines

A. Legal bases for joint fishing ventures in the Philippines:
1. P.D. 704, Section 21 and
2. Fisheries Administrative Order No. 121.
B. Rationale

Primary considerations in allowing joint fishing ventures in the Philippines are the following: capital formation, acquisition of resources data, technology transfer, employment and income generation, increases fish production and exports.

C. Recent Policy Statement/ Guiding Principles
Local industry capability will be developed toward the rational exploitation and conservation of the country's fishery resources. Foreign participation in the forms of strict joint venture fishing agreement or outright licensing of foreign fishing vessels will not be allowed. Charter, lease or lease purchase agreements will be allowed but on a selective or case to case basis only to fill in gaps in local capability and if they contribute to the development of the national effort under specific terms and conditions which shall be strictly enforced. The hiring of foreign crew under charter contracts will not be allowed. Instead, the hiring of foreign crew under charter experts not locally available may be allowed on a case to case basis provided they are not restricted nationals.

D. Nature of joint venture fishing in the Philippines
In general, present joint venture in commercial fishing in the Philippines refers to that type or arrangement where, by virtue of a charter contract, lease of lease-purchase agreement entered into between a bonafide Filipino citizen or corporation and the foreign boat owner, a foreign fishing boat is brought into the Philippines primarily for the purpose of engaging in commercial fishing operations in the country under the terms and conditions of existing laws on the matter.

Keywords: *Fish industry, Fishery management, Fisheries*

Compilation of Conference Papers, Volume No. Issue No. , 6 pages
(Filipiniana Analytics)
Fil(S) SH117.P5 N2 v.3

Status of milkfish industry in the Philippines
, Goco, Con

Aquaculture in the Philippines, thru its inception, primarily deals with the culture of milkfish in brackishwater ponds. In recent years, this has been expanded and diversified to include brackishwater shrimp culture. In 1985, aquaculture production reached 495, 742 mt or 24.1% of the national fisheries production of 2.05 million mt. This production of mainly milkfish and shrimps which accounted for 40% of total culture production was for milkfish.

Keywords: *Milkfish, Fish industry, Fisheries*

Compilation of Conference Papers, Volume No. Issue No. , 5 pages
(Filipiniana Analytics)
Fil(S) SH117.P5 N2 v.3

Status of Philippine boat building and ship repair industry
, Jovellanos, Ce

The business of shipbuilding and ship repair has been practiced with skill by our ancestors since many centuries ago. History points to the fact that one of the ancient types of sailing vessels called the balanghai which was built by Filipinos dates back about 320 A.D. This goes to show that the technology for building and repairing boats at that time was already well developed.

Keywords: *Shipbuilding industry, Boating industry, Fisheries*

Compilation of Conference Papers, Volume No. Issue No. , 9 pages
(Filipiniana Analytics)
Fil(S) SH117.P5 N2 v.3

Status of Philippine Demersal Stocks: an overview
, Silvestre, Geronimo T., Ganaden,

The fishery based on demersal stocks (i.e. fishes and invertebrates living on or close to the sea bottom soft and hard/coral grounds) has contributed a considerable portion (25% to 40%) of Philippine marine landings since the late 40's. Demersal landings showed a steady increase from 78,000 mt in 1947 to 416,000 mt in 1975. Landings after 1975 decreased steadily until 1980 (326,000 mt), but an upward trend has been noted lately with 1984 landings totalling 385,000 mt. The demersal fishery is considerably area-limited, the productive shelf area (0-200 m depths) comprising only 13% of 225,000 sq. km. of the country's vast marine waters. Currently available information pertaining to the potential yield and state of exploitation of Philippine demersal stock is about 600 + 200 thousand mt/year, the lower limit of which has been essentially reached by present landings; (2) harvests have largely reached the limits that the resources can sustain in the nearshore areas, especially the traditional fishing grounds, and (3) future increases in demersal landings would come primarily from the Palawan, Tawi-Tawi and Lamon Bay areas, as well as from better management of the demersal fisheries. Although the data utilized in

maming the above conclusions have been criticized as inadequate, more recent and reliable area-specific studies confirm prevalence of biological and economic overfishing of nearshore demersal stocks. The economic loss (i.e. rent dissipation resulting from lack of management of the demersal fisheries could be as much as US\$ 90 million annually.

Keywords: *Fish stock, Marine fishes, Fisheries*

Compilation of Conference Papers, Volume No. Issue No. , 13 pages
(Filipiniana Analytics)
Fil(S) SH117.P5 N2 v.3

0361

Status of shellfish industry , Gabral-Llana, Ma.

This paper reviews briefly the present status of the shellfish industry in the Philippines. Some problems and needs of the industry as well as prospects for development are discussed. Recommendations to ensure the survival of the industry are presented.

Keywords: *Shellfish fisheries, Shellfish population, Fisheries*

Compilation of Conference Papers, Volume No. Issue No. , 15 pages
(Filipiniana Analytics)
Fil(S) SH117.P5 N2 v.3

0362

Status of the aqua feed industry in the Philippines , de Leon, A

The fishing industry in the Philippines, as in many countries, has been traditionally confined to marine fishing and as such the necessity for feeds becomes minimal if not irrelevant. However, most studies reveal that fish yield from the sea is decreasing. Correspondingly, this makes commercial fishing and prawn farming lucrative & fish feed manufacturing encouraging.

Keywords: *Fishes, Feeds industry, Fisheries*

Compilation of Conference Papers, Volume No. Issue No. , 10 pages
(Filipiniana Analytics)
Fil(S) SH117.P5 N2 v.3

0363

The status of the Philippine small pelagic fish stocks , Dalzell, Paul, Ganaden, Reuben A.,

A review is presented of the status of Philippine small pelagic fisheries. Landings of small pelagic fishes which consist primarily of roundscads, sardines and anchovies, currently amount to about 500, 000 t/yr. Virtually, all small pelagic fish are caught between Central Luzon and Southern Mindanao. There is a diversity of gears for catching small pelagic fishes but 60% of the entire landings are accounted for by purse seines, bag nets, and gill nets. Time series of landings and nominal fishing effort between different vessels and gear types that also includes the effect of carrier vessels on fleet fishing power. The relationship between catch and fishing effort also showed that Philippine small pelagic fish stocks are overfished in the commercial fishery. A country wide maximum sustainable yield of 260, 000 1/yr for the commercial small pelagic fishery was estimated from the catch effort data. The results are discussed with respect to fisheries management and the shortcomings of the catch reporting system.

Keywords: *Marine fishes, Marine resources, Fisheries*

Compilation of Conference Papers, Volume No. Issue No. , 23 pages
(Filipiniana Analytics)
Fil(S) SH117.P5 N2 v.3

0364

Status of the seabass culture in the Philippines

Nacario, Jonatha

Sea bass, *Lateolabrax niloticus*, an important food fish in the Southeast Asian Region, has received much attention in recent years. A summary of the developments in production, culture and market potentials are reviewed. Constraints and important considerations for commercial culture are likewise presented.

Keywords: *Sea bass fishing, Sea basses, Fisheries*

Compilation of Conference Papers, Volume No. Issue No. , 46 pages
(Filipiniana Analytics)
Fil(S) SH117.P5 N2 v.3

0365

Status of tilapia and carp culture in the Philippines

Guerrero, Rafael, D., III

Tilapias and carps are the major freshwater fishes cultured in the Philippines. Production of tilapia in ponds and cages has markedly increased with the rapid expansion of the industry particularly in lakes. Carp culture in cages and fishpens has been boosted with the propagation of bighead in local hatcheries and the acceptance of the fish by consumers.

Technologies for the hatchery, nursery and growout of the Nile tilapia in the country are relatively well-developed. Those for carps, however, need to be further standardized and evaluated. With the bright prospects for development of the industry to supply local fish needs and possibly for export, the problems of regulating communal resources utilized for aquaculture such as fishponds and cages, marketing of carp and quality control for marketed products should be looked into. The establishment of a national broodstock center for tilapia and carps species, the upgrading of government service units in the regions, and the organization of a national task force for consolidating the available technologies affecting their utilization are recommended.

Keywords: *Tilapia (Fish), Carp culture, Cultured fish, Fisheries*

Compilation of Conference Papers, Volume No. Issue No. , 13 pages
(Filipiniana Analytics)
Fil(S) SH117.P5 N2 v.3

0366

**The strategic importance of fisheries and other aquatic resources in national development:
some institutional implications**
, Filio, Candido P.

By its sheer length alone--with its ten or so polysyllabic words--the title above should qualify this piece as a technical paper. A short title could also be: "Fisheries as Strategic Resources for Development.". In any case, this paper will have to establish first some working knowledge resource and institutional arrangements.

Keywords: *Fisheries, Aquaculture, Fisheries*

Compilation of Conference Papers, Volume No. Issue No. , 15 pages
(Filipiniana Analytics)
Fil(S) SH117.P5 N2 v.3

0367

**Summary of policy issues and recommendations by the policy action group, Department of
Environment and Natural Resources, on the conservation of Fisheries and Aquatic
Resources**
, Umali, Ricardo M., Bina, Ricar

With the reorganization of the former Ministry of Natural Resources into the Department of Environment and Natural Resources (DENR), the new DENR management felt that a thorough and in-depth study of the present government policies on natural resources and environmental management be conducted with the main objective of realizing such policies according to the economic, social, and political goals of the new regime and in consonance with the spirit of the newly ratified 1986 constitution. Thus, a task force known as the Policy Action Group (PAG) composed of experts in various fields of natural resource and environmental management was created. The group, under the coordination of the Natural Resources Management Center (NRMC), was tasked to recommend a new set of policies which will serve as bases for the institution of programs and projects by the DENR management.

Keywords: *Fishery law and legislation, Fisheries*

Compilation of Conference Papers, Volume No. Issue No. , 9 pages
(Filipiniana Analytics)
Fil(S) SH117.P5 N2 v.3

FOOD SCIENCE AND TECHNOLOGY

Association of Household Food Security Status with Mother/Caregiver-Child Pair's Nutritional Status Using HFIAS and FCS

Navarro, Celina Ann J. , Gironella, Glen Melvin P. , Ignacio, Ma. Socorro E.

The main objective of the study was to determine the association of household food security status with mother/caregiver-child pair's (MCCP) nutritional status using Household Food Insecurity Access Scale (HFIAS) and Food Consumption Score (FCS). MCCP's nutritional status was categorized into two: household with chronic energy deficient (CED) mother/caregiver and/or at least one child who was stunted, and household without CED mother/caregiver and stunted child. Secondary data from the 2013 National Nutrition Survey conducted by DOST-FNRI was used for the study. Mothers/caregivers who were included in the study were non-pregnant aged 19 years and above, their children, and their household characteristics. Descriptive and analytical analysis via binomial logistic regression was done using Stata 12.1. Results showed that the HFIAS gave the highest estimated prevalence of food insecurity with 75.1% (95% CI: 73.9-76.3) while for FCS, it was 15.7% (95% CI: 14.7-16.8). The estimated proportion of households with CED mother/caregiver and/or at least one stunted child was 38.7% (95%CI: 37.5-39.9), while those households without CED mother/caregiver and stunted child was 61.3% (95% CI:60.1-62.5). Significant associations were observed after adjusting for the confounding variables. For the HFIAS indicator, food insecure households were 1.28 (95% CI: 1.09-1.48) times more likely to have a mother/caregiver with CED and/or at least one stunted child than food secure households. Food insecure households classified by the FCS indicator had 22% (95% CI: 1.01-1.35) higher chance than food secure households to have a CED mother/caregiver and/or at least one stunted child. There was a significant association between household food insecurity and occurrence of undernutrition in a household. To improve the households' nutritional status interventions that are both nutrition specific and nutrition sensitive should be implemented. More researches have to be done to identify the sensitivity and specificity of the household food security indicator in accurately identifying food insecure household. **(Author's abstract)**

Keywords: *FCS, Food security, HFIAS, Mother-child pair, National Nutrition Survey, Stunting, Food science and technology*

Philippine Journal of Science, Volume No. 147 Issue No. 3, 493-501

2018 September,

(Filipiniana Analytics)

Fil(S) Q1 P55 147/3 2018

Evaluation of Calcium Intakes of Young Children in the Philippines as a Result of the 2008 National Nutrition Survey

Angeles-Agdeppa, Imelda , Gironella, Glen Melvin P. , Constantino, Ma. Adrienne S.

Calcium is considered as the most abundant mineral in the body. Milk and other milk products are the best sources of calcium. Calcium deficiency may lead to osteoporosis. This study was conducted to provide information on dietary calcium intakes of young children as basis for advocacy campaigns on keeping watch on their calcium intakes. A total of 5,691 Filipino children aged 6 months to 10 years old were the respondents in the study. The data were taken from the National Nutrition Survey conducted in 2008. Food intakes were collected by face-to-face interviews using 24-hour food recall questionnaires with mothers of children as respondents. Food intake was transformed to nutrient intakes using the Individual Dietary Evaluation System. The mean one-day calcium intake of young children is 291 mg. There was a declining trend from 6 months to 6 years old and slight increases from 7 to 10 years old. Only 14.8% have met the Estimated Average Requirement for calcium. Milk and milk products contributed to about 33.4% of the total

calcium intake. The highest calcium intake of young children came from the richest quintile, compared to the groups belonging to the poorest quintile where intake was lowest. Mean and percent adequacy of calcium intake of children and the consumption of milk as rich source of calcium were both very low. **(Author's abstract)**

Keywords: *calcium intake, individual intake, Milk, milk products, percent adequacy, socio- economic status, young children, Food science and technology*

Philippine Journal of Science, Volume No. 145 Issue No. 2, 165-174
2016 June,
(Filipiniana Analytics)
Fil(S) Q1 P55 145/2 2016

0370

Fermentation of Native Smoked Sausage

Sison, E.C., Pederson

Microbiological and pH changes that occur during the traditional processing of native fermented sausage were studied. It was observed that the sausage was fermented by *Pediococcus cerevisiae*, *Micrococcus* sp., *Streptococcus* sp. and other lactic acid bacteria. The fermentation is initiated by the aerobic and low-acid producing bacteria and completed by *P.cerevisiae*. It was also demonstrated that the fermentation responsible for the lactic acid necessary for the characteristic tangy flavor of the sausage is influenced by the use of starter culture. By using starters, an adequate fermentation can be obtained within 16 to 24 hours at 40 C.

Keywords: *Fermentation, Smoked Sausage, Sausage, Food science and technology*

The Philippine Agriculturist, Volume No. 58 Issue No. 1/2, 61-71
1974,
(Filipiniana Analytics)
FIL S19 P53

0371

Food Safety Knowledge Assessment Model for Pre-trained Food Handlers

Rustia, Abigail S. , Azanza, Ma. Patricia V. , Gascon, Fredelyn S.

The study developed and utilized a model for the assessment of food safety knowledge for pre-trained food handlers, with the aim of defining specific food safety training needs for food handlers with previous awareness in food safety. The recommended levels of knowledge for assessment were: awareness, as having previous exposure to food safety information through prior training; recall, as the ability to retrieve food safety knowledge as tested by face-to-face interview; and comprehension, as the ability to show translation of knowledge to practice as a skill in the vending environment of a food handler. These levels of food safety knowledge were utilized since deviations may result to health risks.

It was reported in this study that support resources as moderating variables were necessary for the translation of food safety knowledge to practice. The identified resources were falling under the control of managerial decision support by both street food business owners, as part of the

private management to vending, and by local government entities contributing to public good of the vending business. Specifics to these resources were funds for street vending operations, provision of sanitary facilities, hiring of skilled manpower, and supply of appropriate utilities. The inclusion of moderating variables to the TNA model was recommended, in order to attain focus in the training of food handlers with previous awareness to the food safety information.

(Authors' abstract)

Keywords: street food, food safety knowledge, training needs assessment, food handlers, Food science and technology

Philippine Journal of Science, Volume No. 146 Issue No. 4, 371-385

2017 December,

(Filipiniana Analytics)

Fil(S) Q1 P55 146/4 2017

0372

The Obesity-related Single Nucleotide Polymorphisms *FTO* and *GHSR* Genes and the Postprandial Feeling of Fullness in Filipino Adults

Nacis, Jacus S. , Goloso-Gubat, Ma. Julia , Timoteo, Vanessa Joy A. , Magtibay, Edward Vincent J. , Udarbe, Mildred A. , Santos, Noelle Lyn C.

Obesity-related single nucleotide polymorphisms (SNPs) may impact the control of energy intake and eating behavior. However, the effect size of those individual SNPs is not yet fully elucidated. Intervention studies using a standardized test meal coupled with a validated visual analogue scale (VAS) is important in understanding the influence of SNPs in the subjective feeling of appetite. This study aimed to assess the influence of obesity-related SNPs on appetite responses of Filipino adults following consumption of equicaloric breakfast meals. In an intervention study, thirty-four apparently healthy Filipino adults were genotyped for SNPs in the fat mass and obesity-associated gene (*FTO*) and growth hormone secretagogue receptor (*GHSR*). A validated VAS was used to capture the pre- and post-prandial feeling of the appetite of the study participants. Analysis of covariance (ANCOVA) was used to determine the differences between the subjective ratings of appetite (hunger, fullness, desire to eat, and prospective consumption) relative to the genotype of the study participants. The mean rating of fullness was 5.6% lower in carriers of the risk-allele A for *FTO* rs9939609 and 16.6% higher in carriers of the risk-allele A for *GHSR* rs572169. The levels of fullness after a meal is significantly influenced by the obesity-related SNPs *FTO* rs9939609 and *GHSR* rs572169 after controlling for age, sex, height, weight, BMI, and baseline appetite scores of the study participants. Our result implies that genetic polymorphisms might pose control of subsequent food intake. **(Author's abstract)**

Keywords: Appetite, Food intake, Fullness, Obesity, Single nucleotide polymorphisms, Food science and technology

Philippine Journal of Science, Volume No. 147 Issue No. 3, 483-491

2018 September,

(Filipiniana Analytics)

Fil(S) Q1 P55 147/3 2018

0373

Physico-chemical Composition and Functional Properties of Native Chicken Meats

Sumague, Ma. Josie V. , Del Rosario, Olivia M. , Tan, Wilson T. , Santiago, Dennis Marvin O. , Flores, Floirendo P. , Algar, Ara Fatima C. , Mopera, Lotis E. , Dia, Vermont P. , Collado, Lilia S.

Native chicken genetic groups namely Paroakan, Banaba and Joloanon were obtained from BAI/DA station in Tiaong, Quezon. Commercial broiler was used as control. Samples were analyzed for meat yield, pH, and proximate composition, water holding capacity, emulsion activity and emulsion stability. Results were analyzed statistically using Analysis of Variance and Duncan's New Multiple Range Test. There was no significant difference among the meat yields of the different native chicken genetic groups and commercial broiler. Variations in the proximate composition of the different chicken parts were affected by genetic groups. Breast and leg samples from Broiler gave the highest pH. Emulsion activity and emulsion stability of Broiler's breast and leg were significantly higher than those of the different native chicken genetic groups. Emulsion activity of breast from the different native chicken genetic groups was not significantly different. Banaba breast gave higher emulsion stability compared to other native chicken genetic groups. Meat from various genetic groups of native chicken has the potential as a healthy substitute to commercial broiler because it had higher crude protein and lower fat than commercial broiler. However, commercial broiler has better functional properties than native chicken meat because of its significantly higher pH, emulsion activity and emulsion stability. (**Author's abstract**)

Keywords: *Banaba, Broiler, Chicken, Composition, Joloanon, Paraoakan, Food science and technology*

Philippine Journal of Science, Volume No. 145 Issue No. 4, 357-363
2016 December,
(Filipiniana Analytics)
Fil(S) Q1 P55 145/4 2016

0374

Postprandial Satiety Responses and Ghrelin Levels With Consumption of White Rice and Brown Rice in Selected Filipino Adults

Goloso-Gubat, Maria Julia , Magtibay, Edward Vincent J. , Nacis, Jacus S. , Udarbe, Mildred A. , Santos, Noelle Lyn C. , Timoteo, Vanessa Joy A.

Brown (unpolished) rice meals may evoke stronger satiety signals than calorie-matched white (polished) rice meals. This study aimed to compare effects on satiety of brown rice versus white rice using subjective and physiologic measures of satiety in selected Filipino adults. Subjects (n=34) completed a six-week crossover study. In the first two weeks, they were randomly assigned to consume breakfast meals with either brown rice (n=17) or white rice (n=17) matched in energy (~500 kcal) and macronutrient content. This was followed by a two-week washout period and crossover in rice assignments in the next two weeks. One hundred-mm visual analogue scales (VAS) were used to assess hunger and fullness at pre-prandial (0 minutes) and at 15, 30, 45, 60, 90, 120, 150, 180 and 240 min postprandial. Ghrelin levels at 0, 30, 60 and 120 min were determined by radioimmunoassay (RIA). Mean hunger ratings for the brown rice test meals were significantly lower than that of white rice at 150 (p=0.029), 180 (p=0.006) and 240 min (p<0.001) postprandial. Average fullness VAS ratings for the brown rice test meals stayed significantly higher than white rice at 150 (p=0.015), 180 (p=0.003) and 240 min (p<0.001) postprandial. However, temporal profiles of ghrelin did not differ significantly for both types of rice, and did not correlate with hunger and fullness VAS ratings. Subjective measures of satiety did not directly and positively reflect physiologic conditions. The potential health benefits of brown rice are well documented but generalizations about its effect of satiety should be stated with caution. (**Author's abstract**)

Keywords: *brown rice, fullness, ghrelin, hunger, satiety, white rice, Food science and technology*

Philippine Journal of Science, Volume No. 145 Issue No. 4, 405-412
2016 December,
(Filipiniana Analytics)
Fil(S) Q1 P55 145/4 2016

Assessing the Utilization of Falcata [*Falcataria moluccana* (Miq.) Barneby & J. W. Grimes] for Lumber Production

Alipon, Marina A. , Alcachupas, Pablito L. , Bondad, Elvina O. , Cortiguerra, Emelyne C.

Lumber recovery and grades, mechanical properties (static bending, hardness, toughness, shear, compression parallel and perpendicular-to-grain), and cost-benefit in utilizing falcata [*Falcataria moluccana* (Miq.) Barneby & J. W. Grimes] at different ages from different sites were determined and evaluated. The aim is to study the feasibility of harvesting falcata at a younger age (four to eight years old) instead of the current cutting age of 8 to 12 years old, and help widen the raw material base of the local wood-based industries. The materials were collected from three sites in Caraga region: Prosperidad, Agusan del Sur (Site 1), Nong-nong, Butuan City (Site 2) and Las Nieves, Agusan del Norte (Site 3). Standard procedures in sampling and properties testing were followed. Lumber quality or grade yield per log per species was evaluated based on the National Hardwood Lumber Association (NHLA) Standards. Lumber recovery and grades improved from four to eight years old, significantly highest in Site 1. The highest grade recovered was No.1 Common (No.1C) mostly from the 8 and 6-year-old trees. Log samples in the younger age class and with small diameter (4-year-old trees) yielded mostly No.3 Common (No.3C) boards. The mechanical properties classification of the species was the same regardless of age, sites as well as diameter across ages (Class V - Low Strength). The wood can be used for purposes where strength is not a critical requirement. Instead of waiting until they are eight years old, falcata trees may be cut at four to six years old as far as mechanical properties are concerned. Cost analysis showed it is not viable to harvest falcata trees with diameter of 16 cm and below. It may be profitable to harvest falcata logs with 16 cm and above diameter (attained even by four-year-old trees from Site 1) if selling price is Php 2,000/m³. (**Author's abstract**)

Keywords: *Falcata, static bending, compression parallel and perpendicular-to-grain, shear, hardness, lumber recovery, grades, Forestry*

Philippine Journal of Science, Volume No. 145 Issue No. 3, 225-235
2016 September,
(Filipiniana Analytics)
Fil(S) Q1 P55 145/3 2016

Properties of Particleboard from Wood Wastes and Cashew Nut Shell Residue

Mari, Erlinda L. , Villena, Edgar M.

Cashew nut shell residue (CNSR) obtained after extraction of the liquid was combined with mixed species of wood particles at different wood to CNSR proportions (100/0, 75/25 and (50/50) to produce one-layer particleboard. The strength properties, dimensional stability, and flammability of the boards were determined to evaluate the technical feasibility of producing wood-CNSR particleboards with acceptable properties. Results indicate that the type of adhesives and wood/CNSR ratios had a significant effect on the boards' strength properties and dimensional stability. Isocyanate resin-bonded boards exhibited the highest modulus of rupture and modulus of elasticity but the urea formaldehyde resin-bonded boards had the highest internal bond and face screw holding strength. Most of the boards met the minimum standard for internal bond strength of base particleboard. The rest of the properties failed. Replacing wood with CNSR adversely affected the strength as well as the dimensional stability of the boards. In terms of flammability, however, the ember of boards with CNSR extinguished at a shorter time than the pure wood boards, thus causing a smaller area of damage on the board. (**Author's abstract**)

Keywords: cashew nut shell residue (CNSR), flammability, particleboard, strength properties, wood , Forestry

Philippine Journal of Science, Volume No. 145 Issue No. 1, 1-8
2016 March,
(Filipiniana Analytics)
Fil(S) Q1 P55 145/1 2016

0377

Stress-Based Kiln Drying of *Gmelina arborea* Roxb. Lumber
Carmelo, Wency H. , Razal, Ramon A. , Piñol, Chryslie Margus N. , Fuller, James

The study evaluated the kiln drying of 25-mm thick *Gmelina arborea* Roxb. lumber using conditions based on changing shrinkage rates following the procedure developed by Fuller under US Patent No. 5,873,182 dated 23 February 1999. For comparison, a separate kiln drying run was done following conventional, moisture content (MC)-based drying schedule. To monitor shrinkage, a linear variable differential transducer was mounted across a sample board that was coupled to a data acquisition system. Real-time shrinkage data was processed and the graph of dynamic shrinkage versus time provided information on peak stress, stress reversal and reduction of shrinkage rates. These transitions were taken as signals to advance kiln drying conditions to the next step prescribed in the MC-based drying schedule, which allowed prompt changes in kiln settings. The early transition in internal kiln drying conditions resulted to reduction in kiln drying time by 30 to 36%. The quality of the dried lumber was evident in the more uniform final moisture content distribution of the dried boards, less steep moisture gradient, and the absence of residual stresses in the boards dried in a kiln where changing shrinkage rates were used as basis for operation and control. (**Author's abstract**)

Keywords: *Gmelina* lumber, kiln drying schedule, moisture content, real-time shrinkage, short/long term slope comparison, stress-based kiln drying, Forestry

Philippine Journal of Science, Volume No. 145 Issue No. 3, 297-307
2016 September,
(Filipiniana Analytics)
Fil(S) Q1 P55 145/3 2016

0378

Xerophytic Characteristics of *Tectona philippinensis* Benth. & Hook. f.
Hernandez, Jonathan O. , Malabrigo, Jr., Pastor L. , Quimado, Marilyn O. , Maldia, Lerma SJ. , Fernando, Edwino S.

Tectona philippinensis Benth. & Hook.f. is one of only three species in the genus *Tectona* (Lamiaceae) restricted to the Asian tropics. It is endemic to Ilin Island and Batangas Province on Luzon Island, Philippines and is regarded as a critically endangered species. While role of xerophytic characteristics of plants are very important for their survival and growth under various environmental pressures, such characteristics in native tree species remain unclear. In this study, the anatomy of the species was analyzed to determine the xerophytic characteristics of *T. philippinensis*. Histological paraffin technique was used to examine the anatomical structures of leaf and young stem of the species. The anatomical structures of *T. philippinensis* have the characteristics typical of xerophytic plants. This includes the presence of trichomes, extended and well-developed vascular system, and multiple layers of palisade and sclerenchyma cells.

Extension of extended vascular bundles to both non-glandular hairs on the adaxial surface and glandular hairs on the abaxial surface of leaf is reported for the first time in this study. Therefore, anatomical structures of this species suggest its ability to survive under marginal conditions. However, studies on ecophysiology, pot experiments/field trials, phenology, and associated vegetation of the species are suggested to further understand its habitat preference and adaptation mechanisms. (**Author's abstract**)

Keywords: *anatomy, arid or semi-arid, endemic, Lamiaceae, restoration, xerophytes, Forestry*

Philippine Journal of Science, Volume No. 145 Issue No. 3, 259-269
2016 September,
(Filipiniana Analytics)
Fil(S) Q1 P55 145/3 2016

GEOLOGY

0379

Flood Susceptibility Assessment of Mt. Makiling, Philippines Using Two-Dimensional Meteorological and Hydrological Modelling

Ybanez, Richard L. , Racoma, Bernard Alan B. , Ybanez, Audrei Anne B. , Balangue-Tarriela, Maria Ines Rosana D.

In a data-poor, hazard-prone country like the Philippines, interpolating distant data points and computer modelling have become the go-to methods for determining the hazards that may affect an area. The absence of monitoring stations and gauges necessitates the application of modelling techniques to build on the little data available and generate reliable hazard maps. In this study – the devastating Sep 2009 Tropical Cyclone Ketsana (local name: Ondoy) event, its atmospheric characteristics, and its effects near Mt. Makiling, Laguna – is analyzed utilizing two modelling software: the Weather Research and Forecasting (WRF) model to assess the amount of rainfall, and FLO-2D to map the flood hazard areas around the volcano using the output of the WRF. A lone meteorological observation station on Mt. Makiling provided rainfall data for comparison with the results of the meteorological and hydrological models. The WRF model yielded a mean rainfall amount in the study area of 129.92 mm over 24 h for the storm against the observed rainfall amount for the same duration at 182.3 mm from the meteorological station. The flood model using the WRF data yielded minimal inundated areas, while the flood model of the observed rainfall data showed several low-lying urban areas inundated by up to 1.5 m of floodwaters. Comparison with flood data collected by responding agencies and groups after the event shows good correlation of affected areas and flood heights, with discrepancies being attributed to the swelling of Laguna de Bay because of excess runoff from other surrounding provinces – a factor that the models could not consider. Despite this, the WRF model generated from global atmospheric data and the flood model using the WRF product appears as a feasible substitute in the absence of on-site observation points and monitoring stations. (**Author's abstract**)

Keywords: *Computer modelling, Flooding, Hazard mapping, Rainfall, Geology*

Philippine Journal of Science, Volume No. 147 Issue No. 3, 463-471
2018,
(Filipiniana Analytics)
Fil(S) Q1 P55 147/3 2018

HEALTH AND WELLNESS

Determinants of Meeting the Minimum Acceptable Diet Among Filipino Children Aged 6-23 Months

Acuin, Cecilia Cristina S. , Silvestre, Catherine J. , Maniego, Ma. Lynell V. , Guirindola, Mild

Among children under the age of five, those aged 6-23 months are at a greater risk to suffer from malnutrition. Introduction of appropriate and safe foods to infants at the age of six months is recommended (WHO 2002) to meet evolving nutritional requirements for optimal growth, development, and good health (Ogbo et al. 2015). This secondary, cross sectional study using data from the 8th National Nutrition Survey in 2013 aimed to identify the determinants of meeting the minimum acceptable diet (MAD) among children 6-23 months and at age groups 6-11 mo, 12-17 mo, and 18-23 mo in the Philippines. Child, maternal, and household characteristics were examined in terms of their association with meeting the MAD using bivariate and multiple logistic regression analyses with a 5% level of significance ($\alpha=0.05$). The final model showed that among children 6-23 mo, having a mother with more than three children (AOR=1.60) and being in the middle wealth quintile (AOR=1.88) had greater odds of meeting the MAD than those having a mother with at least three children and those in the poorest quintile, respectively. Children having more than five family members had lower odds (AOR=0.64) of meeting the MAD compared with less than five members. Among children 6-11 mo, those with more than five family members were more likely (AOR=5.32) to meet the MAD. Among 12-17 mo, children with non-working mothers (AOR=3.01) and those belonging to the rich wealth quintile (AOR=2.86) were more likely to meet the MAD while those with more than five family members were less likely (AOR=0.49) to meet the MAD. Children with low birth weight among 18-23 mo children had lower odds (AOR=0.47) of meeting the MAD. Working mothers, those from poorer quintiles, and those with more than five household members need to be specifically targeted for interventions that promote and encourage child feeding practices that meet the MAD. (**Author's abstract**)

Keywords: *Complementary feeding, Determinants, Filipino children, Minimum acceptable diet, Health and wellness*

Philippine Journal of Science, Volume No. 147 Issue No. 1, 75-89
2018 March,
(Filipiniana Analytics)
NP

Utilization of Lactation Station and Lactation Breaks and Its Association With the Duration of Breastfeeding Among Filipino Mothers With Children Aged 0-23 Months

Valdeabella-Maniego, Ma. Lynell M. , Ocampo-Guirindola, Mildred L., Gaya, Keren Fay

The Philippine Expanded Breastfeeding Promotion Act of 2009 (RA 10028) mandates all health and non-health facilities, establishments, and institutions to put up a lactation station and to provide lactation breaks to all nursing employees in addition to their regular breaks. This is to encourage, protect, and support the practice of breastfeeding. The study aimed to determine the association between the utilization of lactation station and lactation breaks with the duration of breastfeeding among mothers with children aged 0-23 months. This is a cross-sectional study using data from the DOST-FNRI survey entitled "2015 Updating of the Nutritional Status of Filipino Children and other Population Groups". Mothers' profile and knowledge and practices on infant feeding were gathered through face-to-face interview. Association between breastfeeding duration with the use of lactation station and lactation break was tested using Chisquare test at 5% level of significance. Out of the 5,131 mothers, only 7.8% cited using lactation stations while out of the 399 working mothers who were breastfeeding, 35.1% availed lactation breaks. The use of lactation station was positively associated with longer breastfeeding duration ($p<0.01$), but no association was noted between taking lactation breaks and breastfeeding duration. This study provided evidence that mothers who utilized

lactation station breastfeeds longer. Continuous effort is needed to strengthen the awareness to and implementation of the provisions of RA 10028 to ensure that public and private organizations will establish lactation stations in the workplace and grant lactation breaks to working mothers. (**Author's abstract**)

Keywords: *Breastfeeding, Duration of breastfeeding, Lactation breaks, Lactation station, Health and wellness*

Philippine Journal of Science, Volume No. 147 Issue No. 2, 317-325
2018,
(Filipiniana Analytics)
NP

INDUSTRY

0382

Accomplishments, present work and developments of the bureau of mines

After more than one and a half years of decontrol, the mining industry appears to have shown more initiatives and gained wider latitude in the development of the country's mineral resources. This is manifested by the increasing willingness on the part of many sectors of the mining industry, both in the metallic and non-metallic fields, to modernize and expand their operations, and go into exploration of other mining prospects as well.

Keywords: *Cement Industry and trade, Mining , Industry*

Philippine Mining Journal, Volume No. VI Issue No. 12, pages 24-30
1964, December,
(Filipiniana Analytics)
Fil.(S) TN4.P5 P45 1964 v.6

0383

Aerial ropeways for mining operator

Technical description of the ropeway for the Marinduque Mining and industrial corporation for their bagacay mine operations.

Keywords: *Mining , Industry*

Philippine Mining Journal, Volume No. V Issue No. 8, pages 6-12
1963 August,
(Filipiniana Analytics)
Fil.(S) TN4.P5 P45 1963

0384

Current notes: Gold producers elect officers

The Philippine gold producers association, inc. announced that at its annual meeting held last September 10,1963 elected the following directors for current fiscal year.

Keywords: *Mining , Industry*

Philippine Mining Journal, Volume No. V Issue No. 10, pages 34-36
1963 October,
(Filipiniana Analytics)
Fil.(S) TN4.P5 P45 1963

0385

Current notes: to export fertilizer to south Vietnam government

Dizon, Libert

The marcelo steel corporation, ,managers and operators of the Maria Cristina fertilizer plant, has announced the acceptance of its bid by the US government to supply 5,000 metric tons of ammonium sulfate fertilizer worth \$300,000 to the south Vietnam government respectively.

Keywords: *Securities, Industry*

Philippine Mining Journal, Volume No. V Issue No. 8, pages 32-35
1963 August,
(Filipiniana Analytics)
Fil.(S) TN4.P5 P45 1963

0386

Current operations: Atlas consolidated and development crop

Current mining operations update around the Philippines.

Keywords: *Industry*

Philippine Mining Journal, Volume No. VI Issue No. 4, pages 82-34
1964, April,
(Filipiniana Analytics)
Fil.(S) TN4.P5 P45 1964 v.6

0387

Current operations: Atlas consolidated mining and development corporation

Operations on the Atlas consolidated mining and development corporation.

Keywords: *Mining , Coal, Industry*

Philippine Mining Journal, Volume No. Issue No. , pages 22-28
(Filipiniana Analytics)
Fil.(S) TN4.P5 P45 1963

0388

Fifty ideas for better mining

Ideas in better mining in the Philippines, drilling and breaking rock, moving rock, ground control, maintenance & miscellaneous.

Keywords: *Industry*

Philippine Mining Journal, Volume No. V Issue No. 8, pages 14 - 42
1963 August,
(Filipiniana Analytics)
Fil.(S) TN4.P5 P45 1963

0389

Influence of the bank credit on securities

The growth of banking system in the Philippines, bank credits and loans influences in the field of investment.

Keywords: *Bank credit , Industry*

Philippine Mining Journal, Volume No. V Issue No. 10, page 47
1963 October,
(Filipiniana Analytics)
Fil.(S) TN4.P5 P45 1963

0390

Machinery & supplies in the line pump by ingersoll-rand company

U.S. industries Philippines Inc., Philippine distributors for Ingersoll-Rand equipment announced that a new centrifugal vertical in-the-line pump, called the "V" Line Pump, developed and manufactured by ingersoll-Rand Co., New York, N.Y.

Keywords: *Mining, Industry*

Philippine Mining Journal, Volume No. V Issue No. 8, pages 30-31
1963 August,
(Filipiniana Analytics)
Fil.(S) TN4.P5 P45 1963

0391

Machinery & supplies review: New forage blowers

Reviews on the machines and equipments used in mining operations.

Keywords: *Mining , Industry*

Philippine Mining Journal, Volume No. VI Issue No. 4, pages 32-34
1964, April,
(Filipiniana Analytics)
Fil.(S) TN4.P5 P45 1964 v.6

0392

Machinery and supplies review: bucket seat of g-year

The bucket seat, which recently bounced from the sports car class into other types of American automobiles, is spreading its comfort to an ever-increasing percentage of standard and compact models.

Keywords: *Industry*

Philippine Mining Journal, Volume No. Issue No. , 30-31
1963 October,
(Filipiniana Analytics)
Fil.(S) TN4.P5 P45 1963

0393

What makes glazes black, the preparation of glazes with special reference to the use of local raw materials *Imperial*

Authors' notation: This is a continuation of experiments on the use of local materials for making black glazes. Siquijor manganese ore, with cobalt oxide, is used in the first series, and in the second, only manganese, from 0.02 to 8.85% is included. The colors produced by the mixture of manganese and cobalt are all black. In the case of the manganese alone, the color varies from slightly brown with the lower percentages to black with the greater percentages of the element.

Keywords: *Pottery, Black glaze, Industry*

Silliman Journal, Volume No. 4 Issue No. 1, 17-32
1957 1st Qtr,
(Filipiniana Analytics)
Fil(S) AS538 S55

0394

Oceanic phosphate deposits in the solomon islands

Investigations, types of phosphate, phosphatic clays, material available and mining possibilities were discussed, in relation with the oceanic phosphate deposits in the solomon islands.

Keywords: Mining, Industry

Philippine Mining Journal, Volume No. V Issue No. 8, pages 16-18
1963 August,
(Filipiniana Analytics)
Fil(S) TN4.P5 P45 1963

0395

Review of operations in 1962: white eagle overseas co., inc.

Annual operations of white eagle overseas co., inc. mining operations.

Keywords: Mining, Industry

Philippine Mining Journal, Volume No. V Issue No. 8, pages 20-23
1963 August,
(Filipiniana Analytics)
Fil(S) TN4.P5 P45 1963

0396

SL process scrap iron production

The SL production serves the production of high quality scarp iron by reduction of rich iron ores in the rotary kiln.

Keywords: Mining, Industry

Philippine Mining Journal, Volume No. V Issue No. 10, 18-20
1963 October,
(Filipiniana Analytics)
Fil(S) TN4.P5 P45 1963

LIVELIHOOD

0397

Artificial insemination in poultry *, D.M*

This metko

Keywords: Artificial insemination, Livelihood

Better Poultry and Livestock, Volume No. VII Issue No. 1, pages 9-14
1965, September,
(Filipiniana Analytics)
Fil(S) SF481 B46 7/1 1965

0398

Artificial insemination in poultry *, D.M*

This method of breeding is finding greater use in chicken breeding programmes. For pre-testing males, progeny testing and the development of new lines.

Keywords: Artificial insemination, Livelihood

Better Poultry and Livestock, Volume No. VII Issue No. 1, pages 9-14
1965, September,
(Filipiniana Analytics)
Fil(S) SF481 B46 7/1 1965

0399

Bad management is a disease

All the activities and practices of the poultry farmer exercised in the care of his flock. It (good management) includes a number of items, such as providing good shelter (housing) with plenty of floor space, adequate warmth (brooding), fresh air and air exchange (ventilation). It covers feeding-the use of balanced rations, the right kind and number of feeders, plenty of clean water in an adequate number of waterers. It certainly includes suitable dry litter, general cleanliness, good sanitation, vaccination, medication, control of both internal and external parasites (worms and insect life). Management extends even to the keeping of records and other business practices, including careful planning.

Keywords: Management , Poultry industry, Livelihood

0400

Bihourly bacterial plate of grated fresh coconut stored for 24 hours at 55C, 30C and 10c

Fernandez, William L., Catindig, Jose M., Masongsong, Delwisa C., Saraza, F

Grated coconut supported bacterial growth as shown by the highest count 9×10^6 of the mesophiles at 16,000, of the thermophiles at 1,300 and of the psychrophiles at 4.5 per g of grated coconut. The thermophiles exhibited the shortest generation time 26.6 min while the mesophiles showed 63.4 min and the mesophiles took place during the first eight hours of storage. The storage temperature of 30 C are favorable for the rapid multiplication of bacteria in grated coconut. The gram-positive, long thick rods appeared as the prevalent type in the thermophiles. For both the mesophiles and the psychrophiles the gram-negative rods predominated. Bacterial spores were absent. Fungus colonies appeared on plates incubated at 30 C. The drop in pH from a 6.5 average initial was greatest at 30 C storage followed by the 55 C and was lowest at 10 c storage.

Keywords: *Psychrophilic, Coconut Fruit, Coconut milk, Coconut, Livelihood*

0401

Broiler duck and turkey producers are opposing a government move lowering the tariff of imported chickens, ducks and turkeys

, Baladad, Am

News and updates discussed on the poultry industry.

Keywords: *Poultry, Livelihood*

0402

Check your layers for lice

Methods of control in chicken lice. To examine birds for lice, they should be held upside-down and the feathers around the vent parted. If no time is wasted, the lice may be seen, otherwise they will hurry for cover and may be missed. The rest of the body may then be examined. In very heavy infestations, the lice may be crawling over your hands and arms.

Keywords: *Chicken lice, Lice, Livelihood*

Better Poultry and Livestock, Volume No. VII Issue No. 1, pages 41-43
1965, September,
(Filipiniana Analytics)
Fil(S) SF481 B46 7/1 1965

0403

Our feed milling industry

F. M. Fr

A LECTURE delivered in the College of Agriculture, University of the Philippines, on June 14, 1965.

Keywords: *Milling, Livelihood*

Better Poultry and Livestock, Volume No. VII Issue No. 1, pages 32-41
1965, September,
(Filipiniana Analytics)
Fil(S) SF481 B46 7/1 1965

0404

The mineral content of layers drinking water

Water sources are commonly rated on the basis of their so-called hardness. This is simply a measure of the amount of various mineral salts present in solution in the water. Chickens have been forced to drink water with mineral contents as high as 10,000 to 15,000 parts per million. At 1,000 to 5,000 or 6,000 parts per million reduced palatability is evident. Drinking water for poultry should meet the bacteriological requirements set down for human drinking water.

Keywords: *Livelihood*

Better Poultry and Livestock, Volume No. VII Issue No. 1, pages 43-45
1965, September,
(Filipiniana Analytics)
Fil(S) SF481 B46 7/1 1965

0405

Needed: More basic research in animal science

Speaking at the recent Georgia Nutrition Conference, Dr. Tony J. Cunha, formerly of Florida State University, now, of California State Polytechnic University, predicted that in the future. along about the year 2000, the majority of animals will be grown in larger, more sophisticated units and in closer confinement with declining usage of feed, required per unit of product produced. He said that feed-wise there will be more use of byproduct feeds, crop residues, vegetables and fruit wastes, cellulosic residues and other materials not used for human consumption. There will also be more supplementation of animal diets with vitamins, minerals, amino acids and other nutrients; adding, feed additives will be used as a means of increasing feed efficiency.

Keywords: *Research , Animal science, Livelihood*

Better Poultry and Livestock, Volume No. XX Issue No. 12, pages 4-8
1979, August,
(Filipiniana Analytics)
Fil(S) SF481 B46 20/12 1979

0406

Rearing of replacement pullets

Discussed here are rearing the broiler type replacement pullet which is the body weight of the broiler type replacement pullet and the sexual development of this bird must be controlled if satisfactory results are to be obtained during the period of egg production for hatching egg purposes. Rearing laying strain replacement pullets pullet farmer and the feed manufacturer must realize that this is an entirely different type of bird which is being reared for a high rate of egg production, thus placing more strain on the organism. itself than is probably placed on any other economic animal unit,. with the possible exception of the dairy cow.

Keywords: *Poultry and livestock, Livelihood*

Better Poultry and Livestock, Volume No. VII Issue No. 4, pages 22-26
1965, December,
(Filipiniana Analytics)
Fil(S) SF481 B46 7/4 1965

0407

Selection of beef cattle for breeding

Pointers in beef cattle breeding, selection of animals for breeding is one of the most important tools a farmer can use the improvement of his stock. There is a saying which runs this way: "Father like son." It is with this premise that animals for breeding purposes should be carefully selected. Only animals with desirable characteristics should be given the chance of procreation. Much time and money are wasted by starting with animals of poor quality, conformation, and with unsoundnesses.

Keywords: *Cattle breeding, Breeding, Cattle , Livelihood*

Better Poultry and Livestock, Volume No. VII Issue No. 1, pages 14-19
1965, September,
(Filipiniana Analytics)
Fil(S) SF481 B46 7/1 1965

Antiproliferative Property of Wine Waste Extracts

Yeol, Baek Jae , Young, Lim Sun

The study investigated the effect of wine waste extracts on antiproliferative property. Wine wastes were extracted using acetone/methylene chloride (A+M) and methanol (MeOH) and then fractionated using nhexane, 85% aq. methanol (MeOH), butanol (BuOH) and distilled water. The cytotoxic activity of the wine wastes against AGS human gastric, HT-29 human colon and HT-1080 fibroblast cancer cell lines was determined using the 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide (MTT) assay. All the extracts and fractions from the wine wastes decreased the growth of AGS cells, and the effect was concentration-dependent. The MeOH extract showed significantly higher inhibition against the growth of AGS cells compared with the A+M extract ($P<0.05$). The same trend was observed for the n-Hexane, 85% aq. MeOH, n-BuOH and water fractions. Among the fractions, the 85% aq. MeOH fraction showed the highest effect of 68% inhibition at the lowest concentration (0.025 mg mL^{-1}). In the HT-29 cancer cells, the pattern of growth inhibition by the crude extracts was a little different from that observed for the AGS cancer cells, with the A+M extract showing a higher effect ($P<0.05$). The n-BuOH and 85% aq. MeOH fractions were the most effective against the proliferation of HT-29 cancer cell lines ($P<0.05$). The pattern of growth inhibition in the HT-1080 cells was similar to that observed in the HT-29 cancer cells, with the A+M extract being the most effective. In addition, similar to the trend observed in the HT-29 cells, the 85% aq. MeOH fraction showed the highest inhibition of the growth of the HT-1080 cancer cells. Thus, the 85% aq. MeOH fraction from wine waste extracts would contain bioactive compounds such as polyphenols and flavonoids. There is a need for further research to separate and isolate these important compounds from the extracts. (**Author's abstract**)

Keywords: *AGS gastric, Antiproliferation, HT-29 colon, HT-1080 fibroblast, Wine waste, Marine science*

The Philippine Agricultural Scientist, Volume No. 100 Issue No. 2, pages 156-162
2017 June,
(Filipiniana Analytics)
Fil(S) S19 P53 100/2 2017

Fucoidan content in Philippine brown seaweeds

Montañez, Marco Nemesio E. , Gomez, Norchel Corcia F. , Anino, V, Eladio G.M. , Alcaraz, Alper James G. , Nieva, Joyce A. , Narsico, Joem

This study aims to determine which brown macroalgae in the Philippines has the highest content of partially purified fucoidan. Percent fucoidan content of brown seaweeds *Sargassum* spp., *Padina* sp., *Hydroclathrus* sp., *Turbinaria ornata* J. Agardh, *Hormophyza cuneiformis* PC Silva, and *Dictyota dichotoma* Lamouroux were determined in fifty sites across 14 provinces in Northern Luzon (Cagayan, Ilocos), West Luzon (Pangasinan), the eastern seaboard of Luzon (Quezon Province, Camarines, Sorsogon), Central and Eastern Visayas (Bohol, Cebu, Negros Oriental, Negros Occidental), and Northern Mindanao (Camiguin, Lanao del Norte, Misamis Oriental, Misamis Occidental). Crude and semi-pure fucoidan were extracted through acid hydrolysis and ethanol precipitation using 50 grams of dried and milled seaweed biomass. Extracts were verified using infrared spectroscopy with fucoidan from *Fucus vesiculosus* as standard. *Sargassum* spp. is the most

widely distributed source of fucoidan found in all sites. *T. ornata* was found in only 11 sites. Both have significantly higher percent content ($p \geq 0.05$) of fucoidan than other sampled seaweeds. Higher percent content of semi-purified fucoidan were observed in *D. dichotoma* from Bohol (1.53%), *H. cuneiformis* from Cebu (2.17%), *Hydroclathrus* sp. from Pangasinan (2.23%), *Padina* sp. from Quezon Province (3.69%), *Sargassum* spp. from Camiguin (4.30%), and *T. ornata* from Cagayan (7.03%). (**Author's abstract**)

Keywords: Brown seaweeds, Distribution, Fucoidan, Fucoïdan yield, Marine science

Science Diliman a journal of pure and applied sciences, Volume No. 30 Issue No. 1, 45-59
2018,
(Filipiniana Analytics)
NP

0410

Preliminary Discovery of Repetitive Elements in the Genome of the Sea Cucumber *Holothuria scabra* Jaeger, 1833

Boncan, Delbert Almerick T. , Uy, Iris Diana C. , Tayco, Crimson C. , Lluisma, Arturo O.

Various classes of repetitive elements exist in the genomes of organisms. Characterizing these genomic elements is important not only because of the potential insights on the biology and evolution of their host's genomes but also because of the potential practical applications that such information might yield. So far, little is known about the types of repetitive elements in the genome of holothurids. In this study, we generated a partial sequence of the genome of the sea cucumber, *Holothuria scabra*, and searched for tandem and interspersed repetitive elements using various approaches. We conducted the same search on another sea cucumber, *Parastichopus parvimensis*, using its publicly available genome sequence. The perfect microsatellite profiles of both sea cucumbers show similarities to some known patterns in eukaryotes. The combined perfect and imperfect microsatellite data sets also highlight fundamental microsatellite profile dissimilarities between the two holothurids. This study demonstrates that as much as half of microsatellites in a holothurid genome remain unidentified in perfect repeat scans, and highlights the importance of imperfect repeat-inclusive searches. This study also demonstrates that partial genome sequencing may be used as a cheaper and more efficient alternative to the traditional methods of developing microsatellite markers for *H. scabra*. On the other hand, combined approach of sequence similarity-based and *de novo* search of interspersed repeats reveals a diverse subclass/ superfamily of transposable elements in the genomes of *H. scabra* and *P. parvimensis*. The two species exhibit similar patterns of repeat profiles notwithstanding the disparity in the number of predicted transposable elements. Notably, the major subclass/superfamily identified in the two genomes include DNA/hAT-Blackjack, DNA/hAT-Tip100, DNA/Maverick, RC/Helitron, LINE/L2, LTR/Gypsy, SINE/MIR and SINE/tRNA. The interspersed repeats identified in the study presents the first attempt to survey the transposable elements from the genomes of these two holothurids. (**Author's abstract**)

Keywords: ETR, *Holothuria scabra*, microsatellites, STR, Transposable elements (TEs), Marine science

Philippine Journal of Science, Volume No. 145 Issue No. 4, 339-355
2016 December,
(Filipiniana Analytics)
Fil(S) Q1 P55 145/4 2016

0411

Toxicity and Protein Expression of *Alexandrium* Species Collected in the Philippine Waters *Subong, Bryan John J. , Benico, Garry A. , Sulit, Arielle Kae L. , Mendoza, Christopher O. , Cruz, Lourdes J. , Azanza, Rhodora V. , Jimenez, Elsie C.*

Isolates of *Alexandrium* species collected in the Philippine waters were examined during the exponential growth phase to compare their toxicities and protein expression profiles, and also to correlate protein expression with toxin production. Molecular methods showed that *Alexandrium* cf. *pacificum* was genetically divergent from *Alexandrium tamarense* complex Group IV/ *Alexandrium pacificum*. Toxin analyses using pre-oxidation method prior to HPLC purification were carried out to determine saxitoxin (STX), neosaxitoxin (neoSTX), and gonyautoxins 1-4 (GTX) levels. This study showed that cultured *Alexandrium* affines collected in Honda Bay, Palawan produced different STX analogs at various times of culture, which differed from other results showing that this species was non-toxic. The cultured *Alexandrium* cf. *pacificum* collected in Anda Channel (ATANDA) was two-fold more toxic than the cultured *Alexandrium* cf. *pacificum* collected in Bolinao Channel (ATBOL). Comparative protein expression analyses using 2-D gel electrophoresis were performed for the two *Alexandrium* cf. *pacificum* strains (ATANDA and ATBOL) during the exponential growth phase. A unique 2-DE protein spot in ATANDA showed sequence homology with bifunctional ornithine acetyltransferase/ N-acetylglutamate synthase (ArgJ) that has a role in the biosynthesis of arginine, a precursor in STX biosynthesis. The greater detectable expression of such enzyme in the ATANDA strain was correlated with the greater toxicity, suggesting the enzyme's major participation in toxin biosynthesis. (**Author's abstract**)

Keywords: *Alexandrium* sp., harmful algal bloom, paralytic shellfish poisoning, paralytic shellfish, toxin, proteomics, saxitoxin, Marine science

Philippine Journal of Science, Volume No. 146 Issue No. 4, 425-436
2017 December,
(Filipiniana Analytics)
Fil(S) Q1 P55 146/4 2017

MATHEMATICS

0412

Development of a Senior High School Career Decision Tool Based on Social Cognitive Career Theory

Gestiada, Geleena , Nazareno, Allen , Roxas-Villanueva, Ranzivelle Marianne

The implementation of the additional two years in the Philippine high school system began in the school year 2016-2017 as part of the K to 12 program of the Department of Education. The two years of senior high school is envisioned to provide ample time to acquire sufficient knowledge and mastery of skills that will prepare students for higher education and future employment. As part of the program, students are set to choose one career track from ten academic strands. With several factors to consider, it may be difficult for a student to select a career path. This study aims to create a tool that will guide students in choosing a particular career track using social cognitive career theory (SCCT) and analytic hierarchy process (AHP). SCCT was used to identify the factors to be considered in career decision making, whereas AHP was used to rank the tracks according to these factors. Pilot testing was done to more than 150 Grade 10 students to evaluate the tool. (**Author's abstract**)

Keywords: analytic hierarchy process, career decision making, K-12, social cognitive career theory, Mathematics

Philippine Journal of Science, Volume No. 146 Issue No. 4, 445-455
2017 December,
(Filipiniana Analytics)

On Euclidean and Hermitian Self-Dual Cyclic Codes over $GF(2^r)$

Consorte, Odessa D., Valdez, Lilibeth D.

Jia et al. (2011) and Jitman et al. (2014) characterized Euclidean and Hermitian self-dual cyclic codes, respectively, by considering reciprocal and conjugate-reciprocal factors of the generator polynomial of these codes. In this paper, we give an alternative approach to this study by using splittings and cyclomatic cosets. We prove the existence of nontrivial Euclidean self-dual cyclic codes of length $n = 2v \cdot \tilde{n}$, where \tilde{n} is odd, over $GF(2^r)$ in terms of the existence of a nontrivial splitting (Z, X_0, X_1) of $Z_{\tilde{n}}$ by μ_{-1} , where Z, X_0, X_1 are unions of 2^r -cyclomatic cosets mod \tilde{n} . We express the formula for the number of cyclic self-dual codes over $GF(2^r)$ for each n and r in terms of the number of 2^r -cyclomatic cosets in X_0 (or in X_1). In addition, we look at Hermitian self-dual cyclic codes. Nontrivial Hermitian self-dual codes over $GF(2^{2e})$ exist based on the existence of a nontrivial splitting (Z, X_0, X_1) of $Z_{\tilde{n}}$ by μ_{-2e} , where (Z, X_0, X_1) are unions of 2^{2e} -cyclomatic cosets mod \tilde{n} . From this splitting, we give a formula for the number of Hermitian self-dual cyclic codes for each n . Furthermore, we give an arithmetic condition on the length n such that nontrivial Hermitian self-dual cyclic codes exist. **(Author's abstract)**

Keywords: *Cyclic codes, Cyclotomic cosets, Euclidian dual, Hermitian dual, Self-dual codes, Splittings, Mathematics*

Philippine Journal of Science, Volume No. 146 Issue No. 2, 129-1369
2017 June,
(Filipiniana Analytics)
Fil(S) Q1 P55 146/2 2017

Mass-Dependent Arrival Time Density of a Ballistic Particle at the Turning Point

Villanueva, Anthony Allan D.

The arrival time density of a ballistic particle (projected towards the turning point) is determined using a general form of Kijowski's distribution. For given parameter values, two asymmetric peaks of the arrival time density are obtained, each arising respectively from the amplitudes for positive and negative momenta of the particle. These peaks represent the most probable arrival times before (for positive momentum) and after (for negative momentum) the classical arrival time. The features of the arrival time density such as its peaks and amplitude are shown to vary with the particle's mass for a given initial position uncertainty. **(Author's abstract)**

Keywords: *arrival time density, ballistic particle, Kijowskis distribution, quantum mechanics, Mathematics*

Philippine Journal of Science, Volume No. 145 Issue No. 4, 385-393
2016 September,
(Filipiniana Analytics)
Fil(S) Q1 P55 145/4 2016

Mathematical and Anthropological Analysis of Northern Luzon Funeral Textile

De Las Penas, Ma. Louise Antonette N. , Salvador-Amores, Analyn V.

The study presents a mathematical analysis and provides an anthropological perspective of the funeral textile of the indigenous communities in northern Luzon, Philippines. In particular, a symmetry analysis is performed, based on principles of group theory and transformation geometry, on the various repeating patterns found in funeral garments and blankets. Results show that particular frieze groups and plane crystallographic groups are favored due to choice of motifs which are reflective of cultural beliefs and funeral traditions, as well as weaving style and methodology. The results of the analysis point to the depth of mathematics present in the work of the weaver, who is able to arrive at meaningful geometric designs without formal training in mathematics. This study contributes directly to the branch of mathematics pertaining to mathematical crystallography in art and cultural heritage which deals, among others, with the use of group theoretic methods and tools in mathematical crystallography to understand the mathematics in artworks arising from various cultures all over the world. It provides further data and analysis to the growing body of literature that uses symmetry to enhance interpretation of culture from the artistic style of its artifacts. **(Author's abstract)**

Keywords: *frieze group, funeral textile, mathematical symmetry, northern Luzon indigenous communities, plane crystallographic group, symmetry group, Mathematics*

Philippine Journal of Science, Volume No. 145 Issue No. 1, 89-103
2016 March,
(Filipiniana Analytics)
Fil(S) Q1 P55 145/1 2016

0416

On the Solvability of a Class of a Quasilinear Elliptic partial Differential Equation

Beltran, Ryan James, Cabarrubias, Bituin, Roque, Marian

This paper considers a quasilinear elliptic problem posed on a two-component composite with a Dirichlet condition on the outer boundary and a jump condition of the solution on the interface. We establish the existence and uniqueness of a weak solution in some appropriate Sobolev space. We apply Schauder's fixed point theorem to prove the existence of the solution and impose some Lipschitz type conditions on the quasilinear term to show the uniqueness result. This work also exhibits an a priori estimate satisfied by the solution. **(Author's abstract)**

Keywords: *Quasilinear elliptic problem, Stationary diffusion equation, Schauder's fixed point theorem, Two-component composite, Mathematics*

Philippine Journal of Science, Volume No. 146 Issue No. 2, 137-143
2017 June,
(Filipiniana Analytics)
Fil(S) Q1 P55 146/2 2017

MEDICINE

0417

Abnormal sweat pattern among symptomatic diabetics
, Duque, Ruby R

Sweat test was done among 31 diabetics with signs and symptoms of sensorimotor and autonomic neuropathy. Abnormal patterns were seen in 30 patients (97%). There was global anhidrosis in 4. Very consistent patterns noted were; the collar (23 patients), the necklace (19 patients), the glove and stocking (17 patients), and the segmental or dermatomal (4 patients). As a rule however the patterns coexist. There is a higher frequency of sweat loss compared or abnormal cardiovascular responses. There is no significant correlation between the degree of anhidrosis and the derangement in the cardiovascular reflexes. There is significant correlation on the other hand between anhidrosis and the nerve conduction velocity studies in this group of patients.

Keywords: *Sweat patterns, Autonomic neuropathy, Diabetic neuropathy, Medicine*

Acta Medica Philippina, Volume No. 28 Issue No. 2, 126-131 pages
1992, April-June,
(Filipiniana Analytics)
Fil(S) R97.4 A21

0418

Acute aortic saddle, axillary and iliac thromboembolic occlusions complicating heart disease: diagnosis and management

Lavadia, Pedro Jr., F.P.C.S., Campos, Paulo C., M.D., Dionisio, Saturnino Ador, M.D., Austria, Gonzalo M.D., Alimurung, Mariano M., M.D., Castro, Matia

Four geriatric cases with cardiac or cardio-renal conditions were benefited by early embolectomy which is the procedure of choice for embolism of the aorta or crucial arteries.

Keywords: *Aortic diseases, Arteriosclerosis, Medicine*

Philippine Journal of Surgery and Surgical Specialties, Volume No. 18 Issue No. 2, pages 107-116
1963, March-April,
(Filipiniana Analytics)
Fil(S) RD 1 P53 18/2 1963

0419

Adverse drug reaction monitoring: Experiences in the Philippine General Hospital
, Hartigan, Kenn

Adverse Drug Reaction (ADR) monitoring in the Philippine General Hospital is presented focusing on the organizational flow chart, problems encountered and the proposed improvements to the system. Although ADR monitoring is not easy, it is attainable. Most cases of ADR reports concerned antibiotics followed by sedative-hypnotics, anticonvulsants and antipsychotic medications.

Keywords: *Drug reaction, Philippine general hospital, Medicine*

Age-related changes in the diurnal variation of ketogenesis in patients with type 2 diabetes and relevance to hypoglycemic medications

Nakayama, Hitomi

To assess the significance of ketogenesis in the management of diabetes mellitus, we analyzed the factors associated with the diurnal variation of the plasma ketone body levels. The subjects consisted of 220 patients with type 2 diabetes, aged 60 ± 15 years, without advanced complications. They ate a standardized, low-fat meal at 8:00, 12:00, and 18:00. The plasma levels of 3-hydroxybutyrate (3HB) and free fatty acid (FFA) were increased before breakfast and before dinner. The plasma glucose concentration was almost the same at any blood sampling time point among age quartiles. However, the 3HB levels were significantly decreased with age, which was most obvious before dinner. The FFA levels also decreased with age, but the decline was mild. A multiple regression analysis with stepwise selection revealed that age was an independent, negative contributor and that the pre-breakfast FFA concentration was an independent, positive contributor to the pre-breakfast 3HB levels. Regarding the pre-dinner 3HB levels, in addition to age and the pre-dinner FFA concentration, the uses of sulfonylurea and dipeptidyl peptidase-4 inhibitors were independent negative contributors. The metabolism of ketone bodies is an alternative energy source for the brain under conditions of starvation. While excessive ketogenesis leads to critical ketoacidosis, inadequate ketone body production could be associated with a propensity to develop neurohypoglycemia in elderly patients treated with insulin secretagogues. Because age-related changes in ketogenesis were the most significant before dinner, attention should be paid not only to fasting but also to the pre-dinner levels of 3HB.

Keywords: *Ketosis, Fatty acids, Medicine*

Endocrine Journal, Volume No. 62 Issue No. 3, pages 235-241
2015,
(Filipiniana Analytics)
F(S) QP187 E53 62/3 2015

An antibiotic from a spore-forming bacteria

, Magno, Es

In this article, the cell morphology 9 cultural and biochemical characteristics of an isolated spore forming bacteria~the optimum conditions for growth for maximum antibiotic activity, production, partial purification end preliminary characterization of the product are presented,

Keywords: *Spore-forming bacteria , Medicine*

Acta Manilana, Volume No. A Issue No. 13, pages 55-73
1975, June,
(Filipiniana Analytics)
Fil(S) Q181 A811

0422

An appraisal of the myocardial infarction armamentarium
Rapapo

This article reviews the management of acute myocardial infarction. Both medical and surgical techniques are taken up, with emphasis on the latest and important ones.

Keywords: *Acute myocardial infarction, Thrombolysis, Nitroglycerin, Medicine*

Medical Currents: A Physician's Digest, Volume No. 21 Issue No. 1, 37-39
1987 Jan-Feb,
(Filipiniana Analytics)
Fil(S) R97.4 M43

0423

Arterial blood gases during and after endotracheal suctioning
Ayuyao, Ferna

Fifty-eight post-cardiac surgery patients in critical but stable conditions receiving mechanical ventilator support from a volume-cycled respirator were submitted to endotracheal suctioning under three protocols of study with blood samples being drawn at timed intervals before and after suctioning for blood gas analysis. protocol I included 10 patients disconnected from the ventilator without preoxygenation and made up the control group. In protocol II, 16 patients were suctioned without preoxygenation and made up the control group. In Protocol II, 16 patients were suctioned without preoxygenation but with increased FIO₂ by 10% on the first 8 patients and then 20% on the other eight patients. 32 patients in Protocol III were studied with four preoxygenations procedures - one preoxygenation with an increase of FIO₂ of 20%, two preoxygenations with an increase in FIO₂ of 20% and three preoxygenations with an increase in FIO₂ of 10%. Endotracheal suctioning without preoxygenation produced a mean fall in PaO₂ greatest between 15 and 20 seconds after suctioning. While increasing the FIO₂ by 10% and 20% from the previous setting was ineffective in preventing or minimizing large falls in PaO₂ tensions, giving preoxygenation prior to suctioning with increase of FIO₂ of 20% prevented such decrease in oxygen tension from baseline level.

Keywords: *Endotracheal suctioning, Arterial oxygenation tension, Preoxygenation, Medicine*

Chest Diseases, Volume No. 14 Issue No. 1, 3-10
1984 June,
(Filipiniana Analytics)
Fil(S) RC306 Q43

0424

Athlete's nodule
Uchiyama, Masaki

Three cases of athlete's nodule on the feet are reported. In case 1, a 30-year-old man, who had been an amateur football player, presented with nodules on the lateral side of the feet and on the right lateral malleolus with a duration of 1 year. In case 2, a 22-year-old man, who had participated in karate and track-and-field, presented with nodules on the lateral side of the feet and on the right lateral malleolus with a duration of 10 years. In case 3, a 25-year-old man, who had skied, presented with a nodule on the right lateral malleolus with a duration of 4 years. The biopsy specimens from the lesion demonstrated hyperkeratosis, acanthosis of the epidermis and thickness of the dermis. In 1991, Cohen et al. proposed the concept of athlete's nodule which indicated an acquired cutaneous nodule caused by chronic stimuli with sports. Histopathology of the athlete's nodule shows hypertrophy of the epidermis and dermis. To the best of our knowledge the term "athlete's nodule" has not been used in Japan, but it is a useful term to refer to the lesion induced by athletics or the use of sporting equipment.

Keywords: *Athletics, Knuckle pad, Sports, Medicine*

Journal of Dermatology, Volume No. 36 Issue No. 11, pages 6208-611
2009,
(Filipiniana Analytics)
F(S) RL1 J272 36/11 2009

0425

Basic experiments on cellular death

de Ocampo, Geminiano, F.P.C.S., Espiritu, Romeo B., M.D. , Salceda, Salvador

The form of dead cells can be preserved by fixing in formalin; dehydrating in glycerin which could be reversed by embryonation; or by destruction of enzymes by heating, beta rays, or ultrasonic. These experiments were conducted in an attempt to find out ways to preserve the capability of cells to change and not merely to preserve their form after death.

Keywords: *Cell death, Cell membrane, Medicine*

Philippine Journal of Surgery and Surgical Specialties, Volume No. 18 Issue No. 2, pages 79-84
1963, March-April,
(Filipiniana Analytics)
Fil(S) RD 1 P53 18/2 1963

0426

Basic theory for ultrasonics (cont`d)

, Santos, Alfredo C., Medina-Cue

'Illustration the motions of electrons about the nuclei of atoms may be satisfactorily explained only in terms of these so-called "eigenvalues" of the energy. This however contradicts the modern universally accepted principle, supported by the most refined experiments, that the velocity of a light ray in a vacuum is the same if measured by two observers in uniform motion relative to each other. It may therefore be necessary to include this concept in the study of the motions- of the molecules of substances under ultrasonic excitation, although the motions may be further complicated by viscosity which introduces non-conservative forces.

Keywords: *Ultrasonics, Medicine*

Calcium and cellular function: Changing concepts of the cell's second messenger
Lopez, Mari

This article presents an overview of the rapidly expanding knowledge of the organization and function of the calcium messenger system.

Keywords: *Calcium, Cytosolic calcium, Medicine*

Cardiomyoathy: hypertrophic and restrictive/obliterative types
Orie, J.E.

This article discusses the pathophysiology underlying hypertrophic and restrictive/obliterative cardiomyopathies, give helpful diagnostic, clues, and assess available therapy.

Keywords: *Hypertrophic cardiomyopathy, Restrictive cardiomyopathy, Medicine*

Cardiomyopathy: dilated (congestive) type
Orie, J.E.

This article reviews the accepted definition of dilated cardiomyopathy, its pathologic features, and treatment.

Keywords: *Cardiomyopathy, Cardiomyopathy -- treatment, Medicine*

Medical Currents: A Physician's Digest, Volume No. 21 Issue No. 1, 15-16
1987 Jan-Feb,
(Filipiniana Analytics)
Fil(S) R97.4 M43

0430

On cerebral schistosomiasis with a new diagnostic test

Reyes, Victor A., F.P.C.S., F.A.C.S., Yogore, Mariano G., Jr.

Cerebrospinal fluid precipitin test seems to show definite specificity for cerebral schistosomiasis when the test is positive

Keywords: *Schistosomiasis, Schistosomiasis, Medicine*

Philippine Journal of Surgery and Surgical Specialties, Volume No. 18 Issue No. 3, pages 172-176
1963, May-June,
(Filipiniana Analytics)
Fil(S) RD 1 P53 18/3 1963

0431

Chemical factors involved in cholesterol gallstone formation - possible prevention and medical management

, Navarro, Man

100 Hordinsky³² reported the use of such a mixture of the volatile oils to dissolve cholesterol gallstones in four patients in a period of 3 months as shown by X-ray before and after the administration of the mixture. Two other ethnic groups studied that have low cholesterol saturation and as a consequence have a low prevalence of cholesterol gallstones are the Masai of East Africa and the Japanese. Cholesterol supersaturated bile with the concomitant diminution of bile acids and lecithin usually leads to the precipitation and formation of gallstones. This suggested to them that the metabolic effect was not corrected permanently and need therefore a maintenance or intermittent therapy with COCA to prevent recurrence of cholesterol gallstones.

Keywords: *Cholesterol disease, Gallstone, Gallstone formation, Medicine*

Acta Manilana, Volume No. A Issue No. 15, pages 14-25
1976, November,
(Filipiniana Analytics)
Fil(S) Q181 A811

0432

Clinical and Molecular Characteristics of CTX-M Extended-Spectrum Beta-Lactamase-Producing Enterobacteriaceae from the Philippine General Hospital

Garcia, Jemelyn U. , Alejandria, Marissa M. , Evangelista, Jennifer P. , Destura, Raul V.

Extended-spectrum beta-lactamases (ESBLs) pose a serious health concern that complicates treatment of infection. This cross-sectional study aimed to determine the clinical and molecular characteristics of CTX-M ESBLs among clinical isolates of Enterobacteriaceae from adult patients of the Philippine General Hospital. From September to December 2007, the investigators collected 300 Enterobacteriaceae isolates, performed E-test, conventional and real-time polymerase chain reaction (RT-PCR) on ESBL-producing isolates, and collected patients' clinical and demographic data. Conventional PCR products were confirmed as CTX-M homologs using the Basic Local Alignment Search Tool. Clustering analysis of gene sequences was done with the Molecular Evolutionary Genetic Analysis software. Investigators performed RT-PCR for CTX-M genotyping using the RotorGene apparatus. Among the 300 Enterobacteriaceae isolates, 46 (15.3%) were ESBL-forming by Etest and gene sequencing; and 41 (13.7%) were CTX-M ESBLs by RT-PCR and gene sequencing.

Dendrogram analysis of isolates' *bla*_{CTX-M} gene and known CTX-M sequences showed that 38 were CTX-M-1, and 3 isolates were CTX-M-9 genotype group. RT-PCR also showed CTX-M-1 as the predominant genotype group. *Escherichia coli* (12/41) and *Klebsiella pneumoniae* (11 /41) were the most common CTX-M ESBL producer. Majority (80%) of the CTX-M ESBL gram-negative infections were hospital-acquired, with catheter-associated urinary tract infection as the most common followed by nosocomial pneumonia. RT-PCR may be a useful tool in the rapid detection of ESBL resistance which will lead to early appropriate antibiotic therapy. **(Author's abstract)**

Keywords: *CTX-M, Extended-spectrum beta-lactamase, Enterobacteriaceae, Polymerase chain reaction, Medicine*

Philippine Journal of Microbiology and Infectious Diseases, Volume No. 44 Issue No. 1, pages 44-52
2015 January to June,
(Filipiniana Analytics)
Fil(S) QR1 P54 44/1 2015

0433

Clinical assessment of acute bronchial asthma: parameters in predicting severity

Bautista, Noel

Twenty seven (27) asthmatics with ages 15 to 55 years seen in the emergency room of the Santo Tomas University Hospital with acute attacks were clinically assessed. Of the 24 clinical signs and symptoms used as parameters, 16 significantly identified patients with severe airway obstruction (PEFR 30, speech grading, pulsus paradoxus, filling of external jugular vein during expiration, dyspnea, tracheal tug, supraclavicular fossae excavation on inspiration, sternocleidomastoid retraction, intercostal retraction, intensity o wheeze, physical activity grading, diaphoresis, pulse rate and costal paradox. Using only the first twelve parameters, the authors devised a clinical scoring system that could identify severe airway obstruction that will be a practical aid to the practitioner in the rapid assessment of asthmatic patients.

Keywords: *Asthma, Severe airway obstruction, Acute bronchial asthma, Peak expiratory flow rate, Medicine*

Chest Diseases, Volume No. 14 Issue No. 1, 16-26
1984 June,
(Filipiniana Analytics)
Fil(S) RC306 Q43

0434

The Clinical significance of colloid osmotic pressure determination in the classification of pleural effusions

Cacanindin, Danilo N.

The objective of this investigation is to correlate the clinical usefulness of pleural fluid colloid oncotic pressure in differentiating exudative from transudative pleural effusions. Twenty-two samples of pleural fluid from 22 patients admitted to the medical service of the Philippine Heart Center for Asia formed the basis of this study. The results were compared with the clinically accepted values which defined transudate or exudate.

Keywords: *Colloid osmotic pressure, Pleural effusion, Pleural fluid, Medicine*

Chest Diseases, Volume No. 13 Issue No. 3, 69-75
1983 June,
(Filipiniana Analytics)
Fil(S) RC306 Q43

0435

The clinical use of BCG vaccine in stimulating host resistance to cancer

Villasor, Roy P., F.P.C.S., Fetalino, Manuel S.A., M.D., Ramirez, Alfredo T.

The tuberculin sensitivity of 187 cancer patients was depressed indicating depressed cellular immunity in a large portion of these patients even in the earliest stage. It established the rationale for the clinical use of reticulo-endothelial system stimulants like BCG vaccine to possibly enhance the effectiveness of known treatments for cancer. The possible use of tuberculin test as a prognostic and differential diagnostic test is described with speculation on the possible use of reticulo-endothelial system stimulation by agents like BCG vaccine as an adjuvant to enhance the effectiveness of surgery, radiotherapy, and chemotherapy.

Keywords: *BCG Vaccine, Neoplasms, Neoplasms, Medicine*

Philippine Journal of Surgery and Surgical Specialties, Volume No. 18 Issue No. 2, pages 85-96
1963, March-April,
(Filipiniana Analytics)
Fil(S) RD 1 P53 18/2 1963

0436

A Comparison of the Clinical Utility of Rapid Serologic Tests in the Diagnosis of Typhoid Fever

Tabangin-Cajulao, Thea Pamela T. , Alejandria, Marissa M. , Destura, Raul V. , Del Rosario, Joanne Marie M.

Background: Bacteriologic culture is the gold standard in the diagnosis of typhoid fever but its utility in early diagnosis is limited. Rapid serologic tests have been developed to improve the diagnostic turnaround time for typhoid fever. The clinical performance and utility of these tests in the local endemic setting needs to be evaluated.

Methods: This is a criterion-standard, cross-sectional prospective study which included typhoid fever suspects seen at the Philippine General Hospital and during an outbreak at Calamba,

Laguna in 2008 who had fever of at least 3 days, temperature of at least 38°C and at least one of the following: headache, diarrhea, weakness, abdominal pain, gastrointestinal bleeding, changes in sensorium, leukocytosis/ leukopenia/anemia. Serologic testing using Typhidot®, TYPHI Rapid-2.0®, and TUBEX®, and bacteriologic cultures were done. The sensitivity, specificity and likelihood ratios of the serologic tests were determined compared to the gold standard (isolation of Salmonella typhi from blood, urine or stool).

Results: We included 228 patients in the study, 89 of whom were culture positive for Salmonella Group D. TUBEX® was the most sensitive test, with a sensitivity of 96.5% (95% CI 90.2, 98.8), but was the least specific, with a specificity at 15% (95% CI 9.7, 22.5). It had the highest negative predictive value at 85.7% (95% CI 65.4, 95). Typhidot® was the least sensitive, with a sensitivity of 60.7% (95% CI 50.3, 70.2), and a fair specificity of 68.3% (95% CI 60.2, 75.5).

Conclusion: Among the kits tested, TUBEX® was highly sensitive with a good negative predictive value, making it a useful screening test. However, all three serologic tests had low specificity. Test results should still be correlated with clinical findings, and cultures should always be done when available to confirm the diagnosis. To explore the effects of timing of extraction, an evaluation using paired sera is recommended. **(Authors' abstract)**

Keywords: Typhoid fever, Laboratory diagnosis, Serology, Typhidot, TYPHI Rapid, Tubex, Medicine

Philippine Journal of Microbiology and Infectious Diseases, Volume No. 44 Issue No. 1, pages 33-43
2015 January to June,
(Filipiniana Analytics)
Fil(S) QR1 P54 44/1 2015

0437

Constituent of urinary calculi by infrared spectroscopy and chemical analysis *, Navarro, Man*

Identification of the constituents of renal stone from 300 individuals were made by infrared spectroscopy, IR spectral patterns of the standards prepared and of typical renal stones analyzed are shown. The most common constituents were found to be calcium oxalate, calcium carbonate and uric acid. Random samples were also analyzed by chemical methods. Comparison of the two readings are shown.

Keywords: Urinary calculi, Infrared spectroscopy, Medicine

Acta Manilana, Volume No. A Issue No. 13, pages 2-15
1975, June,
(Filipiniana Analytics)
Fil(S) Q181 A811

0438

On cosmetic keratoplasty

de Ocampo, Geminiano, F.P.C.S., Peczon, Jose D., M.D., Fojas, Marcos R.

The purpose and indications of cosmetic keratoplasty are defined. The drawbacks and limitations of corneal tattooing are mentioned. Original procedures for cosmetic keratoplasty such as lamellar impregnation of pigments, cosmetic anterior lamellar keratoplasty, rotating circular lamellar and penetrating keratoplasty and posterior lamellar keratectomy are described.

Keywords: *Corneal transplantation, Cosmetics, Medicine*

Philippine Journal of Surgery and Surgical Specialties, Volume No. 18 Issue No. 4, pages 269-273
1963, July-August,
(Filipiniana Analytics)
Fil(S) RD 1 P53 18/4 1963

0439

Cranio-cerebral injuries and the ear, nose, and throat

Torres, Mariano L., Jr., F.

Fractures of the petrous portion of the temporal bone may result in cerebrospinal fluid otorrhea, dizziness, meningitis, brain abscess, and cranial nerve palsies. Fractures of the anterior cranial fossa may involve the nose and paranasal sinuses producing rhinorrhea, anosmia, meningitis, brain abscess, and intracranial pneumocephaly.

Keywords: *Cerebrospinal Fluid Otorrhea, Craniocerebral trauma, Medicine*

Philippine Journal of Surgery and Surgical Specialties, Volume No. 18 Issue No. 2, pages 117-125
1963, March-April,
(Filipiniana Analytics)
Fil(S) RD 1 P53 18/2 1963

0440

Defining the content for the objective structured clinical examination component of the professional and linguistic assessments board examination: development of a blueprint.

Tombleson, Philip

INTRODUCTION: We describe the steps taken to develop an appropriate list of 'clinical problems' used to define the content of the objective structured clinical examination (OSCE) component of the Professional and Linguistic Assessments Board (PLAB) examination. **METHOD:** A blueprint and list of 255 clinical problems was compiled by reviewing PLAB questions, published curricula of the UK Royal Colleges and other sources such as the General Medical Council's own guidelines. This list was sent to a random sample of 251 successful PLAB candidates who were asked to rate the clinical problems using a scale of 'seen frequently/seldom/never' and to 120 members of the accident and emergency (A&E) specialists' association who were asked to identify 'important' tasks. The list was further validated using activity data obtained for consecutive A&E attendances (934) and admissions (6130) at three hospitals. **RESULTS:** After two mailings, 131/251 (52%) former PLAB candidates and 89/120 (74%) A&E specialists replied. All of the 255 clinical problems were seen by some former candidates and were felt to be important by some A&E specialists. Of the 255 problems, 40 were neither rated as important nor as seen frequently/seldom by over 50%

of respondents. The 255 clinical problems covered a mean 94% consecutive A&E attendances and 97.6% reasons for hospital admission. The correlation between clinical problems that were frequently encountered and those felt to be important was $\rho=0.38$ (P

Keywords: *Medical staff, Clinical competence, Emergency service, Medicine*

Medical Education, Volume No. 34 Issue No. 7, pages 566-572
2000,
(Filipiniana Analytics)
F(S) R735. A1 M43 34/7 2000

0441

Diarrhea in acute appendicitis

Gonzales, Andres C., M.D., F.P.C.S., Domasing-Gonzales, Concepcion F.

Diarrhea may be the presenting symptom of acute appendicitis and cause the latter to be mistaken for ileocolitis. Three cases of acute appendicitis manifesting as diarrhea are presented; these were all successfully operated after correct diagnosis.

Keywords: *Appendicitis, Appendicitis, Diarrhea, Medicine*

Philippine Journal of Surgery and Surgical Specialties, Volume No. 183 Issue No. 1, pages 8-10
1963, January-February,
(Filipiniana Analytics)
Fil(S) RD 1 P53 18/1 1963

0442

Drug interaction consciousness in the department of medicine, Philippine General Hospital, with emphasis on the use of a computer-assisted system for monitoring and reporting adverse drug interactions

The pilot study on a computer assisted system for and reporting Adverse Drug Interactions was conducted in the Department of Internal Medicine from March to July 1989. Knowledge and attitude of medical and paramedical personnel regarding various aspects of drug usage was described. The study also aimed to obtain patterns of drug utilization and extent of adverse drug interactions and to determine how issuing Drug Alert Cards (DACs) would modify doctor's awareness, patient management and outcome. This study showed that as more recognized medical conditions are ruled, more drugs are used and that the more drugs are used, the more drug interactions are noted. The DACs improved doctor's awareness and resulted in some form of response in 325% of cases. It was recommended that formal study and training of drug utilization and adverse interaction be done in medical school and continued at the postgraduate level.

Keywords: *Medicine*

Acta Medica Philippina, Volume No. 28 Issue No. 3, pages 170-177
1992, July-September,
(Filipiniana Analytics)

The effect of lateral positions on gas exchange in lobar pneumonia
Zacarias, Manuel B.

Twenty-three patients with unilateral lobar pneumonia had arterial blood gas examinations while breathing room air in the supine, right lateral and left lateral decubitus positions. Mean PaO₂ in the healthy-lung-dependent position (74.76 mmHg) was greater than in the affected lung-dependent position. Although mean PaO₂ was higher in supine compared to that with affected lung-dependent position, the difference was not statistically significant. Arterial partial pressures of carbon dioxide and arterial pH were unchanged and positional influence on gas values disappeared after resolution of the disease process.

Keywords: *Unilateral lobar pneumonia, Pneumonia, Santo Tomas University Hospital, Chest roentgenograms, Medicine*

Chest Diseases, Volume No. 14 Issue No. 1, 11-15
1984 June,
(Filipiniana Analytics)
Fil(S) RC306 Q43

Experience with the vacuum extractor in obstetrics
Marcos, Pacifico E., F.

In 171 deliveries where this instrument was used, 161 (94.15%) were successfully completed by the instrument alone, 5 were finally delivered by forceps, 1 by cesarean section, and 4 failures; the later were all delivered by forceps extraction. Vacuum extraction does not seem to cause respiratory depression, however, caput succedaneum was exaggerated in all.

Keywords: *Obstetrics, Delivery, Obstetric, Medicine*

Philippine Journal of Surgery and Surgical Specialties, Volume No. 18 Issue No. 3, pages 209-214
1963, May-June,
(Filipiniana Analytics)
Fil(S) RD 1 P53 18/3 1963

Expression of the recombinant precursor and putative mature forms of human interleukin-37 isoform b (IL-37b) in E. coli expression system
Stacey, Martin, Lim, Ciara Christia

Background and Objectives: IL-37b is a cytokine that may exist in several forms including a full-length precursor protein and its putative mature forms (IL-37b cleaved at E21, V46, and K53, respectively). In recent years, the role of IL-37b has been associated with the regulation of inflammation and inflammatory diseases. Previous studies focused on the intracellular activity of the cytokine, while the bioactivities of its variants when introduced in the extracellular environment has been limited and require further investigation. To enable this, the study produced precursor and truncated forms of IL-37b in an E. coli expression system.

Methodology: Recombinant proteins of the full-length (FL) and shorter forms (E21, V46, and K53) of IL-37b were produced in IPTG-induced E. coli BL21-CodonPlus(DE3)-RIPL strain and subsequently purified using Ni²⁺-NTA affinity, ion exchange, and size exclusion chromatography. The identity of the proteins was confirmed through western blotting and LC-MS.

Results: Findings show that the masses of the expressed proteins correspond to their respective theoretical masses with 24,134.75 0.04 Da for FL, 21,919.63 0.80 Da for E21, 19,298.57 0.04 Da for V46, and 18,551.21 0.04 Da for K53 at 90-95% purity. This confirms that the correct proteins have been produced and at high purity. Further, the tendency of FL to homodimerize was observed in this study, which may have implications in the extracellular processing and bioactivity of FL.

Conclusion: This study describes the successful expression and purification of recombinant precursor and putative mature forms of IL-37b in E. coli, which can be utilized for downstream characterization. (**Authors' abstract**)

Keywords: *Interleukin-37, Mature interleukin-37, IL-37b recombinant expression, Medicine*

Philippine Journal of Health Research and Development (formerly the UP Manila Journal), Volume No. 22 Issue No. 1, 2018,
(Filipiniana Analytics)
NP

0446

Fee-splitting in Nursing? *, Buntagon, Ma.*

Fee splitting The British defines this as sharing a fee with any person who has not taken a commensurate part in the service. The Americans call it as a financial transaction practiced under contract, understanding or consent (silent or spoken) wherein a part of the compensating fee is directly or indirectly: paid into another who was influential or instrumental in bringing about the contract between the patient and the specialist

Keywords: *Medicine*

Nursing Journal, Volume No. II Issue No. 2, pages 95-98
1963,
(Filipiniana Analytics)
Fil(S) RT1 S59 2/2 1963

0447

Fee-splitting in Nursing? *, Marfor*

Fee splitting The British defines this as sharing a fee with any person who has not taken a commensurate part in the service. The Americans call it as a financial transaction practiced under contract, understanding or consent (silent or spoken) wherein a part of the compensating fee is directly or indirectly: paid into another who was influential or instrumental in bringing about the contract between the patient and the specialist

Keywords: *Fee splitting, Nursing , Medicine*

Nursing Journal, Volume No. II Issue No. 2, pages 95-98
1963,
(Filipiniana Analytics)
Fil(S) RTI S59 2/2 1963

0448

Fibrinolysis and afibrinogenemia in thoracic surgery *Santos, Rodrigo R.*

Fibrinolysis and afibrinogenemia in patients undergoing thoracic surgery are more frequent when there is prolonged manipulation of lung tissue and the production of raw surfaces. The abnormal bleeding is confined to the operative field, and is initiated by anoxemia. It may be brought about by either the liberation of thromboplastic material from the lung tissue causing intravascular fibrin formation, and thus a consumption of fibrinogen, or by the release of tissue kinases which activate profibrinolysis producing increased proteolytic activity of the serum. Treatment includes the administration of fibrinogen although cortisone, protamine sulfate, toluidine fluid, concentrated human albumin, and fresh whole blood may also be used.

Keywords: *Afibrinogenemia, Thoracic surgery, Fibrinolysis, Medicine*

Philippine Journal of Surgery and Surgical Specialties, Volume No. 18 Issue No. 1, pages 20-25
1963, January-February,
(Filipiniana Analytics)
Fil(S) RD 1 P53 18/1 1963

0449

Fibrinolysis in urology *Vasquez, Gil*

Increased fibrinolytic activity is seen after enucleation of the prostate possibly due to release of prostatic tissue activator, during operation as well as local fibrinolytic and thromboplastic tissue activity at the site of the operation.

Keywords: *Fibrinolysis, Postpartum Hemorrhage, Medicine*

Philippine Journal of Surgery and Surgical Specialties, Volume No. 18 Issue No. 3, pages 203-204
1963, May-June,
(Filipiniana Analytics)

Fibrinolytic hemorrhage in general surgery
Trinidad, Juvenal C.

Fibrinolysis is due to imbalance of fibrinolytic and antifibrinolytic substances in the circulation which results from severe trauma, shock, hemorrhage, and certain operative procedures. It can occur unexpectedly during actual surgery and can detect most fibrinolytic phenomena of observing lysis of a clot after one hour can detect most fibrolytic phenomena.

Keywords: *Fibrinolysis, Fibrinolysis, Medicine*

Philippine Journal of Surgery and Surgical Specialties, Volume No. 18 Issue No. 3, pages 197-202
1963, May-June,
(Filipiniana Analytics)
Fil(S) RD 1 P53 18/3 1963

Fibrinolytic hemorrhage in obstetrics
Tanglao, Juan M.

Incoagulability of the blood in obstetrical conditions like premature separation of the placenta, amniotic fluid infusion, intrauterine fetal death may be attributed to afibrinogenemia, fibrinolysis, and release of heparinoid substances. Early diagnosis is imperative so that treatment may be instituted promptly.

Keywords: *Fibrinolysis, Postpartum Hemorrhage, Pregnancy Complications, Medicine*

Philippine Journal of Surgery and Surgical Specialties, Volume No. 18 Issue No. 1, pages 28-31
1963, January-February,
(Filipiniana Analytics)
Fil(S) RD 1 P53 18/1 1963

Fluorescent Tryptophan-Doped Silica Microparticles Prepared Through a Reverse Microemulsion Method

Dela Cruz, Janine Marriah G. , Robidillo, Christopher Jay T.

A reverse microemulsion method was utilized in synthesizing silica microparticles doped with tryptophan molecules as fluorophore. The fluorescent microparticles were formed inside reverse micelles dispersed in a cyclohexane continuous phase. The microparticles were produced within 24 hours and showed strong emission at a wavelength of 285 nm. The blue shift in their fluorescence maximum can be attributed to the caging and confinement effects of the

silica network on the encapsulated tryptophan molecules. Successful encapsulation of tryptophan was confirmed through Fourier Transform Infrared Spectroscopy and Energy-Dispersive X-Ray Spectroscopy. Scanning Electron Microscopy and Dynamic Light Scattering Analysis revealed that the diameters of tryptophan-doped silica microparticles were in the range of 203 to 692 nm in the solid state, and in the range of 223 to 341 nm, with a narrow size distribution centered at 282 nm, in aqueous solution. Properties relevant to probe applications such as photostability and fluorophore leakage were also investigated. Tryptophan-doped silica microparticles were found to maintain their photostability even after six hours of continuous exposure to a 150 W halogen lamp and were observed to not undergo tryptophan leakage after three days of aqueous dispersion. This study has effectively extended dye encapsulation in silica to a biologically endogenous fluorescent amino acid, yielding fluorescent microparticles with desirable properties for fluorescent probes, namely, biocompatibility, photostability, non-leakage, monodispersity in solution, and fairly uniform sizes. (Author's abstract)

Keywords: *Fluorophore, Microparticles, Reverse micelles, Silica, Tryptophan, Medicine*

Philippine Journal of Science, Volume No. 146 Issue No. 1, 37-46
2017 March,
(Filipiniana Analytics)
Fil(S) Q1 P55 146/1 2017

0453

Foundations and self-tanning products: Do they provide any protection from the sun? *Choquet, Benjamin*

As soon as the weather turns sunny, everyone wants a tan. People with skin phototypes III and IV, called melanocompetent, have no problem meeting this fashion requirement. But things are quite different for people with phototypes I and II and so these individuals look for alternative solutions. In essence, light skin burns easily when exposed to the sun. Therefore, light-skinned people are offered a cosmetic solution through self-tanning products or foundations. It seemed interesting to us to evaluate the sun protection power of this type of product. To do this, we used an in vitro method to determine the typical indicators related to sunscreen products, such as sun protection factor (SPF), ultraviolet (UV)-A protection factor (PF-UVA), UV-B/UV-A ratio as well as the critical wavelength because these artificial tanning products could be considered sunscreen products by users. It is important to know whether a self-tanning product and/or a foundation provide sun protection and whether they meet the standards set for other sunscreen products. Protection which is imbalanced for either UV-B or UV-A radiation is potentially harmful for users believing themselves adequately protected. To do this, we assembled the requisite conditions for forming melanoidins in the cosmetic itself. We tested seven amino acids found in the corneal cells of the epidermis. Regardless of the amino acid used, the corresponding SPF was essentially zero (approximately SPF 2). Foundations, on the other hand, proved to be much more interesting because they possess a non-negligible SPF as well as good photostability making these products safe in terms of their mode of application (applied once daily).

Keywords: *Photostability, Dihydroxyacetone, Medicine*

Journal of Dermatology, Volume No. 36 Issue No. 11, pages 587-591
2009,
(Filipiniana Analytics)
F(S) RL1 J272 36/11 2009

0454

The HCG-immuno assay: some possible sources *, Navarro, Man*

Included under the same category are individuals who may have had copulation a short time before the urine collection. At least 12 hours should pass before the urine collection is started. Proteinuria has been mentioned as a possible cause for false positive result. In male patients with spermatorrhea following erotic stimulation such contaminated urine would give false positive result to the immunological test and should not be utilized for testing. One should take the trouble of testing for the presence of blood with either a chemical test for occult blood or with -the use of a strip of Hemocombistix. But when protein like albumin is present in an amount of not more than 100 mg% it has been reported not to bother the accuracy of the test .

Keywords: *Medicine*

Acta Manilana, Volume No. A Issue No. 14, pages 20-24
1976, November,
(Filipiniana Analytics)
Fil(S) Q181 A811

0455

Hiatal hernia: Review of literature and report of a case *Paje-Villar, Estrella B.*

Although several reports have defined normal thyroid volume depending on either age or body surface, there are no sequential reference values on childhood thyroid volume evaluated by using ultrasonography and epidemiological analysis in Japan. The aim of the present study was to establish updated reference values for thyroid volume by ultrasound examination and epidemiological analysis in 0-19 year-old Japanese children. It is based on a cross-sectional study conducted from October 9, 2011 to March 31, 2012. The subjects were 38,063 children who were examined by ultrasonography as the initial preliminary survey of the Fukushima Health Management Survey in October 9, 2011 to March 31, 2012. The width, thickness, and height of each lobe were measured and the volume of each lobe was calculated by the mean of the elliptical shape volume formula. The values of thyroid volume at the 2.5 and 97.5 percentiles of age and body surface area for each gender group were obtained from 0-19 year-old children. Positive correlation was observed between thyroid volume and either age or body surface. The right lobe was significantly larger than the left lobe. The thyroid volume in females was larger than that in males after adjusting body surface area. The reference values of childhood thyroid for each age or body surface area were obtained by this extensive survey using ultrasound. These reference values may be used to define the normal size of thyroid gland by echosonography in Japanese children, although thyroid volume may be affected by dimorphic factors such as sex hormones

Keywords: *Medicine*

Journal of the Philippine Federation of Private Medical Practitioner's, Inc., Volume No. XII Issue No. 5, 333-344
1963 May,
(Filipiniana Analytics)
Fil(S) R97.5 P55

0456

The importance of immobilization in the management of hematogenous osteomyelitis

Yuvienco, Merito N., F.P.C.S., De Guia, Laurentino

Immobilization minimize venous and lymphatic dissemination of osteomyelitis or direct extension to the soft tissues. It also prevents formation of pathologic fractures.

Keywords: *Blood circulation, Lymphatic system, Osteomyelitis, Medicine*

Philippine Journal of Surgery and Surgical Specialties, Volume No. 18 Issue No. 3, pages 167-171
1963, May-June,
(Filipiniana Analytics)
Fil(S) RD 1 P53 18/3 1963

0457

Influence of Traditional Medicine (Tandok and Tawak) on Marinduquenos' Knowledge, Attitudes and Practices on Handling Animal Bites

Sosa, III, Benjamin O.

Tandok (removal of venom, rabies and tetanus from a wound by using an animal horn) and Tawak (direct suction by the mouth of a traditional practitioner) are the most prevalent nonmedical alternatives in Marinduque that deal with wounds caused by animal bites. In every ten (10) people bitten, six (6) would opt for non-medical alternatives rather than consulting a medical facility for vaccines. The cultures of Tandok and Tawak greatly affect the knowledge, attitudes and practices (KAP) of the people on how to properly handle animal bites. Thus, this cross-sectional study aimed to determine the extent of influence these cultures have on the people's KAP. Also, this study aimed to correlate the people's theoretical awareness on handling animal bites to actual practice using a two-tailed t-test. Lastly, the study determined the main reasons why people still patronage these traditional healers. A total of 420 respondents (three persons per village) from 140 randomly selected villages were interviewed. The respondents were chosen through simple random sampling with replacement. Results showed that people in municipalities with well-known traditional practitioners (mananandok or mananawak) prefer their services than that of medical facilities. Further, theoretical knowledge of handling animal bites does not translate to actual practice. Finally, the main reasons why people still patronage Tandok or Tawak are (1) expensive cost of vaccines (2) belief of the people that tandok and tawak have the same efficacy and (3) the distance of the hospital. (**Author's abstract**)

Keywords: *animal bites, rabies, tandok, tawak, traditional medicine, Medicine*

Philippine Journal of Science, Volume No. 145 Issue No. 2, 189-196
2016 June,
(Filipiniana Analytics)
Fil(S) Q1 P55 145/2 2016

0458

International council of Nurses Congress and Council of Nursing Representatives meeting *de Leon, Ro*

This is a narrative report of the Council of Nurses Congress that happened in Bella Center, Copenhagen, Denmark on June 8-10, 2001. The four topics discussed are: Human resources: supply and demand in the global market; Influencing health policy; New roles in Nursing; and Governance issues.

Keywords: *Medicine*

Philippine Journal of Nursing, Volume No. 71 Issue No. 1-2, page 45
2001 January - June,
(Filipiniana Analytics)
Fil(S) RT1 P53 71/1-2 2001

0459

Intrahepatic and perihepatic abscess: a clinical review and reappraisal of treatment

Samson, Prudencio

Good results were met with in eleven cases of intrahepatic abscesses, 9 amebic and 2 tuberculous, which were incised and drained and given a course of antibiotics. Subphrenic abscesses are best treated by early drainage. A strong suspicion of subphrenic abscess is a good indication for an exploratory laparotomy. Delayed surgical intervention in amebic abscesses will increase the mortality rate.

Keywords: *Abscess, Liver Abscess, Amebic, Tuberculosis, Hepatic, Medicine*

Philippine Journal of Surgery and Surgical Specialties, Volume No. 18 Issue No. 1, pages
1963, January-February,
(Filipiniana Analytics)
Fil(S) RD 1 P53 18/1 1963

0460

Knowledge, Attitudes and Practices on Tuberculosis among Private Physicians in Davao City

Belizario, Jr., Vicente Y. , Totanes, Francis Isidore G. , Martinez, Ruth M. , de Leon, Winifreda U. , Far, Michael Jasper L.

Objectives: This study aimed to assess whether private physicians in Davao City adhere to the International Standards of Tuberculosis Care (ISTC) by determining their knowledge, attitudes and practices towards tuberculosis (TB).

Methods: This was a cross-sectional survey. The knowledge, attitudes, practices on TB among private physicians in Davao City were assessed using a 24-item validated self-administered questionnaire from August 2010 to October 2010.

Results: Among the 124 private physicians who completed the questionnaire, majority indicated cough for 2 to 3 weeks or more (56.5%) as the criteria for defining suspected TB. Chest x-ray (71.8%) was the most popular initial diagnostic of choice. Majority chose to perform diagnostic work-up on their patients themselves (65.3%) and the most frequently requested test for

diagnosis was chest x-ray (96.2%) followed by sputum examination (94%). For TB treatment, 48.4% responded that they would refer to DOTS clinics, while 33.4% would treat their patients themselves. Among those who treat their patients themselves, 97.6% of them would give 2 months of isoniazid, rifampicin, pyrazinamide, and ethambutol; and then 4 months of the isoniazid and rifampicin. In monitoring for treatment response, 95.1 % would request for a repeat chest x-ray, and 82.9% would repeat the sputum examination.

Conclusion: Most private physicians in Davao City adhered to the recommendations set by ISTC. However, chest x-ray is often preferred over sputum microscopy; hence, the importance of sputum microscopy should be emphasized, both as a diagnostic and monitoring tool. The study showed a low rate of referral to DOTS clinics. Academic meetings or seminars on TB DOTS should be organized with emphasis on these aspects. (**Authors' abstract**)

Keywords: *Integrated helminth control, Mass drug administration, Schistosomiasis, Soiltransmitted helminthiasis, Medicine*

Philippine Journal of Microbiology and Infectious Diseases, Volume No. 44 Issue No. 1, pages 53-60
2015 January to June,
(Filipiniana Analytics)
Fil(S) QR1 P54 44/1 2015

0461

Knowledge, Attitudes and Practices on Tuberculosis among Private Physicians in Davao City *Itable, Jill R.*

Objectives: This study aimed to assess whether private physicians in Davao City adhere to the International Standards of Tuberculosis Care (ISTC) by determining their knowledge, attitudes and practices towards tuberculosis (TB).

Methods: This was a cross-sectional survey. The knowledge, attitudes, practices on TB among private physicians in Davao City were assessed using a 24-item validated self-administered questionnaire from August 2010 to October 2010.

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Keywords: *Mycobacterium tuberculosis, Isoniazid, Rifampicin, DOTS clinics, Medicine*

Philippine Journal of Microbiology and Infectious Diseases, Volume No. 44 Issue No. 1, pages 53-60
2015 January to June,
(Filipiniana Analytics)
Fil(S) QR1 P54 44/1 2015

0462

**The Managerial styles of academic heads in selected colleges of Nursing in Central Luzon:
Basis for an empowering leadership development program**

Besa, Ro

This study was conducted to identify and assess the managerial style of Academic Heads of selected colleges of Nursing in Central Luzon. The Descriptive Research Design was employed in the study with 22 teachers as respondents/subjects.

Keywords: *Management styles, Descriptive Research Design, Medicine*

Philippine Journal of Nursing, Volume No. 71 Issue No. 1-2, pages 48-56
2001 January - June,
(Filipiniana Analytics)
Fil(S) RT1 P53 71/1-2 2001

0463

Midline abdominal transumbilical incision

Enad, Jesus G., M.S., F.

The advantages and disadvantages of midline abdominal incision are presented with a review of operations using this incision at the Enad Hospital

Keywords: *Abdominal wall, Geriatrics, Medicine*

Philippine Journal of Surgery and Surgical Specialties, Volume No. 18 Issue No. 3, pages 188-193
1963, May-June,
(Filipiniana Analytics)
Fil(S) RD 1 P53 18/3 1963

Modified endaural approach for tympano-mastoidectomy

Yambao, Carlos V., M.D., Caparas, Mariano B.

A modified Lempert endoaural approach for surgery of the middle ear is convincingly dependable, simple, and versatile.

Keywords: *Mastoid, Middle ear, Medicine*

Philippine Journal of Surgery and Surgical Specialties, Volume No. 18 Issue No. 4, pages 262-268
1963, July-August,
(Filipiniana Analytics)
Fil(S) RD 1 P53 18/4 1963

Monitoring School-Based Control of Intestinal Helminthiasis in Selected School Districts in Cavite Province, Philippines

Belizario, Jr., Vicente Y. , Totanes, Francis Isidore G. , Sarmiento, Raymond Francis R. , de Leon, Winifreda U. , Ciro, Raetzelle Nadine T.

Background: Soil-transmitted helminth (STH) infections are one of the most prevalent neglected tropical diseases in the world, with children having the highest STH prevalence and intensity. The First Congressional District Office of Cavite spearheaded a local school-based helminth control initiative. Monitoring of the program is needed to assess its impact on the parasitologic status.

Objectives: The study aimed to describe the baseline and follow-up prevalence and intensity of STH infections, as well as the nutritional status and school performance of public elementary school children in three school districts in the province of Cavite, Philippines.

Methodology: A cross-sectional study design was utilized to determine the prevalence and intensity of STH infections through stool examination by Kato-Katz method, while secondary nutritional status and school performance data were also obtained.

Results and Conclusions: Overall cumulative prevalence and prevalence of heavy intensity infections at baseline were 61.4% and 36.4%, respectively. Follow-up monitoring demonstrated a significant decrease in parasitologic parameters. Efforts to increase awareness on the benefits of MDA may help increase acceptability of MDA that will translate to more effective control of STH infections. Environmental sanitation, good personal hygiene, and health education will contribute to the benefits of mass treatment and further enhance STH control. (**Authors abstract**)

Keywords: *Anthelminthics, Helminthiasis, Mass drug administration, Neglected diseases, Philippines, Medicine*

Philippine Journal of Microbiology and Infectious Diseases, Volume No. 44 Issue No. 1, pages 23-32
2015 January to June,
(Filipiniana Analytics)

0466

The national poisons control and information services
, Panganiban, L

The national poisons control and information service was established in 1975 with the objective of minimizing loss and damaged caused by poisons by improving preventive and therapeutic management. In 1991 its services were strengthened through the creation of the poison control information service. For 1991-1992 the NPCIS has managed 1138 patients, responded to 287 telephone referrals, provided laboratory services to 886 patients (1991) and trained 40 physicians in clinical toxicology. It has maintained linkages concerned with issues on poisoning.

Keywords: *Poison Control, Medicine*

Acta Medica Philippina, Volume No. 28 Issue No. 3, pages 157-163
1992, July-September,
(Filipiniana Analytics)
Fil(S) R97.4 A21

0467

The neuropathological findings of takayasu's arteritis: A case report
, Florendo, Ma. Soco

This is a case of fifteen year old female with a nine month history of repeated syncopal attacks, progressive blindness associated with quadriparesis and multiple focal seizures eventually leading to a pseudobulbar state. Doppler and aortic angiography supported clinical diagnosis of Takayasu's arteritis. While on steroids, patient died of necrotizing pneumonia on the 14th hospital day. Necropsy findings revealed complete occlusion of all branches of the aorta with adventitial lymphocytic infiltrates and intimal sclerosis consistent with Takayasu's arteritis. Cortical atrophy, infarction and atherosclerotic changes were observed in the brain

Keywords: *Takayasu's Arteritis, Neuropathology of Takayasu's arteritis, Aortic disease, Medicine*

Acta Medica Philippina, Volume No. 28 Issue No. 2, 132-137
1992, April-June,
(Filipiniana Analytics)
Fil(S) R97.4 A21

0468

A non-randomized confirmatory trial of segmentectomy for clinical T1N0 lung cancer with dominant ground glass opacity based on thin-section computed tomography (JCOG1211)
Keiju, Aokage, Saji, Hisashi, Suzuki, Kenji, Mizutani, Tomonori, Katayama, Hiroshi, Shibata, Taro, Watanabe, Syunichi, Asamura,

INTRODUCTION: Lobectomy has been the standard surgery for even stage I lung cancer since the validity of limited resection for stage I lung cancer was denied by the randomized study reported in 1995. The aim of this non-randomized confirmatory going on since September 2013 is to confirm the efficacy of a segmentectomy for clinical T1N0 lung cancer with dominant ground glass opacity based on thin-slice computed tomography. **METHOD:** A total of 390 patients from 42 Japanese institutions are recruited within 4 years. The primary endpoint of this study is a 5-year relapse-free survival in all of the patients who undergo a segmentectomy for a lung nodule. The secondary endpoints are overall survival, annual relapse-free survival, disease-free survival, proportion of local relapse, postoperative pulmonary function, proportion of segmentectomy completion, proportion of R0 resection completion by segmentectomy, adverse events, and serious adverse events. This trial has been registered at the UMIN Clinical Trials Registry as UMIN000011819 (<http://www.umin.ac.jp/ctr/>). **RESULTS:** Patient's accrual has been already finished in November, 2015 and the primary analysis will be performed in 2021. **CONCLUSION:** This study is one of the pivotal trial of lung segmentectomy for early lung cancer. The result will provide a clear evidence for our daily clinics and will be possible contribution to preserving pulmonary function for lung cancer patients.

Keywords: *Adenocarcinoma, Lung, Neoplasms Staging, Pneumonectomy, Medicine*

General Thoracic and Cardiovascular Surgery, Volume No. 65 Issue No. 5, pages 267-272
2017,
(Filipiniana Analytics)
F(S) R97 J37 65/5 2017

0469

Normal values of peak expiratory flow rate in Filipino children

Monteverde, Rosalinda de

This study was undertaken to establish the normal values of peak expiratory flow rate in Filipino children using the Wright peak flowmeter. This report is based on the testing of 590 students (308 boys and 282 girls) 4 to 16 years of age in four schools in Metro Manila and suburb. There are significant correlations between the peak expiratory flow rate values and height, weight and age. Prediction equations and regression lines are presented for both girls and boys. The results of the present study are compared with studies abroad.

Keywords: *Wright peak flowmeter, Peak expiratory flow rate, Pediatrics, Medicine*

Chest Diseases, Volume No. 13 Issue No. 3, 76-80
1983 June,
(Filipiniana Analytics)

0470

Observations following distention of the intrahepatic and common hepatic ducts in man

Horrilleno, Emilio G., F.P.C.S., Limson, Antonio R., M.D., Chavez, Florencio R.

Localized distention in the left or right intrahepatic duct or the common bile duct produces severe "bursting" epigastric pain localized at the midline. This is associated with increased heart rate, respiratory rate and amplitude, but produce no changes in the electrocardiogram except the sinus tachycardia.

Keywords: *Electrocardiography, Hepatic duct, common, Bile ducts, Medicine*

Operations in the colon and rectum for cancer with particular reference to refinements in technic and the use of adjuvant chemotherapy

Nuguid, Teodoro P., Crisostomo, Carlos M.D., Alfonso, Ricardo L., F.

In an effort to improve long term survival for cancer of the colon and rectum, a radical resection is advocated for curative resections. Refinements in technic and the use of a tumoricidal agent is described briefly.

Keywords: *Chemotherapy adjuvant, Rectal neoplasms, Medicine*

Outcome of intracranial bleed secondary to acquired prothrombin complex deficiency

Aguilar, J

Acquired Prothrombin Complex Deficiency (APCD) is not an uncommon problem in developing Asian countries like the Philippines. At the Philippine Children's Medical Center we reviewed thirty-eight (38) cases of APCD with intracranial bleed seen from January 1, 1987 to September 30, 1991 as to clinical presentation, management, and outcome of management. Eighty-four (84%) percent belonged to the 1 to 2 month old bracket, 65% were males and 82% were breastfed. Seventy-six (76) per cent of the patients had no Vitamin K prophylaxis at birth. The most common presenting features were seizures (79%) and pallor (55%). Cranial Ultrasound findings on admission showed predominantly intraparenchymal hematoma, (66%) followed by subdural hematoma (18%). Ninety-five (95) per cent of the cases were managed medically with no neurosurgical intervention and the overall mortality rate was 18%. Factors like location and type of bleed and presence of acute hydrocephalus had no significant effect on mortality. The level of consciousness on admission, however, was noted to be an excellent predictor of outcome, with all of the mortalities presenting in stupor or coma. Twenty (20) cases were followed up for a period of 1 week to 3 years, with note of a very high incidence of neurologic sequelae (90%) like microcephaly (70%) psychomotor retardation (45%) and seizures (35%). Given the very high incidence of permanent neurologic deficit attributed to this disease entity, we can not over emphasize the preventive primary health care approach to this formidable problem.

Keywords: *Acquired Prothrombin Complex Deficiency, Intracranial bleed, Vitamin K, Pediatrics, Medicine*

Pathology and DNA Analysis of Exhumed Human Remains Three-years Post-mortem
Sagum, Minerva S. , Fortun, Raquel D. , De Ungria, , Salvador, Jazelyn M. , Calacal, Gayvelline C., Maria Corazo

In the past three decades after the discovery of DNA fingerprinting, there has been a remarkable growth in the use of DNA evidence worldwide. This paper highlights the value of using a scientific approach in assisting courts of law in resolving disputed parentage or kinship issues. This report describes the use of pathology in verifying the identity of a cadaver via examination and comparison with ante-mortem information of the deceased. Subsequent DNA testing of the skeletal remains – exhumed three years post-mortem – was used to confirm the identity of the woman using a living sibling as reference, and to evaluate the relationship of the deceased with a person claiming to be her offspring. Genetic comparisons at 15 autosomal Short Tandem Repeat (aSTR) regions and the mitochondrial hypervariable regions I and II (mtDNA HVR I and HVR II) of the deceased and her brother confirmed that they were siblings. Conversely, the DNA test negated the statements of the person claiming to be the child of the deceased. **(Author's abstract)**

Keywords: *autosomal Short Tandem Repeat (aSTR), Exhumed human remains, Forensic genetics, Maternity analysis, Mitochondrial DNA (mtDNA), Sibship analysis, Medicine*

Philippine Journal of Science, Volume No. 147 Issue No. 1, 9-16
 2018 March,
 (Filipiniana Analytics)
 NP

Pathology of afibrinogenemia and fibrinogenopenia
Francisco, M.E.

A defect in the transformation of fibrinogen to fibrin is responsible for the clotting defect known as afibrinogenemia. Owing to intravascular clotting, the fibrin could not be deposited where needed.

Keywords: *Afibrinogenemia, Afibrinogenemia, Medicine*

Philippine Journal of Surgery and Surgical Specialties, Volume No. 18 Issue No. 1, pages 26-27
 1963, January-February,
 (Filipiniana Analytics)
 Fil(S) RD 1 P53 18/1 1963

Penetrating wounds of the heart
Durban, Virgilio J., F.P.C.S., Apotadera, Rizal

This a report of recovery from a penetrating wound of the heart after repair by a general surgeon in a provincial hospital.

Keywords: *Heart injuries, Wounds, penetrating, Medicine*

Philippine Journal of Surgery and Surgical Specialties, Volume No. 18 Issue No. 3, pages 205-208
1963, May-June,
(Filipiniana Analytics)
Fil(S) RD 1 P53 18/3 1963

0476

Perspectives on nursing shortage and shortage and strategies to nurture the nurses who stay
Ramos-Conde,

This article is dedicated to the nurses who stay with the organization or those nurse administrators and leaders who facilitate, coach and develop nurses.

Keywords: *Theory of Motivation, Nursing shortage, Retention and motivational strategies, Medicine*

Philippine Journal of Nursing, Volume No. 71 Issue No. 1-2, pages 37-44
2001 January - June,
(Filipiniana Analytics)
Fil(S) RT1 P53 71/1-2 2001

0477

A phytochemical survey of the UST pharmacy garden
, Santos, Alfr

The University of Sto. Tomas' Pharmacy Botanical Garden occupies an area of about one hectare. The first garden was established on October 10, 1932 to serve the needs of the students of Pharmacy. It was destroyed during the war in 1941. A new garden was built and inaugurated on December 7, 1948. In it may be found more than 500 species of medicinal and ornamental plants belonging to more than a hundred plant families. Recently there has been a renewed interest on the medicinal uses of Philippine plants. In a way, many of the present drug materials came from plants. To name a few are: morphine, known for its analgesic and sedative properties and codeine widely used as sedative in cough preparations obtained from opium (*Papaver somniferum*); reserpine, better known under the trade name Serpasil used in the treatment of hypertension, from species of *Rauwolfia*; cocaine, a popular local anesthetic from *Erythroxylon* and caffeine, from species of *Coffea*, known for its stimulating action on the central nervous system; and quinine from cinchona bark, a drug used in the treatment of malaria. The proposed training of "bare-foot" doctors for rural areas and establishment of barrio "botiquines" will further enhance the use of medicinal plants. There is therefore an urgent need for a compiled survey of the constituents of Philippine plants. A Philippine Pharmacopoeial monograph, which includes a good number of Philippine plants will soon be published by the National Research Council of the Philippines. A literature survey of the medicinal plants in the pharmacy Garden will serve as a ready guide and reference material for graduate students and researchers interested on Philippine medicinal plants. In view of the foregoing, the writers have undertaken the present literature survey

Keywords: *UST pharmacy garden, Medicine*

Acta Manilana, Volume No. A Issue No. 15, pages 54-90
1976,
(Filipiniana Analytics)
Fil(S) Q181 A811

0478

A phytochemical, survey of the U.S.T pharmacy garden (cont)
, Santos, Alfr

The first of a series on the literature survey of the medicinal plants in the Pharmacy Garden, where more than 500 species belonging to more than a hundred plant families may be found, appeared in the previous issue of the Acta Manilana [No. 13(21) June]. Because of a renewed interest on the medicinal used of Philippine plants, an urgent need for a compiled survey of the constituents of these plants was found. The following literature survey was conceived to serve that need.

Keywords: *Pharmacy , UST pharmacy garden, Medicine*

Acta Manilana, Volume No. A Issue No. 14, pages 25-75
1975, November,
(Filipiniana Analytics)
Fil(S) Q181 A811

0479

A phytochemical survey of the UST pharmacy garden (cont)

Illustration the motions of electrons about the nuclei of atoms may be satisfactorily explained only in terms of these so-called "eigenvalues" of the energy. This however contradicts the modern universally accepted principle, supported by the most refined experiments, that the velocity of a light ray in a vacuum is the same if measured by two observers in uniform motion relative to each other. It may therefore be necessary to include this concept in the study of the motions- of the molecules of substances under ultrasonic excitation, although the motions may be further complicated by viscosity which introduces non-conservative forces.

Keywords: *UST pharmacy garden, Medicine*

Acta Manilana, Volume No. A Issue No. 13, pages 16-55
1975, June,
(Filipiniana Analytics)
Fil(S) Q181 A811

0480

The place of antimicrobials in surgery
Limson, Benjamin

Antimicrobials are indicated in operations where massive contamination is unavoidable. A working knowledge on the more common infecting agents in various surgical conditions and their response to different antimicrobials is emphasized.

Keywords: *Antimicrobial drugs, Prophylaxis, Antimicrobial, Medicine*

Philippine Journal of Surgery and Surgical Specialties, Volume No. 18 Issue No. 3, pages 177-183
1963, May-June,
(Filipiniana Analytics)
Fil(S) RD 1 P53 18/3 1963

0481

The pope's encyclical on birth control and the medical profession

Blanco, Ma. Lourde

Discussed here are the views of the church on the use of birth control and opinions on the field of medicine by the pope and the catholic church.

Keywords: *Nursing, Medicine*

Nursing Journal, Volume No. VII Issue No. 1, pages 32-38
1968, October,
(Filipiniana Analytics)
Fil(S) RTI S59 7/1 1968

0482

Predictive factor of secondary tricuspid regurgitation after aortic valve replacement for aortic stenosis: the importance of myocardial hypertrophy and diastolic dysfunction

Igarashi, Takashi, Tanji, Masahiro, Takahashi, Koki, Ishida, Keiichi, Sasaki, Satomi, Yokoyama, H

OBJECTIVES: The aim of this study is to determine the predictors of secondary tricuspid regurgitation after aortic valve replacement for aortic stenosis. **METHODS:** Seventy-one patients, who underwent aortic valve replacement for aortic stenosis at our institute from January 2006 to July 2011, were divided into two groups: an STR group, which included 15 patients with moderate or greater than moderate secondary tricuspid regurgitation at a follow-up visit and a control group. Echocardiography was performed before surgery, at discharge, and at a late follow-up visit (mean follow-up 36±19 months, range 0-77). **RESULTS:** Preoperatively, the number of women (p%

Keywords: *Aortic valve, Aortic valve stenosis, Ventricular Dysfunction, Left, Hypertrophy, Left Ventricular, Medicine*

General Thoracic and Cardiovascular Surgery, Volume No. 65 Issue No. 5, pages 259-266
2017,
(Filipiniana Analytics)
F(S) R97 J37 65/5 2017

Prescribing habits and attitudes of medical practitioners in the Philippines

Despite the limitations in getting a sample population of respondents representing private medical practitioners in the Philippines, some general statements can be made based on the results of this study. This study shows that: (1. Generally prescribed even when 2. Physicians almost always prescribe branded products. 3. Essential pharmaceutical products are being prescribed commonly. 4. Dangerous pharmaceutical products, including those banned in other countries, are being prescribed even for trivial complaints. 5. Drugs which may be useful for some specific indications are being prescribed inappropriately for non-specific, self-limiting illnesses. 6. The treatment of choice for most common illnesses are not being prescribed generally. 7. Only a few physicians prescribe generic products. 8. The prescribing habits of Filipino physicians do not appear to be determined by individual characteristics nor by patient. The prescribing habits of Filipino physicians appear to be determined mainly by the drug industry.

Keywords: *Medicine*

Acta Medica Philippina, Volume No. 28 Issue No. 2, pages 73-81
1992, April-June,
(Filipiniana Analytics)
Fil(S) R97.4 A21

Prevalence and Relationships of Albuminuria among Adult People Living with HIV seen at the Outpatient HIV Clinic (SAGIP Unit) of the Philippine General Hospital

Merdegia, Girlie S. , Zapanta, Jan Melvin M. , Juan-Bartolome, Maria Jasmin Marinela , Itable, Jill R. , Alejandria, Marissa M.

Background: Kidney injury is a complication of human immunodeficiency virus (HIV) infection. Albuminuria, ranging from microalbuminuria to macroalbuminuria, is a marker of renal injury in other systemic illnesses, and of subclinical renal disease in people living with HIV (PLHIV).

Objectives: To determine the prevalence of albuminuria among PLHIV seen at the Philippine General Hospital (PGH) HIV clinic (SAGIP unit), and the relationship between albuminuria and HIV status

Methodology: This was a single center, cross-sectional study design on adult PLHIV seen at the PGH SAGIP Unit from May to August 2013. Albuminuria was determined via a standard urine dipstick method and Micral-Test.

Results: The study included 198 PLHIV. Albuminuria was present in 9.6% of patients, while microalbuminuria was present in 6.1%. Using Structural Equation Modeling analysis, albuminuria was found to be inversely associated with highly active antiretroviral therapy (HAART) ($p=0.003$). Across all clinical stages and categories, albuminuria was noted irrespective of HAART use (p albuminuria regardless of clinical stage (p

Conclusions: This study showed a prevalence of 9.6% for albuminuria and 6.1 % for microalbuminuria among Filipino PLHIV, which were lower than those reported in the Middle East and Africa. The rate of microalbuminuria was similar to the worldwide prevalence in the general population. The use of HAART and longer duration on HAART use could decrease the likelihood of albuminuria. Universal access to HAART should be emphasized because HAART could delay progression to albuminuria and perhaps ESRD and renal replacement therapy.

(Author's abstract)

Keywords: *Human immunodeficiency virus (HIV), Albuminuria, Kidney injury, Medicine*

Philippine Journal of Microbiology and Infectious Diseases, Volume No. 44 Issue No. 1, pages 61-70
2015 January to June,
(Filipiniana Analytics)
Fil(S) QR1 P54 44/1 2015

0485

**Psychosocial issues affecting the terminally-ill geriatric cancer patients and their family members at the Philippine general hospital
, Oriel, N**

This study determined the psychosocial issues of 42 terminally-ill geriatric cancer patients and their corresponding 60 family members at the Philippine General Hospital from March 10 August 1991 using a pre-tested questionnaire. Data was analyzed using a percentage distribution to determine the issues prevalent among the respondent. We found that majority of the patients were not aware of the true nature of their illness, in spite of the fact that their doctors were the ones who disclose the information. Both the patients and their families were desirous to know the diagnosis and they preferred the attending physician to disclose the facts to them. These findings are similar to the ones done abroad where Western surveys indicated that 80-90% of the patients wished to be told (Weisman and Brete/1, 1980). Those who were told upon diagnosis that their illness was terminal reacted with sadness. However, this reaction did not disturb relationships nor hamper medical compliance. A significant number of patients became irritable and sensitive along the course of illness but their relatives became more caring for them. This change in disposition was noted among patients with poor control of symptoms. Sutherland (1952) stated that there is a need to understand the behavior of cancer patients for such behaviors cause tension in the family. A serious illness can create enormous stress that a highly organized family can be thrown into disequilibrium. We also found that the patients and their family members had various needs as spiritual, physical, financial and emotional. The most pressing need for the patient was spiritual. Support while for the family it was financial support. The need for spiritual support could be explained by the Filipinos' deep sense of religiousness (Rana, 1980). They strongly believe in the power of a Supreme being to alleviate their suffering. This finding agrees with Bigot's result in his study of geriatric terminally-ill cancer patients. One concern he found out for these patients is the search for the meaning of death and dying which could be a manifestation of his search for the meaning of life or spirituality. Both the patients and their family preferred their homes as a place for the patient to die, if given arrangements for the eventuality of death. This also agrees with Bigot's finding that another concern for the geriatric terminally-ill patient is the environment in which he will die. The home was chosen as a place to die for financial considerations and to be with the family until the patient dies. This is consistent with the Filipino tradition to be together. In the study of Turalba (1987), she stated that the most common reasons were to avoid expenses, be near the patient, avoid autopsies and avoid seeing them wrapped in a blanket. Understanding of the different issues will give the physician a good knowledge and insight on how to care for a dying elderly cancer patient and his family.

Keywords: *Terminally-ill patients, Geriatric medicine, Psychosocial issues in cancer, Medicine*

The response of tertiary metro manila hospital emergency room personnel to telephone inquiries regarding two poisoning case: A pilot case study *, Mayuga, Rona*

Twenty hospitals in Metro-Manila were randomly chosen and given two hypothetical cases of poisoning: Isoniazid and kerosene. They were called by telephone with the investigators posing as relatives of the patients. Their responses indicated: 1) that they did not refer to any particular poison center; 2) that they tended to ask more questions for the history during the early hours in the morning (12 to 2 W); 3) that 50% of those taking responsibility in advising callers were non-doctors; 4) that for WI/ poisoning the suggested initial management by doctors was rarely often correct compared to non-doctors; while for kerosene, the non-doctors were correct more often; and 5) that over-all, ER personnel were correct in 37.5% of calls for IN/I poisoning and 55% for kerosene poisoning. Based on these the authors recommend a program for disseminating information on poisoning and the eventual formation of poison centers.

Keywords: *Poison Control, Emergency Room, telephone inquiries, Medicine*

Selected Philippine Plant Extracts as Alternative Preservatives for a Pharmaceutical Liquid Preparation *Arollado, Erna C. , Bucog, Leslie P. , Manalo, Richelle Ann M. , Sampang, Irizh-Lyn R. , Carisca, Janvin Jessel A.*

Preservatives play an essential role in enhancing quality and prolonging shelf-life of pharmaceutical products by improving their antimicrobial stability or reducing the amounts of oxidative degradation products. Persistent use of synthetic compounds as preservatives resulted in several reports of undesirable effects. Hence, development of alternatives is necessary to maintain their vital function while minimizing adverse effects. In this study, ethanolic extracts of five plants with known antimicrobial activities, *Psidium guajava*, *Premna odorata*, *Mimosa pudica*, *Allium sativum* and *Zingiber officinale*, were formulated into suspensions and evaluated for preservative activity using the United States Pharmacopeia (USP) (2015) guidelines. Phytochemical test, antioxidant activity and compatibility test were also conducted on the extracts. *Premna odorata* ($p=0.999$) and *Mimosa pudica* ($p=0.054$) at 5.00 mg/mL concentration exhibited comparable antioxidant activity against the standard antioxidant preservative, butylated hydroxytoluene, using ferric reduction antioxidant power assay. Based on the criteria for product category 4 of the USP, suspensions of *Premna odorata* and *Psidium guajava* demonstrated acceptable preservative activity against selected microorganisms, *Escherichia coli* and *Staphylococcus aureus*. These bioactivities can be attributed to the phytochemicals present in the extracts such as glycosides, reducing substances, flavonoids and alkaloids. In conclusion, for the USP category 4 products such as antacid suspensions,

Psidium guajava can be utilized as an alternative source of antimicrobial preservative, *Mimosa pudica* as an alternative source of antioxidant preservative, and *Premna odorata* as an alternative source of preservative with both antimicrobial and antioxidant efficacy. (**Author's abstract**)

Keywords: *Compatibility test, Plant extracts, Premna odorata, Preservatives, Preservative challenge test, Psidium guajava, Medicine*

Philippine Journal of Science, Volume No. 146 Issue No. 1, 7-13
2017 March,
(Filipiniana Analytics)
Fil(S) Q1 P55 146/1 2017

0488

Service increment for teaching (SIFT): a review of its origins, development and current role in supporting undergraduate medical education in England and Wales
Clack, GB

OBJECTIVES: To describe the ways in which total resources available for the Service Increment for Teaching (SIFT) have been determined and related to numbers of undergraduate medical students; and the development and current arrangements for allocating SIFT to the providers of service support for teaching. **DESIGN:** The derivation of SIFT from excess costs of teaching hospitals over general hospitals is described. The official principles of organizing SIFT to reimburse the service costs of teaching undergraduate medical students are explained. The crucial development that is examined is the change from SIFT being a global subsidy to being related to educational contracts. This development has facilitated both the specification of standards and innovative uses of SIFT. These are illustrated with examples. **SETTING:** Hospital and Community Health Services and Primary Care in the National Health Service (NHS) in England and Wales. **SUBJECTS:** Medical students. **RESULTS:** There is often confusion caused by SIFT being intended to cover the service costs of teaching but not having been derived in this way. This causes problems in deciding what providers should be paid through contracts for teaching of different kinds. **CONCLUSIONS:** The new contractual basis has enabled medical schools to use contracts to improve the clinical teaching of undergraduate medical students in the NHS. These developments may offer useful models for other countries.

Keywords: *Teaching, Cost allocation, Economics, Medicine*

Medical Education, Volume No. 33 Issue No. 5, pages 350-358
1999,
(Filipiniana Analytics)
F(S) R735.A1 M43 33/5 1999

0489

A simple method of dilatation and curettage
Apelo, Ruben, F.P.C.S., Cunanan, Rafael F., M.D., F.P.O.G.S., Raymundo, Erlind

A simplified method for dilatation and curettage which may be used for diagnostic purposes by either the specialist or the general practitioner. About 20 cc. of 1% Novocaine is injected into the cervix uteri as local analgesics.

Keywords: *Abortion, Diagnosis methods, Medicine*

Smoking in hospital: a survey of staff attitudes at UP-PGH medical center October to December, 1988
, Sia, L

The survey showed that the majority of the respondents belonged to the 25-29 age group, mostly females. Majority belonged to the medical, nursing and laboratory staff, and most were nonsmokers. There was agreement, even among smokers, that smoking is a risk to health. Most perceived that health personnel should accept the public 'exemplar' responsibility. Majority believed that passive smoking is a risk to health and that non-smokers have the right to 'clean air'. Majority agreed that restrictions on smoking should be implemented and that a smoking control policy should be implemented. Although the difference was not large enough to be significant, there was a greater tendency for the female and the single respondents to perceive smoking, both passive and active, as a risk to health, that non-smokers have the right to 'clean air', that restrictions should be implemented and that a smoking control policy should be implemented. As of the present time, there are still no detailed guidelines on restriction of smoking in the Emergency Room complex of the Philippine General Hospital.

Keywords: *Smoking habits, Passive smoking, Hospital staff attitudes, Medicine*

Soil-transmitted Helminth and Schistosome Infections in Indigenous People in Selected Communities in Agusan del Sur: Implications for Policy and Action
Tiangha, Glenn H., Anosa, Epifania, Pagalan, Prima, Carbonilla, Epifania, Perez, Carlos Miguel P., Belizario, Jr., Vicente Y.

Background: Soil-transmitted helminth (STH) and schistosome infections belong to the group of neglected tropical diseases. These infections occur in remote and rural areas of low-income countries, and constitute a large burden to health and economic development. Indigenous People (IP) groups are identified as high-risk groups because they lack access to health services and live in impoverished conditions.

Objective: The study aimed to describe the prevalence and intensity of STH and schistosome infections among Manobos in selected barangays in Agusan del Sur.

Methods: In this cross-sectional study, a total of 160 Manobo study participants from four barangays were selected for parasitologic assessment. Stool samples were collected, processed, and examined using the Kato-Katz technique.

Findings: The overall prevalence of STH infection was at 45.0%, with most samples showing light intensity of infection. The overall prevalence of schistosomiasis was 20.6%, of which 30.3% of samples demonstrated heavy-intensity infection.

Conclusion: The results of this study indicate that these helminth infections remain public health concerns in IPs. Adequate mass drug administration coverage, access to health services, and health education in an integrated manner may be needed to effectively control STH and schistosome infections in IP communities. **(Authors' abstract)**

Keywords: *Soil-transmitted helminths, Schistosomiasis, Neglected tropical diseases, Indigenous Peoples, School-based helminth control program, Integrated helminth control program, Medicine*

Philippine Journal of Microbiology and Infectious Diseases, Volume No. 44 Issue No. 1, pages 14-22
2015 January to June,
(Filipiniana Analytics)
Fil(S) QR1 P54 44/1 2015

0492

Sperm agglutinating activity of *Saccharomyces cerevisiae* and *Candida albicans* as a potential causative factor of infertility in mice (*Mus musculus*)
Salangang, Arriane C., Ranola, Missia Avva B., Hallare, Arnold V., Go, Sam

Background and Objective: Vaginal yeast infections in women is usually caused by *Candida albicans* and, to a lesser extent, by *Saccharomyces cerevisiae*. Studies on *C. albicans* have shown that it can cause sperm agglutination which can lead to lowered fertility. This study was conducted to compare the effect of *S. cerevisiae* and *C. albicans* on the fertility of ICR mouse (*Mus musculus*) through sperm agglutination.

Methodology: Sperm agglutinating activity was examined by mixing different concentrations of *S. cerevisiae* (10^4 , 10^6 and 10^8 CFU/mL) and *C. albicans* (10^4 , 10^6 and 10^8 CFU/mL) separately with semen from male mice of ICR strain. Determination of the effect of *S. cerevisiae* and *C. albicans* on the fertility outcome of female mice was done by intravaginal inoculation of 20 μ L of 10^4 , 10^6 and 10^8 CFU /ml of the two yeast organisms and later allowed to mate.

Results and Conclusion: The study showed a statistically significantly higher percent sperm agglutination by *S. cerevisiae* than *C. albicans* at 10^4 CFU/ml but no difference was observed at 10^6 and 10^8 CFU/ml. No significant difference was observed in the number of sperm per agglutinate between the two yeast species at $\alpha=0.05$. The concentration that exhibited the highest percentage of agglutinated sperm is 10^6 CFU/mL for both yeast. The most frequent type of agglutination observed in *S. cerevisiae* is the mixed type, while head-to-head type is most frequent in *C. albicans*. Both yeasts were able to cause a decline in the number of births in mice starting at 10^4 CFU/ml. While sperm agglutination could be one of the reasons for the infertility observed in mice, there may be other processes, mechanisms and/or activities that could contribute to such an outcome. **(Authors' abstract)**

Keywords: *Sperm agglutination, Sperm analysis, Candida albicans, Saccharomyces cerevisiae, Mouse infertility, Medicine*

A study on cockroach hypersensitivity by skin testing among patients with bronchial asthma seen at the UP-PGH allergy clinic

, Brigoli, Jud

Two hundred and six patients (206) underwent skin testing to Cr (cockroach) antigen together with the other common inhalant allergens at the UP-PGH Allergy Clinic from the period of March 10 to November 1991. The population was composed of 76 (37%) patients with Bronchial Asthma (BA), 94 (46%) with Allergic Rhinitis (AR), and 36 (17%) with Chronic Urticaria (Urt). This study concentrated on the BA patients for which a prevalence of 21% were cockroach hypersensitivity by skin testing, for results showing a positive prick test, and a +3 to +4 intradermal test. No other local study has yet been done on the clinical profile of Cr hypersensitivity patients at the UP-PGH. Compared to a local study the prevalence of HDM and UID sensitivity was slightly higher and lower respectively than this study. f., There was an equal sex distribution among the BA Cr hypersensitivity patients with 52% belonging to the pediatric age group (18 yrs. old and below). Most of these patients came from Metro Manila and their occupations were varied.

Keywords: *Bronchial asthma, Cockroach hypersensitivity, Skin testing, Medicine*

Acta Medica Philippina, Volume No. 28 Issue No. 2, pages 143-155
1992, April-June,
(Filipiniana Analytics)
Fil(S) R97.4 A21

A study on the clinico-epidemiological correlates of acute pancreatitis in the Philippines general hospital from 1982-1986

, Chua, Ji

This study tried to determine the clinico-epidemiological correlates of acute pancreatitis in the Philippine General Hospital from 1982-1986. All data of acute pancreatitis cases in the PGH of the above-mentioned period were collated and analyzed. Statistical analysis used in the study were the z test, Fisher T-test, Chi-square and the Pearson correlation coefficient. There were a total of 385 registered cases of acute pancreatitis in the PGH. With an annual average of 77 cases. The 385 cases comprised only 0.025837% of the total patient load in PGH for the said period. There was an incidence of 2,946 per 1,000 admissions (1 case/1,000 admissions). However, of the 385 registered cases, only 19 were included in the present study during young adulthood. As to the place of residence, most cases come from the Metro Manila area. The predominant chief complaint was abdominal pain, especially at the epigastric area. The character of the pain was colic and severe. The most associated signs and symptoms were nausea, vomiting and fever. Epigastric tenderness and hypoaerive bowel sounds were the most common physical findings. By the fifth hospital day 68.88% of the patients had resolution of their ileus, 78.88% of have resolution of their abdominal pain and 86.09% resolution of their serum amylase levels. The most common past and associated disease intestinal parasitism. The most common finding during pregnancy was the third trimester. Greater than 39 years had a positive correlation with a longer course of hospital

stay. The Cf of the abdominal pain was positively corre, with ileus and fever. Tire normtJiizati(l hyperamylasemiawaspoorlycorrelated. Ft the degree of initial hyperamylasemia htJ correlation with the course of abdominal f.

Keywords: *Acute Pancreatitis, Pancrea Clinical epidemiology, Pancreatitis-signs symptoms., Medicine*

Acta Medica Philippina, Volume No. 28 Issue No. 2, 112-125
1992, April-June,
(Filipiniana Analytics)
Fil(S) R97.4 A21

0495

Surgery for total anomalous pulmonary venous connections: primary sutureless repair vs. conventional repair

Yoshimura, Naoki, Fukahara, Kazuaki, Yamashita, Akio, Doi, Toshio, Takeuchi, Katsunori, Yamashita, Shigeyuki, Homma, Takahiro, Yokoyama, Shigeki, Aoki, Masaya, Ikeno,

Despite recent advances in surgical technique and perioperative care, the surgical correction of total anomalous pulmonary venous connection (TAPVC) remains a challenge. The major complication and the main cause of reoperation in TAPVC surgery are the occurrence of pulmonary venous obstruction (PVO). In the 1990s, sutureless repair was introduced as a technique to relieve PVO after TAPVC repair. Following the favorable outcomes for postoperative PVO, the indications for sutureless repair as a primary operation have been expanded to include infants who have preoperative PVO or those at risk of developing PVO after the repair of TAPVC. However, the indications of "prophylactic" primary sutureless repair still remain controversial. Recent studies have shown that normal-risk patients have excellent early and long-term outcomes and a low incidence of reoperation for postoperative PVO. Most patients who survived beyond 2 years after TAPVC surgery were in NYHA class I and offered good outcomes. Although favorable early and mid-term outcomes of primary sutureless repair are reported, the long-term outcomes of this technique are still unclear. The influence of non-contractile pericardial tissue interposed between the PV vessel wall and LA myocardium on the atrial function is also unclear in patients who undergo sutureless repair. Another disadvantage of primary sutureless repair is potential bleeding from the gap between the confluence and pericardium into the posterior mediastinum or pleural cavity. Thus, it might be best for primary sutureless repair to be indicated for high-risk infants, such as those with TAPVC associated with single-ventricular physiology, mixed-type TAPVC, or small PV confluence.

Keywords: *Pulmonary veins, Pulmonary veins, Sutureless Surgical Procedures, Vascular Malformations, Medicine*

General Thoracic and Cardiovascular Surgery, Volume No. 65 Issue No. 5, pages 245-251
2017,
(Filipiniana Analytics)
F(S) R97 J37 65/5 2017

0496

The surgical treatment of hirschsprung's disease

De Padua, Ce

Hirschsprung's disease is hard to diagnose in the newborns and is often neglected with fatal results. A colostomy proximal to the aganglionic segment suffices till the patient is over a year old and weighs at least thirty pounds, during which time the usually curative Swenson operations is best performed.

Keywords: *Hirschsprung Disease, Hirschsprung Disease, Medicine*

Philippine Journal of Surgery and Surgical Specialties, Volume No. 18 Issue No. 1, pages 16-19
1963, January-February,
(Filipiniana Analytics)
Fil(S) RD 1 P53 18/1 1963

0497

**Systematic review and meta-analysis of islet autotransplantation after total
pancreatectomy in chronic pancreatitis patients**
Wu, Qian

Islet autotransplantation (IAT) is a viable treatment for patients with severe chronic pancreatitis, this modality may prevent brittle diabetes mellitus after pancreatectomy. This systematic review and meta-analysis was performed to evaluate the outcomes of IAT after TP and discuss the factors that may affect the efficacy of this procedure. MEDLINE, Embase, Web of Science and the Cochrane Central Register of Controlled Trials (CENTRAL) were searched from 1977 to 30 April 2014. Cohort Studies reported patients with IAT after TP were included. The studies and data were identified and extracted by two reviewers independently. Data were analyzed using STATA 12.0 and Comprehensive Meta Analysis V2 software. Random effects model, meta-regression analysis, sensitivity analysis and publication bias were conducted to improve the comprehensive analysis. Twelve studies reporting the outcomes of 677 patients were included in this review. The insulin independent rate for IAT after TP at last follow-up was 3.72 per 100 person-years (95% CI: 1.00-6.44). The 30-day mortality was 2.1% (95% CI: 1.2-3.8%). The mortality at last follow-up was 1.09 per 100 person-years (95% CI: 0.21-1.97). Factors associated with incidence density of insulin independence in univariate meta-regression analyses included islet equivalents per kg body weight (IEQ/kgBW) (P=0.026). Our systematic review suggests that IAT is a safe modality for patients with CP need to undergo TP. A significant number of patients will achieve insulin independence for a long time after receiving enough IEQ/kgBW.

Keywords: *Meta-analysis, Chronic pancreatitis, Islet autotransplantation, Medicine*

Endocrine Journal, Volume No. 62 Issue No. 3, pages 227-234
2015,
(Filipiniana Analytics)
F(S) QP187 E53 62/3 2015

0498

Testicular Tumors
Santos, Regaldo T., F.

Every male should learn self-palpation of the testes especially after trauma and during the reproductive age to detect early malignancy.

Keywords: *Tumors, Tumors, Testicular, Medicine*

Is the trophoblastic thesis of cancer valid?
, Navarro, Man

Human chorionic gonadotropin (HCG) was isolated from the urine of histologically proven cancer patients by gel chromatography, dialysis and freeze-drying. The freeze-dried fractions found positive to HCG-immuno assay were injected into rabbits. The anti-HCG serum obtained was found to detect HCG in the urine of cancer patients and of pregnant individuals.

Keywords: *Trophoblastic diseases, Cancer, Medicine*

Total IgE levels in Filipinos using the mastick IgE test
, Escuate, Sa

Immunoglobulin E levels were determined in 164 out-patient subjectJ using a semiquantitative ELISA-ba::ed kit (MASJicl! JgE). Geometric means were necessary because of skewed di~tribution. Atopic subjects (n=72), identified by history and .fub.uantiated by skin testing, had a geometric mean of 155.6 IU!ml (antilog 2.19 ± 0.25). while non-atopic subjects (n=92) had a geometric mean of 64.6. /U!mf (antilog 1.81 ± 0.41). Geometric means anti 95% confidence limits were also calculated for each age group. The highest mean IgE values were seen in the I0-20age group in both atopies and non-atopies (178.65 and 98.63 IU!ml). respectively) although higher upper limits were seen in the 20-40 age group because of a wider spread. Frequency distributions for smokers and for different atopic diseases are also presented.

Keywords: *IgE levels in Filipinos, MASTick! IgE Test, ELISA, Medicine*

Viral pneumonia and bronchial asthma in early infancy: General characteristics *, Gonzales, Ag*

The general characteristics of infants with bronchial asthma (BA) and 45 infants with viral pneumonia (VP) aged 24 months and below were identified. The mean age of patients with VP & BA were 8.96 and 12.86 months, respectively while the mean age of onset of first wheezing were 7.95 and 9.2 months, respectively. A predominance of male, presence of wheezing during upper respiratory tract infection (URTI), positive family history and negative personal history of atopy were seen in both VP and BA. Acute onset of dyspnea, presence of wheezing in the absence of URTI, recurrent wheezing attacks and requirement of 10 previous bronchodilators were significantly associated with BA. An increased risk of recurrent wheezing attacks was seen in males with positive family history of atopy and presence of wheezes during URTI. With the above findings, Wheezing-Associated Swing Index (WASi) was formulated utilizing a major and minor criteria to differentiate VP from BA.

Keywords: *Viral Pneumonia, bronchial asthma, Upper Respiratory Tract Infections in Infants, Medicine*

Acta Medica Philippina, Volume No. 28 Issue No. 2, 138-142 pages
1992, April-June,
(Filipiniana Analytics)
Fil(S) R97.4 A21

0502

Western christian culture and oriental civilization

Addressed before the 1st World Congress of the Federation of catholic Universities, at Washington, D.C. on September 2, 1963.

Keywords: *Religion, Medicine*

Nursing Journal, Volume No. II Issue No. 2, pages 89-94
1963, September,
(Filipiniana Analytics)
Fil(S) RT1 S59 2/2 1963

0503

Whole-body vibration perception thresholds of recumbent subjects--Part 1: Supine posture *Yonekawa, Yoshiharu*

The objective of the present study was to determine perception thresholds for whole-body vibration in the recumbent supine posture in vertical and horizontal directions and to compare the present results with ones obtained at the same laboratory in 1984 and also with ISO frequency weighting curves both in ISO 2631-1 and in ISO 2631-2. The frequency characteristic and thresholds values of the present results are similar to previous results. Weighting curves of ISO, however, show quite different characteristic in both vertical and horizontal directions compared to the present characteristics. It is not suitable to apply weighting curves W_k for the vertical direction, W_d for the horizontal direction and combined curves in ISO to recumbent posture from the results of this present study.

Keywords: *Recumbent, Supine posture, Vibration perception, Medicine*

NUTRITION

0504

Addressing the goals of human ecology in the Philippine setting through responsive extension program

Visco, Emi

The study was conducted to determine the dynamics of the extension programs to address the goals of human ecology in the Philippine setting. Specifically, it determined how the focus and approaches of these extension programs of the University of the Philippines Los Baños, College of Human Ecology (UPLB-CHE) evolved through the years. Key informant interviews and secondary data were used. Results showed that the focus of the extension programs did not change much through the years. The programs centering on the human ecological well being of Filipinos, in the face of widespread poverty, continued to be the main focus. From food and nutrition security; human and family development in the 80s; to empowering local organizations and institutions in the early 2000; CHE hopes to focus more on the recent and pressing problems on environmental integrity. The extension approach applied by CHE has evolved through time. The transfer of technology was the dominant approach used in the early 70's. However, the approach's limitations brought about the need to look into the relationships of the various actors involved in an extension program. Through time, the knowledge systems approach became the most accepted strategy. Using this approach, the need to involve various stakeholders in the process of doing the extension program was given emphasis. The development of human potential of every Filipino continues to become a priority of government and the civil society. Thus, studies focusing on the dynamics of the extension programs that directly affect the Filipino communities in changing environments are very relevant.

Keywords: *Responsive extension program, Human ecology, Child development laboratory, Nutrition*

0505

Assessing Vitamin A deficiency (VAD) in selected Philippine localities using the HKI food frequency method

Villavieja, G.M.

The study describes the consumption pattern of vitamin A- rich foods of children, 1-5 years old, in UNICEF-assisted Country Program for Children (CPC) IV and V areas in the Philippines using the Helen Keller International (HKI) Food Frequency Method. At the same time, the study also aimed to identify areas most likely at risk of vitamin A deficiency (VAD). Consumption of vitamin A-rich foods was determined by interview using the HKI Food Frequency Questionnaire. Using the cut-off points suggested by the HKI method, the risk and magnitude of VAD in communities

was determined by calculating the mean days consumption of vitamin A rich foods (expressed as scores) from animal food sources as well as from the combined animal and weighted plant sources of each subject child. The study covered a total of 10,084 children, 1-5 years old, that were statistically drawn from 332 randomly selected barangays in 29 CPC provinces, 10 cities/cluster of cities/municipalities of the National Capital Region (NCR), Cebu City and Davao City. Among the animal food sources of the vitamin, eggs was the most widely and frequently consumed, followed by small fishes eaten with their liver intact. Among the plant food sources, dark green leafy vegetables were most commonly and frequently consumed, followed by squash fruit. Based on the animal consumption scores, Sulu (ARMM), Mountain Province (CAR) and Masbate (Bicol Region) were found at risk of VAD. On the basis of the combined intake of animal and the plant (weighted) sources, again, Sulu, Masbate, and Mountain Province with the addition of Sultan Kudarat (South Cotabato), Easter Samar (Central Visayas) and Tawi-tawi (ARMM), were likewise at risk. VAD was most likely a problem of public health significance in Eastern Samar, Mountain Province, and Sulu. Sulu was the province most likely deficient, as 75% of its barangays surveyed had consumption scores for both indices below the two suggested cut-off points. The HKI food frequency method as dietary assessment tool was found to be inexpensive, simple and fast to accomplish, process and analyze, making it ideal to use by local program managers and planners. However, when sensitivity and specificity analysis was done against plasma retinol level, this study with its limited sample size and coverage, showed very low sensitivity of the method as screening tool to identify areas at risk of VAD. The method falsely classified a great number of areas (34 out of 37) with VAD of public health significance, as without this level of significance. To use the HKI method as screening tool to identify areas at risk of VAD, therefore, it would probably require conformity to the coverage and sample size suggested by the method. This is important as the proper choice of areas for priority intervention has important programmatic implications.

Keywords: *Micronutrient deficiency, Vitamin A deficiency, Helen Keller International Food Frequency Method, HKI, Nutrition*

Philippine Journal of Nutrition, Volume No. 48 Issue No. 3-4, 131-146
2001 July - December,
(Filipiniana Analytics)
Fil(S) QP141 N935

0506

Association Between Dietary Diversity Score and Nutritional Status of Filipino Children Aged 6-23 Months

Ocampo-Guirindola, Mildred L. , Garcia-Malabad, Cristina J. , Valdeabella-Maniego, Ma. Lynell M. , Punzalan, Sheila Luz M.

Starting at six months, the quality of diet already plays a vital role in the nutritional adequacy and nutritional status of children 6-23 months old. This cross-sectional study aimed to test the association between food intake quality, as measured by dietary diversity score, and nutritional status of a child based on a one-day food recall. Data on 4,276 children aged 6-23 months were obtained from the June-December 2011 Updating of Nutritional Status of Filipino Children and Other Population Groups surveyed by the Food and Nutrition Research Institute of the Department of Science and Technology (FNRI-DOST). Children with four or more dietary diversity scores were classified as “meeting” the minimum dietary diversity (MDD) while those with less than four as “not meeting” the MDD. Bivariate analysis using Chi-square test was performed on selected child, maternal, and household characteristics to determine the

associated predictors of MDD while multiple regression analyses were conducted to test the association between nutritional status and MDD and other predictors. Results showed that MDD was associated with underweight and wasting/thinness but not with stunting. Meeting the MDD was protective against underweight (Odds Ratio (OR)=0.80, 95% Confidence Interval (CI) 0.64-1.00) and wasting/thinness (OR=0.62, 95% CI 0.46-0.82). Aside from not meeting the MDD, factors that increased the child’s odds of becoming underweight were: child’s age at 9-11 months (OR=1.83) and 12-23 months (OR=2.17); household food insecurity (OR=1.89); and the mother being the primary caregiver (OR 1.30). Meanwhile, household food insecurity (OR=1.44) and child’s age at 9-11 months (OR 1.35) increased the

probability of the child being wasted/thin. MDD, as a measure of the quality of complementary food, warrants further investigation as a potential assessment tool that can be used to evaluate the dietary intake of children aged 6-23 months.
(Author's abstract)

Keywords: *dietary diversity score, diet quality, stunting, underweight, wasting/thinness, Nutrition*

Philippine Journal of Science, Volume No. 145 Issue No. 1, 57-69
2016 March,
(Filipiniana Analytics)
Fil(S) Q1 P55 145/1 2016

0507

Association of adolescents' knowledge, attitude, and practices (KAP) on nutrition labels and their nutritional status

Nguyen, Marie F

Nutrition labels play an important role in promoting proper nutrition. The purpose of the study was to establish the association of knowledge, attitude, and practices (KAP) on nutrition labels in relation to the nutrition status of adolescents. Three hundred and ninety-three high school students aged 12 to 17 years old, were the respondents for the study. Two sets of questionnaires were administered to determine the respondents (1)demographic characteristics; (2)dietary habits; and (3)knowledge, attitudes, and practices (KAP) on nutrition labels. Through descriptive statistics and Pearson correlations analyses, it was found that the respondents had high KAP ratings on nutrition labels, indicating the respondents high knowledge on nutrition labels, positive attitude towards nutrition labels, and practice on nutrition labels. Despite high KAP ratings, the study found that KAP and nutritional status has weak ($r=0.023$, $p=0.645$) relations. It can be inferred that nutrition labeling alone is insufficient to improve the nutritional status of the group. Other contributing factors such as food habits, social influence, and accessibility to source of food with nutrition labels; information dissemination mechanisms; and presence of diseases are to be determined in order to further elucidate the association between nutrition labels and nutritional status.

Keywords: *Adolescents, Nutrition labels, Adolescents food consumption, Pearson correlation, Nutrition*

Journal of Human Ecology, Volume No. 1 Issue No. 1, 1-13
2011 July - December,
(Filipiniana Analytics)
Fil(S) GF1 C65

0508

Awareness and usage of fortified foods in the Philippines

Villavieja, G.M.

The study, which was aimed at determining awareness and usage of food products with Sangkap Pinoy Seal (SPS) and other fortified foods, covered 19,395 households of the 0-5 year-old children who were statistically sampled in the 1998 Fifth National Nutrition Survey (NNS) of FNRI, DOST. In the same survey, awareness and usage of iodized salt was determined involving 23,528 households of the 0-10 year old children samples. The household samples were taken from the 77 provinces of the country plus 5 cities and 5 clusters of cities and municipalities of NCR, Cotabato City, Marawi City and 10 highly urbanized cities. A person-to-person interview with the mother or caregiver of the children was done to gather the data. Results revealed low level of awareness of the households for both food products

with SPS (16.7%) and other fortified foods in general (11.6%). However, despite the low level of awareness, there was a high level of usage of fortified foods with SPS in the regions, ranging from 93.2% (Central Mindanao) to 99.1% (Western Visayas), while in highly urbanized cities (HUCs), usage ranged from 96.2% (Iligan City) to 100% (Iloilo City and Cagayan de Oro City). The first five (5) frequently used food products with SPS were "Star" margarine (61.1%), "Payless" instant noodles (55.9%), "lucky Me" instant noodles (51.4%), "555" sardines (41.1%), and "Tang" powder juice drink (37.9%). Among the other fortified foods (without SPS), the first five (5) most frequently used were instant noodles such as "Maggi", "Quick Chow" (68.8%), juice drinks such as "8'oclock" and "Zest-O" (50.3%), banana catsup such as "Tita Frida" and "papa" (32.0%), "Purefoods" Beefy hotdogs (20.3%), and Sandwich Spread "Kraft" (11.0%). On the other hand, awareness of iodized salt was primarily due to unavailability of the item and higher cost of iodized salt over ordinary salt. The majority of the users used iodized salt at least once in a day. The sources of fortified foods which were frequently identified by the users were sari-sari stores, while groceries/supermarkets were the frequent sources of iodized salt. The findings suggest a need for a strong advocacy and massive nutrition education campaign that will raise public awareness on the health benefits of fortified foods especially for iodized salt and those with SPS. Aggressive efforts to fast-track food fortification program, as well as enforce and monitor implementation of the ASIN Law and Sangkap Pinoy Seal, should be vigorously pursued.

Keywords: *Sangkap Pinoy Seal, Fortified foods, Iodized salt, Micronutrient malnutrition, Nutrition*

Philippine Journal of Nutrition, Volume No. 48 Issue No. 3-4, 147-162
2001 July - December,
(Filipiniana Analytics)
Fil(S) QP141 N935

0509

Awareness of and Adherence to the Food Based Dietary Guidelines Among Household Meal Planners in the Philippines

Lopez-Madrid, Marilou M. , Acuin, Cecilia Cristina S. , Orense, Consuelo L. , Duante, Charmaine A. , Tan, Robby Carlo A. , Capanzana, Mario V.

The study was conducted to determine the awareness of and adherence to the food-based dietary guidelines (FBDGs) among household meal planners in the Philippines. The data were collected from 9754 meal planners nationwide during the conduct of the 2015 Updating Survey of Nutritional Status of Filipino Children and Other Population Groups. A pre-tested survey questionnaire was administered to the respondents by trained researchers through face-to-face interview. Questions included were on awareness about the four FBDGs – 2012 Nutritional Guidelines for Filipinos (NGF); *Kumainments* (localized and simplified version of NGF); *Pinggang Pinoy*® (a plate-like pictorial model); and the Daily Nutritional Guide Pyramid (DNGP) – and food intake practices relative to the 2012 NGF. Findings of the study showed low nationwide reach of the four FBDGs. The meal planners were most aware of the DNGP (35.8%) and *Kumainments* (27.5%). They have least awareness on *Pinggang Pinoy*® (10.6%). The most often recalled message was “Eat fruits and vegetables” in the NGF (28.1%) and in *Kumainments* (35.2%), while about 25% mentioned “Eat a variety of foods everyday”. The respondents had limited adherence to the dietary guidelines. The most adhered message was “limit intake of salty, fried, or fatty and sugar-rich foods” (74–91%), while only one-half of the respondents adhered to the guideline “eat a variety of foods everyday”. Intake of other food/food groups (vegetables, protein-rich foods, and calcium-rich foods) was done about 2–4 times per week. There is a need to strengthen and harmonize the dissemination efforts of FBDGs not only among meal planners, but also among various segments of the population using various media channels. Continued refinement of communication strategies used for FBDG implementation – as well as regular monitoring and evaluation – should be done to improve FBDG’s usefulness and effectiveness. (**Author's abstract**)

Keywords: *Awareness, Food-based dietary guidelines, Household meal planners, Kumainments, Pinggang Pinoy, Nutrition*

0510

Behavioral Risk Factors for NCDs among School Children in the National Capital Region (NCR), Philippines

Endrina-Ignacio, Ma. Socorro

The Philippines is experiencing rapid nutrition transition found to be associated with increased rates of non-communicable diseases (NCDs) attributed to “modifiable” risk behaviors i.e., tobacco use, unhealthy diet, insufficient physical activity, and the harmful use of alcohol. NCDs have not spared the young people, especially the urban residents. This cross-sectional study was conducted to establish baseline data on NCD related behavioral risk factors and consumption of ultra-processed foods (UPF) among school children aged 10–17 years old in the Philippine Red Cross’ (PRC) selected pilot schools in Manila and Quezon City (QC), National Capital Region (NCR). It also aims to determine the students’ awareness of the main causes of NCDs, source of information on NCDs, awareness of school policies, and participation in activities on NCD prevention. Qualitative methods using structured and food frequency questionnaires were employed to obtain information from 1665 randomly selected students in the study schools. NCD risk behaviors were noted among the students – with 74% of 31 students already smoking more than 3 sticks of cigarettes daily, 55% of 94 students already drinking alcohol once a month, and only 27–38% of 1665 students engaged in daily physical activity. High proportions of students have consumed fatty foods (83%), sugary foods (75%), and salty foods (57%) in the past 7 days at the time of the interview. NCD information were obtained from TV (90%), social media (78%), and peers (41%). Sixty percent (60%) were aware of NCD related school policies and 32.5% have received NCD related materials. The prevalence of NCD behavioral risk factors warrants a strong partnership between the school and the community to promote healthy diet and lifestyle practices. (**Author's abstract**)

Keywords: *Food consumption, NCD, NCD risk behaviors, Nutrition transition, Ultra-processed foods, Nutrition*

0511

Biopsychosocial needs and perceptions on senior day care of the functional elderly in the Village of Dayap in Calauan, Laguna, Philippines

Torres, Ren

The Senior Day Care is necessary to satisfy the biopsychosocial need of the functional elderly. The study aims to determine the unmet biopsychosocial needs and perceptions on senior day care of 100 functional elderly, aged 60 years and above, in the village of Dayap in Calauan, Laguna. The descriptive study was aided by interviews and interviews and questionnaires. Socio-demographic and perception data were processed and analyzed using descriptive statistics, Marascuilo procedure, Pearson's correlation, and Monte Carlo method. Majority of the respondents, with ages ranging from 60 to 89, were married and were earning for their living. The respondents' level of awareness on Senior Day Care was low at 32% but their willingness to participate was high at 71% after the concept was explained.

Major reasons for their willingness to join were their desire to be productive, active, healthy, and strong. Identified reasons for not taking part in the Senior Day Care were lack of time and preference to stay at home. The culturally acceptable senior day care services needed were medical screening, nutritional counseling, livelihood, health education, and physical fitness. Psychological counseling, socialization, and recreational arts and crafts were the least preferred services.

Keywords: *Senior Day Care model, Older people, Functional elderly, Monte Carlo method, Nutrition*

Journal of Human Ecology, Volume No. 1 Issue No. 1, 14-25
2011 July - December,
(Filipiniana Analytics)
Fil(S) GF1 C65

0512

Breastfeeding and complementary feeding knowledge and practices of mothers and nutritional status of young children among indigenous people in Abra de Ilog, Occidental Mindoro

Dela Vega, Ana Lorraine D.

The study established baseline information on breastfeeding and complementary feeding knowledge and practices of the indigenous Iraya Mangyan mothers, as well as determine the relationship of breastfeeding and complementary feeding knowledge and practices of indigenous mothers to the nutritional status of the young children (7-23 months) in Abra de Ilog, Occidental Mindoro. Using simple random sampling, nine Iraya settlements were selected from 40 settlements. Interviews were conducted using structured questionnaire and anthropometry were conducted. The nutritional status was determined based on the weight-for-age, height-of-age, and weight-for-height indices of WHO-Child Growth Standards and correlated with Iraya mothers' breastfeeding and complementary feeding. Nevertheless, duration ($p=0.026$) and frequency ($p=0.016$) of breastfeeding and number of complementary foods given to young children had weak negative association ($p=0.048$) with nutritional status based on weight-for-height index. Results of the study substantiates the need for health and nutrition implementers to strengthen the advocacy on breastfeeding up to two years of age or more among indigenous mothers and provide appropriate complementary feeding to Iraya young children as breastfeeding is no longer sufficient by itself to support growing children.

Keywords: *Breastfeeding, Indigenous People, Iraya Mangyan, Complementary feeding, Nutritional status, Nutrition*

Journal of Human Ecology, Volume No. 2 Issue No. 2, 22-30
2012 July - December,
(Filipiniana Analytics)
Fil(S) GF1 C65

0513

Consumption of vegetables among adolescents in non-coed dormitories at the University of the Philippines Los Baños

Barrion, Aimee Sheree A.

Looking at the period of adolescence as a window of opportunity to promote good health and reduce the risk of chronic disease, insights into some of the determinants of intake particularly of vegetables are deemed to be crucial to the

success of government health programs. The study aimed to determine the consumption of vegetables of adolescents in non-coed university dormitories. The study was carried out among 128 adolescents using an interview schedule. Self-reported frequency and determinants of vegetable consumption varied with sex. Vegetable consumption among adolescents residing in non-coed university dormitories was low to cover daily recommendations. Three percent (3%) of the male respondents reported that they consume vegetables three times a day and 7% indicated that they consume vegetables twice a day. Twenty-eight percent (28%) of female respondents reported that they consume vegetables once or twice a week and those who consume vegetables once a day consisted 17%. Bittergourd and squash were the primary contributors to total vegetable intake. The vegetable dishes usually purchased by the adolescents were pinakbet, chopsuey, and guinataang gulay. The usual serving portion of vegetable was 1/2 cup cooked. Health followed by cost were the major reasons given by female respondents for choosing vegetable dishes. Since majority of adolescents spend their time in school, access to and availability of a variety of vegetable dishes in the school cafeterias or canteens should be promoted.

Keywords: *Adolescents food consumption, Vegetable Consumption, Vegetable dishes, Comparative analysis, Nutrition*

Journal of Human Ecology, Volume No. 2 Issue No. 2, 13-21
2012 July - December,
(Filipiniana Analytics)
Fil(S) GF1 C65

0514

Determinants of Chronic Energy Deficiency and Overweight/Obesity Among Non-Pregnant Mothers 19 Years and Older in the Philippines

Goyena, Eva A. , Valdeabella-Maniego, Ma. Lynell , Guirindola, Mildred O.

The study aimed to identify household and maternal characteristics associated with chronic energy deficiency (CED) and overweight/obesity among non-pregnant mothers 19 years old and above in the Philippines. Cross-sectional analysis of the “2011 Updating of the Nutritional Status of Filipino Children and Other Population Groups”, a nationwide nutrition survey conducted by the Food and Nutrition Research Institute of the Department of Science and Technology (FNRIDOST), was done using descriptive, bivariate and logistic regression analyses. Results showed that overweight/obesity prevalence (Body Mass Index/BMI) >25.0 kg/m²) was three-folds higher (31.2%) than CED (BMI <18.5) prevalence (10.0%). Single mothers (adjusted Odds Ratio/aOR 1.52, 95% CI=1.13-2.05), mothers with live-in status (aOR 1.39, 95% CI=1.15-1.66) and 19- to 29-year-old mothers (aOR 1.22, 95% CI=1.01-1.48) were more likely to have CED than their counterparts from other marital and age groups. On the other hand, the risk of becoming overweight/obese was found to be higher for mothers 40 years and older (aOR 1.26, 95% CI=1.06-1.50), had at least elementary education (aOR 1.23, 95% CI=1.04-1.45), from the richest wealth quintile (aOR 1.44; 95% CI=1.20-1.72) and from households with less than five members (aOR 1.17; 95% CI=1.05-1.32) than their counterparts in other age, educational attainment, wealth quintile and household size groups. The study provides evidence on the emerging double burden of malnutrition among Filipino mothers based on BMI classification. These findings may provide insights to strategies and advocacies that promote healthy lifestyle to improve the nutritional status of Filipino mothers. (**Author's abstract**)

Keywords: *Chronic energy deficiency, Double burden of malnutrition, Filipino mothers, Maternal health, Maternal undernutrition, Maternal overnutrition, Obesity, Overweight, Nutrition*

Philippine Journal of Science, Volume No. 146 Issue No. 1, 47-63
2017 March,
(Filipiniana Analytics)
Fil(S) Q1 P55 146/1 2017

Estimation of Grapefruit Juice Color Degradation from Physicochemical Properties and Thermal Inactivation Parameters of *E. coli* O157:H7

Gabriel, Alonzo A. , Ables, Errol John O. , Tiangson-Bayaga, Cecile Leah P.

This study established models that quantify and predict the influences of intrinsic properties soluble solids (SS, 2-70°Brix) and dilution rate (%D, 0-80% water added), and Escherichia coli O157:H7 inactivation- related extrinsic variables heating temperature (T, 47-97°C) and heating time (t, 0.5-60 min) on measured Commission Internationale de l'Eclairage (CIE) color space coordinates, and derived color parameters. The CIE L , a^* , and b^* , and respective differentials ΔL^* , Δa^* , and Δb^* were significantly influenced by the individual effects of SS and %D. All these color parameters except a^* and Δa^* were influenced by the quadratic effects SS^2 and $\%D^2$. Only b^* and Δb^* were significantly influenced by T. CIE $^{\circ}h^*$, $\Delta^{\circ}h^*$, C^* , ΔC^* , and $\Delta^{\circ}E^*$ were influenced by SS, D, SS^2 , and $\%D^2$. Only C^* and $\Delta^{\circ}C^*$ were significantly influenced by T, while $\Delta^{\circ}E^*$ was influenced by the interaction of SS and %D. Validations showed that models had estimated values falling within acceptable ranges. The established models may be used together with other food quality and pathogen inactivation models in heated fruit juices, for a more comprehensive control of food safety and quality. This is the basic guiding principle of 'Precision Food Processing,' which to the authors' knowledge is being introduced for the first time. (**Author's abstract**)

Keywords: *Color changes, Grapefruit juice, Precision food processing, Predictive model building, Thermal processing, Nutrition*

Philippine Journal of Science, Volume No. 146 Issue No. 1, 65-79
2017 March,
(Filipiniana Analytics)
Fil(S) Q1 P55 146/1 2017

Microbial hazards in street vended fishballs in the Philippines

Azanza, Patricia V.

Street vended deep-fried fishballs in the campus of the University of the Philippines, Diliman were shown to contain 103-104 cfu/g total plate counts (TPC),

Keywords: *Fishballs, Streetvending, Coliform, Salmonella, Nutrition*

The U.P Home Economics Journal, Volume No. Issue No. , 41-54
1998,
(Filipiniana Analytics)
Fil(S) TX165 A1 U3

Proceedings of the international Conference on Ecnutrition: the Nexus among human Nutrition, Ecology Agriculture and Economics.

Baina-Mariano, Recelyn I., Dela Vega, Ana Lorraine D., gonzales Pamela. A, Lalap, Belinda. A, Talavera, Ma. Ther

The institute of Human Nutrition and Food (IHNF) organized the 1st International Conference on Ecnutrition on July 4 to 5 2013. The goals of the conferences were to: (i) gather scientific information and experiences into an integrative body of knowledge gaps and issue on econutrition; (ii) set direction for policy, research and development, academic program,s and capacity building on econutrition; (iii) promote partnership linkages and collaborative work among different sector,civil society. food and nutrition practitioners , economist agriculturist, environmentalist, teachers, students, researchers, extention worker, community leaders and scientist who attended conference shared and disseminated state-of-the-art knowledge and ecperiences on econutrition and policy on econutrition and human health, agriculture and food production, environmental health and economic development and other econutrition-related topics. This report present the highlight of the lectures and discussion in the conference addressing econutrition in the different angles and deeper sense. The conference depicted the broad themes in econutrition and identified the issue and gaps in aid of setting the direction for policy research and development. academic or curricular program and capacity building on econutrition. Harmonized efforts as having one national nutrition program, one coordination mechanism, and one monitoring and evaluation framework with emphasis on achieving results are needed to address the challenges on econutrition.

Keywords: *ecnutrition , Nutrition , Health, Food, Nutrition*

Journal of Human Ecology, Volume No. 3 Issue No. 1, 65-75
2012,
(Filipiniana Analytics)
Fil(S) GF1 C65 3/1 2014

0518

New role of dietitians in legislation and public policy-making

Bongga, Demetria

Dietitians can play a very important role in the formulation of appropriate legal instruments, laws and public policies toward nutritional improvement. They can assist in generating needed information on the nature, magnitude and causes of the nutrition problem(s) through conduct of assessment or in-depth analyses. Survey results can guide decision-makers and program implementors in adopting appropriate interventions and in defining program targets. There is also an increasing expectation for dietitians to have more active participation in advocating for the enactment of relevant legislative acts or issuance of essential policies to sustain nutritional gains.

Keywords: *Dietitians, Public policies, Legislative acts, Nutritionist, Nutrition*

The U.P Home Economics Journal, Volume No. Issue No. , 35-40
1998,
(Filipiniana Analytics)
Fil(S) TX165 A1 U3

0519

Staling Control in Philippine Yeast Bread (Pandeshal) Using Hydrocolloids and Emulsifiers *Azanza, Maria Patricia V. , Estilo, Emil Emmanuel C. , Gabriel, Florenda S.*

The short 3-day shelf-life of Philippine yeast bread (*Pandeshal*) was extended by controlling staling and mold growth with antimicrobials, hydrocolloids, and emulsifiers, singly or in combination. Addition of combined antimicrobials 0.30% (flour basis, fb) calcium propionate and 0.10% (fb) potassium sorbate in a reference basal *Pandeshal* recipe controlled mold growth up to 5 d, but did not delay earlier onset of staling (4 d). Reformulations of the basal recipe with combined antimicrobials using the hydrocolloids pectin and xanthan gum (0.25% and 0.50% fb levels each) were able to control bread firming up to 5-6 d in addition to mold growth control. Incorporation of hydrocolloids produced denser breads marked by increased weight, specific volume, and moisture content. Treatment of 0.50% (fb) pectin of bread formulation with antimicrobials yielded the best results in terms of overall acceptability and longest shelf-life, and was used in the subsequent reformulation with emulsifiers. Addition of monoacylglycerol (MAG) and sodium stearoyl lactylate (SSL) (0.25% and 0.50% fb levels each) further delayed firming up to 7 d with mold growth generally limiting the shelf-life of *Pandeshal*. Incorporation of emulsifiers also improved bread volume and produced softer crumbs with 0.25% MAG yielding the best results. The compounded additives of 0.30% (fb) calcium propionate, 0.10% (fb) potassium sorbate, 0.50% (fb) pectin, and 0.25% (fb) MAG were found best to extend *Pandeshal* use-by date to a total of 7 d. **(Autnor's abstract)**

Keywords: *bread, pandeshal, pectin, staling, xanthan gum, Nutrition*

Philippine Journal of Science, Volume No. 145 Issue No. 1,
2016 March,
(Filipiniana Analytics)
Fil(S) Q1 P55 145/1 2016

0520

Survey among BNS supervisors on the implementation of PD 1569 in selected areas in the Philippines *Garcia, Lo*

The survey among BNS supervisors on the implementation of Presidential Decree (PD) 1569 "Strengthening the Barangay Nutrition Program by Providing for a Barangay Nutrition Scholar in Every Barangay, Providing Funds Thereof, and for other Purposes" was assessed through a survey completed by 178 out of the 209 trainers/supervisors of Barangay nutrition scholars (BNSs) who participated in the different batches of Training of Trainers on Basic Course for BNSs, but excluding those from the Autonomous Region of Muslim Mindanao. Almost all (98%) of the respondents' trainers/supervisors cited presence of at least one BNS in their areas of assignments. Other provisions of the law particularly those that relates to the recruitment/selection/hiring of BNSs, their benefits, trainings and supervision were also implemented but not consistent and were in varying extent. Overall, there is a need to introduce amendment to the law to strengthen the BNS program to further improve the nutrition situation in the Philippines. Priority should be given to standardizing qualifications, duties and benefits of BNSs and in implicitly citing the responsibilities of the local government

Keywords: *Nutrition*

Journal of Human Ecology, Volume No. 1 Issue No. 1, 39-57
2011 July - December,
(Filipiniana Analytics)
Fil(S) GF1 C65

Vegetable for the Filipino palate

Uichanco, Leopo

Vegetable production in Philippine home lots is not commonly done, except by school children, who have to keep a vegetable patch to satisfy their class requirement

Keywords: *Filipino palate, Vegetable production, Farm operation, Nutrition*

Philippine Geographical Journal, Volume No. 15 Issue No. 1, pages 4-9
1971,
(Filipiniana Analytics)
Fil(S) G1 P5

PHYSICS

AN AUTOMATED SYSTEM FOR THE PHILIPPINE PHYSICS JOURNAL

Rebusa, Ma. Lisa M.

The study mainly focused at designing and constructing an electronic system for the Philippine Physics Journal. It intended to create an electronic copy (e-copy) of the Philippine Physics Journal from Volume 1 to 38; design and construct a database where the e-copies can be stored; design and construct a graphical user interface where the users can interact with the system; and store all the journal files in the constructed database. All throughout the development of the system, Rapid Application Development technique is used by the researcher.

For the design of the database, two models are used such as Entity-Relationship Diagram (ER-D) and Relational Model. The database was constructed in MySQL server 5.7.17. For the graphical user interface, the pseudocode is used as a design model. HTML, JavaScript, and PHP are used in the construction, on the other hand. After creating the e-copies, the researcher had individually stored the files in the constructed database through the use of the constructed interface. There are 28 volumes of Philippine Physics Journal and 355 articles stored in the database. **(Author's abstract)**

Keywords: *Electronic copy, Rapid Application Development technique, Entity-Relationship Diagram (ER-D), Relational Model, Physics*

Philippine Physics Journal, Volume No. Issue No. , 170-182
2018,
(Filipiniana Analytics)
Fil(S) QC1.P6 P45 vol. 40 2018

AN INEXPENSIVE METHOD IN DETERMINING THE INDEX OF REFRACTION OF WATER

Escalante, Nelly Liezl , King, Bryan Vincent , Lee, Maria Lourdes Anne

Determining the index of refraction of water does not require expensive equipment. This study explores determining the index of refraction of water using readily available materials which include a PVC sheet, laser pointer, string, and an ordinary protractor, and the steps can be easily replicated especially in classrooms without access to high-end equipment. **(Author's abstract)**

Keywords: *PVC sheet, Laser pointer, String, Protractor, Physics*

Philippine Physics Journal, Volume No. Issue No. , 112-115
2018,
(Filipiniana Analytics)
Fil(S) QC1.P6 P45 vol. 40 2018

0524

BENILDEAN INDUSTRIAL DESIGN STUDENTS' TREATMENT ON UNCERTAINTY OF MEASUREMENT

Pazon, Andy Nestor Ryan

Uncertainty of measurement is a concept which appears in physics learning in many forms. This classroom action research elicits students' conceptions on uncertainty of measurement; discusses students' treatment and practices on measurement using error analysis as one of the possible alternative solutions, and students' belief about measurement uncertainty. This study was conducted to thirty (30) BS Industrial Design Second Year Students enrolled in Nat Sci 14 (General Physics). Students were asked to construct a balloon-powered toy car given a standard mechanics for their design. Student outputs were compared to their planned designs and measurements were taken from their outputs. After the activity, the students were asked to answer a modified Physics Measurement Questionnaire (PMQ) to further elicit their understanding, practices and beliefs on uncertainty of measurement. This study showed that students were not concerned in reporting the uncertainties in measurement; they often make arbitrary judgments between estimation and uncertainty of measurement; incorrect reporting of data with the use of significant figures; and failure to identify sources of errors. **(Author's abstract)**

Keywords: *Uncertainty, Precision, Point diagram, Set diagram, Design, Physics measurement, Physics*

Philippine Physics Journal, Volume No. Issue No. , pages 8-20
2018,
(Filipiniana Analytics)
Fil(S) QC1.P6 P45 vol. 40 2018

0525

Characterization of Radiocesium Levels and Fractions of ^{137}Cs in Soil Collected from Oguni, Date Using Manual and Instrument Software Calculation Based on Covell Method

Jagonoy, Arvin M. , Tsukada, Hirofumi

Two core soil samples were collected from Oguni, Date which is located 55 km northwest from the Fukushima Daiichi Nuclear Power Plant accident area to determine the levels of radiocesium using High Purity Ge detector. Radiocesiums are toxic and a major component of nuclear reactions. The total levels of radiocesium in core soil samples for ^{134}Cs is around 34,000 Bq/m² and around 160,000 Bq/m² for ^{137}Cs . While for the top layer sample of 0-5 cm for ^{134}Cs is around 20,000 Bq/m² and around 100,000 Bq/m² for ^{137}Cs which is much lower compared to the first record (14 June 2011) of radiocesium deposition of about 300,000 Bq/m² at Oguni area. In general, the manual and instrument software calculated results for radiocesium levels showed relative standard deviation of less than 5% for both core samples. The fractions of ^{137}Cs in the top layer soil of the two cores were analyzed and the results were 5 and 3.9% for Fraction I (Exchangeable), 7.1 and 6.4% for Fraction II (Bound to organic matter), and 87.9 and 89.7% for Fraction III (Strongly bound). Compared this result with the previous study done on ^{137}Cs fractions in soil around Oguni area agreed with the observation on its behavior that on a relatively undisturbed soil Fraction I tend to decrease, while Fraction III will increase, and Fraction II will have almost the same percentage value. **(Author's abstract)**

Keywords: *^{137}Cs fraction, Covell method, FDNPP, Oguni, Radiocesium, Soil, Physics*

Philippine Journal of Science, Volume No. 146 Issue No. 2, 193-199
2017 June,
(Filipiniana Analytics)
Fil(S) Q1 P55 146/2 2017

0526

COEFFICIENT OF FRICTION OF SOME WOOD SAMPLES TAKEN FROM TANJAY CITY, NEGROS ORIENTAL

Catipay, Mary Ann Ybasan , Maxino, Gerardo C.

The coefficients of friction along and across the grain between each of thirty wood samples and each of Gemelina (*Gmelina Arborea*), Mahogany (*Swietenia mahogani*), and Santol (*Sandoricum kaetjape*) were measured using locally-constructed apparatus. The wood samples were taken from Tanjay City, Negros Oriental. Along the grain, the average value of kinetic (sliding) friction between each of the thirty samples and each of Gemelina and Santol is 0.22. That for Mahogany is 0.23. Across the grain, the average value of kinetic (sliding) friction between each of the thirty samples and Gemelina and Santol is 0.26. That for Mahogany is 0.24. The average coefficient of static friction along the grain between each of the thirty samples and Gemelina is 0.49; for Santol, 0.45; and for Mahogany, 0.41. Across the grain, the average coefficient of static friction between each of the thirty samples and Mahogany is 0.46 while those for Gemelina and Santol are 0.50 and 0.51, respectively. **(Author's abstract)**

Keywords: *Gmelina Arborea, Swietenia mahogani, Sandoricum kaetjape, Physics*

Philippine Physics Journal, Volume No. Issue No. , pages 21-30
2018,
(Filipiniana Analytics)
Fil(S) QC1.P6 P45 vol. 40 2018

0527

COMMUNITY STREET NOISE TAKEN FROM FIVE CITIES OF NEGROS ORIENTAL

Enguito, Mitchebelle P.

This research was primarily conducted to measure community street noise in five cities of Negros Oriental; namely, Dumaguete City, Tanjay City, Bais City, Guihulngan City, and Bayawan City.

There were five sites in each city, yielding a total of 25 sites in all. The apparatus used in gathering the sound pressure level was a Sound Pressure Level Meter and data on traffic density was obtained by counting the number of motorized vehicles passing a point on the road per unit time. Three trials were taken in every site at the same spot and each trial was done for one minute of observation.

Dumaguete City has the highest measured sound pressure level of 73.24 dB followed by Tanjay City with 72.48 dB, Bayawan City with 72.22 dB, Guihulngan City with 72.16 dB and Bais City which has the lowest sound pressure level of 70.88 dB. In traffic density Dumaguete City has the highest with 44 vehicles/min followed by Tanjay City with 26 vehicles/min, Bais City with 22 vehicles/min, Bayawan City with 20 vehicles/min and Guihulngan City which has the lowest traffic density of 18 vehicles/min. (**Authors' abstract**)

Keywords: Sound pressure level meter, Density, Noise pollution, Physics

Philippine Physics Journal, Volume No. Issue No. , 85-96
2018,
(Filipiniana Analytics)
Fil(S) QC1.P6 P45 vol. 40 2018

0528

Detected Communities and Structure in the NGO Co-funding Networks of PDAF Releases from 2007-2009

Sison, Gabriel Dominik , Pasion, Pamela Anne , Tapang, Giovanni Alarkon

Using network theory, the researchers visualize and analyze relationships that can be found in the Priority Development Assistance Fund (PDAF) allocation from the released 2012 report of the Commission of Audit (COA). Strong community structure was seen in the legislator-legislator co-funding network and NGO-NGO co-funding network as indicated by the high values of modularity, 0.5 and 0.4 respectively. Also, communities in the legislator-legislator network do not correspond to parties but they do try to incorporate members of the ruling party. (**Author's abstract**)

Keywords: Complex systems, 89.75.-k, Social systems 89.65.-s, Physics

Philippine Journal of Science, Volume No. 147 Issue No. 3, 383-392
2018,
(Filipiniana Analytics)
Fil(S) Q1 P55 147/3 2018

EFFECTIVENESS OF FLIPPED TEACHING IN 1CL MIDSHIPMEN/WOMEN ACADEMIC PERFORMANCE IN THERMODYNAMICS

Quilla, Christine C.

The main concern of this study is to determine the effectiveness of flipped teaching in the academic performance in thermodynamics of 1Cl midshipmen/women. This study used a quasi-experimental design for two non-equivalent groups with pre-test and post-test as its research instruments. Frequency and percentile, t-Tests, and linear regression using SPSS 20 were used to analyze gathered data of one-hundred one (101) student-respondents.

Results of the study showed that there is a significant difference in the academic achievement of the traditional method group and the flipped method group at $\alpha=0.05$ significant level. With a computed t-value of 7.03 at $\alpha=0.05$, the results showed that there is a significant difference in the Hake's gain performance between the two groups and that flipped method is more effective in improving the academic performance of students as compared to the traditional method.

Based on the findings, researchers recommended to encourage the use of flipped method as an alternative in teaching thermodynamics, consider the use of flipped method in teaching other subjects, and teachers should increase their knowledge of various instructional strategies in order to keep the students engaged and motivated throughout the learning process. (**Authors' abstract**)

Keywords: *Flipped teaching, Thermodynamics, Academic performance, Maritime education, Philippines, Physics*

Philippine Physics Journal, Volume No. Issue No. , 64-70
2018,
(Filipiniana Analytics)
Fil(S) QC1.P6 P45 vol. 40 2018

FARADAY'S LAW: FROM EXPERIMENT OR DEDUCTION?

Glover. Francisco

In current college-level Physics textbooks Faraday's Law is presented as the results of numerous verifiable experiments. However, it may also be considered as a logical deduction from the properties of the magnetic field. A presentation of both approaches may be a benefit to the student's deeper understanding of Physics. (**Author's abstract**)

Keywords: *Symmetry in electrostatics, Haversine function, Visual learning, Physics*

Philippine Physics Journal, Volume No. Issue No. , pages 1-3
2018,

Interaction Between Plasma and Tungsten Carbide Thin Films Coated on Stainless Steel as Tokamak Reactor First Wall

Jafar, Azadeh , Fayaz, Vahid , Meshkani, Sakineh , Terohid, S. Ali Asghar

The physical properties of tungsten carbide (WC) thin film as a first wall material when it is exposed to the plasma of tokamak was studied in this research. In this regard, WC thin film was formed on grade 316L stainless steel – via the hot filament chemical vapor deposition method – to the sample installed on Iran tokamak 1 chamber and exposed to 300 shots of hydrogen plasma for a total duration of 11 s. For investigation of hydrogen plasma effects on morphology, crystalline structure properties, and roughness of the sample, X-ray diffraction (XRD), scanning electron microscopy, X-ray photoelectron spectroscopy, atomic force microscopy, and Raman spectroscopy analysis was performed. The experimental setup described and micrographs of the surfaces are shown. XRD analysis of WC thin film coated on stainless steel before and after plasma shots shows the changes in crystal structure. Based on the scanning electron microscopy images, it can be concluded that plasma exposure has created some cracks, holes, and lines. Also, the roughness of the sample after plasma shots decreased and it was observed that the thickness of WC thin film coated on stainless steel is reduced after plasma shots were introduced. Moreover, the weight loss of the uncoated sample was higher in comparison to the coated one. Finally, WC coating on the first wall of fusion device looks promising, but several open questions still remain to be solved. **(Author's abstract)**

Keywords: *First wall, Scanning electron microscopy, Thin film, Tokamak, Tungsten carbide, X-ray diffraction , Physics*

Philippine Journal of Science, Volume No. 147 Issue No. 3, 537-543
2018 September,
(Filipiniana Analytics)
Fil(S) Q1 P55 147/3 2018

LOCALLY-CONSTRUCTED APPARATUS FOR REFLECTION AND REFRACTION OF LIGHT EXPERIMENTS

Tubog, Ryan G. , Pinero, Brando A.

The apparatus consists of two pieces: a 5mm Clear Blue LED used as light source with a housing especially designed to produce a fine stream of light for accurate readings and a one-mm thick vertically-mounted mirror. **(Author's abstract)**

Keywords: *Reflection, Refraction, LED light, Physics*

Philippine Physics Journal, Volume No. Issue No. , 104-111
2018,
(Filipiniana Analytics)
Fil(S) QC1.P6 P45 vol. 40 2018

MEASUREMENT OF SPECIFIC HEAT CAPACITY OF SOME CONSTRUCTION MATERIALS

Mapola, Annalou N.

This study aimed at designing and constructing a locally inexpensive calorimeter apparatus and test its reliability and accuracy. There were 11 samples that were used in the study: sand, pebbles, Nails, gravel, cement, hollow blocks and bricks (broken into small bits), GI sheets and wood (cut into small pieces), glass, aluminum. The specific heat of the samples was determined and measured using the self-constructed apparatus.

The accuracy and reliability of the apparatus was tested by obtaining the latent heat of fusion of ice and comparing the experimental value to the theoretical value. Statistical test was used to determine reliability. The method of mixture was used to measure the specific heat of the samples.

The result showed that the self-constructed apparatus was reliable and accurate enough with the average percent error of 1.80% and standard deviation of 1.85 and relative deviation with respect to the mean of 2.3% . The values of the specific heat obtained were found to be close to the values obtained in a previous study dealing with the same category of construction materials. (Authors' abstract)

Keywords: *Sand, Pebbles, Nails, Gravel, Cement, Hollow blocks, Bricks, GI sheets, Wood, Glass, Aluminum, Physics*

Philippine Physics Journal, Volume No. Issue No. , 97-103
2018,
(Filipiniana Analytics)
Fil(S) QC1.P6 P45 vol. 40 2018

MEASUREMENTS OF ELECTRICAL CONDUCTIVITY, SALINITY, TOTAL DISSOLVED SOLIDS, AND PH OF SEAWATER IN SELECTED AREAS OF CEBU AND MACTAN

Mirhan, Jerrica , Mirhan, Jamaica , King, Bryan Vincent , Lee, Maria Lourdes Anne

The study focuses on measuring the electrical conductivity (EC), total dissolved solids (TDS), salinity, and pH of sea water samples collected in selected parts of Cebu and Mactan. While pH values were within the acceptable range, EC, TDS, and salinity value for some samples showed significant difference from the accepted values. (Author's abstract)

Keywords: *Electrical conductivity (EC), Total dissolved solids (TDS), Salinity, pH of sea water, Physics*

Monte Carlo N-Particle Transport Code Simulation of Leksell Gamma Knife Using Disk Sources of Polystyrene, PMMA, Plastic Water and Head Phantom

Perianes, Ma. Vanessa Francheska P. , Villanueva, Doreen Alexis F. , Dungao, Jade R.

Stereotactic Radiosurgery (SRS) has become a standard modality for the treatment of benign and metastatic brain lesions that were deemed medically unsuitable for surgery. The Leksell Gamma Knife (LGK), a type of SRS that was used in this study, has 201 Cobalt-60 sources distributed in a hemisphere whose radiation intersects at the isocenter. The relative dose at the isocenter was verified using Monte Carlo N-Particle Simulation (MCNP). This study uses disk sources, an alternative for the full geometry collimator system of the LGK, to simulate a 160-mm water phantom made of different materials: polystyrene, plastic water, and PMMA (Polymethyl methacrylate). In addition, the simulation of a head phantom was also included in this study. Relative dose distributions were calculated and were compared to the relative dose distributions from the cited literatures. As a result, no significant differences have been found. In conclusion, the use of disk sources provides a simpler method of simulating the LGK instead of using the full geometry collimator system in the MCNP Visual Editor. (**Author's abstract**)

Keywords: *External beam radiotherapy, Leksell Gamma Knife, MCNP, relative dose distribution, treatment planning, Physics*

PHYSICAL PROPERTIES OF WATER SAMPLES FROM INLAND BODIES IN CENTRAL AND SOUTHERN NEGROS ORIENTAL

Gutierrez, Dan Ryan Bacamante

This study aimed to determine some physical properties of water samples taken from inland bodies of water of the second and third districts of Negros Oriental that had been considered as top tourist destination sites by the Provincial Tourism Office. The study also aimed to construct inexpensive pieces of apparatus; namely, Volume Expansion Apparatus and Conductance Meter Apparatus, and test their accuracies and reliability using distilled water. Furthermore, it also sought to obtain the values of the following properties: Density, Boiling Point, Index of Refraction, Coefficient of Volume Expansion, and Electrical Conductivity. Water samples were taken: from Niludhan Falls in Brgy. Dawis, Bayawan City, Mabinay Spring in Poblacion, Mabinay, Lake Balanan in Sitio Balanan, Brgy. Sandulot in Siaton, Twin Lakes Balinsasayao and Danao in Sibulan, and Tejeros Resort, Forest Camp Resort, Casaroro Falls, and Pulangbato Falls in Valencia City. In the spectre of climate change the values obtained will serve as valuable baseline data for indicators of change.

The water samples' index of refraction ranges from 1.32 to 1.34. The density ranges from 1.00 g/cm³ to 1.01 g/cm³. Boiling point ranges from -94.56 °C to 96.55 °C higher than that of distilled water which is 92.51 °C at the same laboratory conditions. The coefficient of volume expansion ranges from 277.668 (1 x 10⁻⁶ /C°) to 342.646 (1 x 10⁻⁶ /C°). The conductance ranges from 1.085 (1 x 10⁻⁰³ S/m) to 4.498 (1x10⁻⁰³ S/m). Distilled water's conductance was 5.28 (1 x 10⁻⁰⁶ S/m).

(Authors' abstract)

Keywords: *Volume expansion apparatus, Conductance meter apparatus, Density, Boiling point, Index of Refraction, Coefficient of volume expansion, Electrical conductivity, Physics*

Philippine Physics Journal, Volume No. Issue No. , 71-84
2018,
(Filipiniana Analytics)
Fil(S) QC1.P6 P45 vol. 40 2018

0537

Pupal Eye Color of *Bactrocera philippinensis* (Drew & Hancock) as Tool for Radiation Sterilization

Resilva, Sotero S. , Obra, Glenda B.

This paper reports on the documented pupal eye color of Philippine fruit fly *Bactrocera philippinensis* at different holding temperatures. In holding mature larval samples at 28 (standard holding temperature), 25, 19, and 15 °C, the development of pupae were 10, 13, 22, and 37 days, respectively. Holding pupae at lower temperature delays pupal development and slows down progression of daily eye color changes. This is very important in manipulating pupal development especially when uncontrolled problems occur during Sterile Insect Technique (SIT) operations. The recommended timing of pupal irradiation for *B. philippinensis* at 28 °C is at two days before adult emergence, where the pupae are 7-day old and the eye color is yellowish brown. Using this eye color as the reference guide for irradiation of pupae, the right age when held at 25, 19, and 15 °C was 9, 15-16, and 25-28 days old, respectively. Documented and close-up photograph of pupal eye color can be used as a reference guide to determine the best time for the irradiation of pupae in an SIT program. **(Author's abstract)**

Keywords: *Bactrocera philippinensis, Insect Technique, Philippine fruit fly, Pupal Eye Color, Sterile, Physics*

Philippine Journal of Science, Volume No. 145 Issue No. 2, 139-151
2016 June,
(Filipiniana Analytics)
Fil(S) Q1 P55 145/2 2016

0538

RADIOLOGICAL CHARACTERIZATION OF PHILIPPINE RESEARCH REACTOR-1 TRIGA FUEL STORAGE TANK

Astronomo, A. A. , Gatchalian, R. E. , Hila, F. C. , Jecong, J. M. , Garalde, A. M. , Romallosa, K. D.

The slightly irradiated TRIGA nuclear fuel rods of the Philippine Research Reactor-1 has been in storage for about three decades. Recently, it has been decided to reuse these fuel rods in a subcritical reactor assembly (SCA) to augment

declining expertise in nuclear science and technology. An important prerequisite for this project is the radiological characterization of the fuel rods in its current state. In this work, we performed radiological characterization of the TRIGA fuel storage tank via radiation monitoring, gamma spectrometry and neutron flux measurements. Radiation monitoring provided a dose map to estimate the potential exposure of personnel who will be working around the storage tank. Gamma spectrometry was performed to identify unknown radionuclides in the storage tank while neutron flux measurements were conducted to confirm the presence of a neutron source. Results obtained from this work were used as a basis in planning the succeeding activities in the implementation of the SCA project. (**Author's abstract**)

Keywords: Radiological characterization, Foil activation, Gamma spectrometry, TRIGA nuclear fuel, Physics

Philippine Physics Journal, Volume No. Issue No. , pages 56-63
2018,
(Filipiniana Analytics)
Fil(S) QC1.P6 P45 vol. 40 2018

0539

A REVIEW OF SELECTED LITERATURE ON FILIPINO STUDENTS' ALTERNATIVE CONCEPTIONS OF FORCE AND MOTION

Soldivillo, Josh

The primary commitment of this paper is to review some of the studies which used the Force Concept Inventory (Hestenes, Wells, & Swackhamer, 1992) to determine Filipino students' conceptions on force and motion. The review juxtaposes the significant findings of the studies and summarizes the alternative conceptions identified so far and the possible causes of these conceptions. This paper therefore would be beneficial for researchers, curriculum planners, and teachers in Philippine science education. (**Author's abstract**)

Keywords: Alternarive conceptions, Force, Motion, Force Concept Inventory, Physics

Philippine Physics Journal, Volume No. Issue No. , 122-130
2018,
(Filipiniana Analytics)
Fil(S) QC1.P6 P45 vol. 40 2018

0540

SMART PHONE-BASED SENSOR ACTIVITY IN TEACHING GRAVITATIONAL ACCELERATION FOR JUNIOR HIGH SCHOOL

Canono, Lee Castor I.

This research study presents a way to determine the acceleration due to gravity of a uniformly accelerated linear motion by a free fall body using Android application in the smart phone-based acceleration sensor used in teaching Junior high school level. This is done by suspending the smart phone at a determined height and releasing it by cutting the string. The smart phone fell freely for a period of time and landed on a cushion surface, thus stopping its motion. The Android app Sensor Kinetics Pro detects the changes in its position from the smart phone's acceleration sensor and records the fall time, thus the

value of the Earth's acceleration due to gravity was obtained. The smart phone in this experiment serves as the falling body and as the electronic gauge in determining the free fall time. (**Author's abstract**)

Keywords: *Smart phone, Gravitational acceleration, Android application, Linear motion, Physics*

Philippine Physics Journal, Volume No. Issue No. , 140-144
2018,
(Filipiniana Analytics)
Fil(S) QC1.P6 P45 vol. 40 2018

0541

SOUND TRANSMISSION THROUGH SOME WOOD SAMPLES

Losanoy, Jei Ann Silvano

In this study, the researcher constructed a sound transmission apparatus, designed an experiment guide and performed experiments on determining the sound transmission through some wood samples of three different thicknesses; namely, 1.0 cm, 1.5 cm and 2.0 cm.

The equipment used consisted of the sound transmission apparatus itself, a loudspeaker, sound-level meter and a Lenovo Ideapad 100-laptop with an application of Audacity 2.0.6. The laptop was used as the frequency generator. The time-weighting used for the sound level meter was fast response, measuring level range was low and frequency weighting was C- weighting. The wood samples used in the study were Kube, Mahogany, Gemelina, Kasay, Narra, Santol, Ipil-ipil, Dol-dol, Lawaan, Balayong, Mangga, Siko, Alinsolang, Manguim, Sambag, Tugas, Lubi, Nangka, Chicas, and Boto-boto.

The results showed that at the frequency of 500 Hz, sound transmission values were at thicknesses, *Dol-dol* showed higher sound transmission among other wood samples. *Balayong* had low sound transmission at 500 Hz as compared to the rest of the samples.

(**Authors' abstract**)

Keywords: *Wood, Dol-dol, Balayong, Physics*

Philippine Physics Journal, Volume No. Issue No. , 158-169
2018,
(Filipiniana Analytics)
Fil(S) QC1.P6 P45 vol. 40 2018

0542

Structural and Optical Characterization of Electrochemically-etched Porous Silicon

Lopez, Jr., Lorenzo P. , Faustino, Maria Angela B. , Saplagio, Niel Gabriel E. , Mabilangan, Arvin I. , Cabello, Neil Irvin F. , Gonzales, Rhona Olivia M. , Salvador, Arnel A. , Somintac, Armando S.

This study have investigated the structural and optical properties of porous silicon on silicon substrate and of free-standing porous silicon layers. Porous silicon samples were fabricated through electrochemical etching of boron doped silicon wafer in 12% HF solution. For pore formation, current densities of 1.875 mA/cm², 5 mA/cm², and 15 mA/cm² were applied to vary the porosity of the samples. To lift the porous silicon layer off the silicon substrate, an abrupt increase to 31.25 mA/cm² was supplied at the end of pore formation. The porosities were calculated using Bruggeman effective medium approximation yielding 37.08 %, 76.12%, and 89.25%. Broadening of Raman and x-ray diffraction peaks was observed with increasing porosity, and is attributed to the increase of strain/stress present in porous silicon. The absorbance was calculated from the reflectance and transmittance of the samples, and was found within the range of the full-width-at-half-maximum of the photoluminescence spectrum. Surface states model was used to explain the mechanism of visible luminescence of the porous silicon samples. **(Author's abstract)**

Keywords: *electrochemical etching, optical measurements, porous silicon, structural characterizations, thin film, Physics*

Philippine Journal of Science, Volume No. 145 Issue No. 1, 9-15
2016 March,
(Filipiniana Analytics)
Fil(S) Q1 P55 145/1 2016

0543

TEMPERATURE AND RAINFALL PATTERNS OF PINDAHAN, TAYASAN AS COMPARED TO THOSE IN PAGASA-SIBULAN STATION AND BAGACAY, DUMAGUETE CITY, NEGROS ORIENTAL

Teves, Jossa Benaloga

This study aimed to determine the temperature and rainfall patterns of Pindahan, Tayasan, Negros Oriental. It uses simple but reliable and less expensive meteorological equipment: the locally-constructed raingauge and thermometer housing. The gathered temperature and rainfall data were compared to those in PAGASA-Sibulan and Bagacay, Dumaguete City, Negros Oriental.

Temperature and rainfall data were gathered for a period of twenty (20) months which started from May 1, 2015 and continued until December 31, 2016. Results of the study show that PAGASA-Sibulan Station could not represent Pindahan in both temperature and rainfall patterns. Meanwhile, at the last quarter of the year 2015, PAGASA and Bagacay Stations provided differences in rainfall patterns, the first occurrence of differences in rainfall patterns between these two sites. **(Authors' abstract)**

Keywords: *Temperature, Rainfall patterns, Raingauge, Thermometer, Physics*

Philippine Physics Journal, Volume No. Issue No. , pages 31-55
2018,
(Filipiniana Analytics)
Fil(S) QC1.P6 P45 vol. 40 2018

0544

THE NEUTRON DOSE DISTRIBUTION OF A 15 MEGA-ELECTRO VOLT OF ENERGY IN A MEDICAL LINEAR ACCELERATOR WITH DIFFERENT TYPES OF SHIELDING MATERIAL USING PHITS SIMULATION

Valledor Ralfp J.J. , Velasco, Cyrus V. , Luna, Reynold V.

The simulation uses the type Siemens KDS medical linear accelerator. Using radiation shielding mainly concrete mixture, iron (Fe), tin (Sn), and polyethylene, the types of materials will determine if the neutron radiation's dose will be absorbed by a 10 centimeter thickness of wall . The obtained results are compared and it was observed that me higher the atomic number a component of materials have, the greater its capability to block the x-rays produced by the source and the lower the material's density is, mainly with hydrogen component, the greater its capability to absorb neutron radiation. The results have been presented in the form of images and graphs using PHITS simulation that provides clear conclusion. **(Author's abstract)**

Keywords: *Linear attenuation, Radiation, Medical, Neutron, Monte Carlo, Physics*

Philippine Physics Journal, Volume No. Issue No. , pages 131-139
2018,
(Filipiniana Analytics)
Fil(S) QC1.P6 P45 vol. 40 2018

0545

UNDERSTANDING URBANIZATION AND TEMPERATURE OF THE CITIES

Oliveros, Jervie M. , Vallar, Edgar A. , Galvez, Ma. Cecilia

Three cities; namely, Cebu City, Davao City and Manila City; were considered as highly urbanized cities in the Philippines. These cities are undergoing fast urbanization due to migration from rural areas. In addition, land use was shifted from vegetation to high rise commercial and residential buildings. These changes in both population density and land use greatly alter the weather of the city.

Studies show that urbanization greatly affects local weather particularly temperature and heat flux. Due to this, the researchers investigated the effect of urbanization on diurnal temperature and heat flux of selected cities. The meteorological parameters of the three cities were generated by Weather Research and Forecasting Model (WRF).

Result revealed the variations of minimum and maximum temperatures of the three cities. Due to limited resources, time series analysis and its correlation to urban geometries and build-up area density will be investigated in the future. **(Author's abstract)**

Keywords: *Urbanization, Weather, WRF, Physics*

Philippine Physics Journal, Volume No. Issue No. , 145-149
2018,
(Filipiniana Analytics)
Fil(S) QC1.P6 P45 vol. 40 2018

WHAT IS MAGNETISM

Glover, Francisco

From the Coulomb force interaction between a pair of long, straight, charged parallel conductors and the Lorentz contraction of Special Relativity, the magnetic force interaction between a pair of long straight parallel currents may be shown to logically follow. Since these three interactions are already treated in separate chapters in present day college Physics texts, it is suggested that showing explicitly their interconnection would be beneficial to a student's deeper understanding of basic Physical concepts. (**Author's abstract**)

Keywords: *Magnetism, Coulomb force, Magnetic force, Physics*

Philippine Physics Journal, Volume No. Issue No. , pages 4-7
2018,
(Filipiniana Analytics)
Fil(S) QC1.P6 P45 vol. 40 2018

SCIENCE AND TECHNOLOGY

Basic health services and population growth

, Romualdez, A

The continued high rate of population growth in the Philippines has serious consequences for basic health service delivery in terms of cost and quality. The estimated 2,000,000 Filipino babies added to the population each year will require added resources for immunization, disease control, and hospital services at all levels. Given the fact that the highest fertility rates are among the poorest 40% of the population, it is expected that service demands will be greatest in government facilities that are even now struggling to maintain service quality while dealing with more clients. Conversely, improvements in basic health services can potentially reduce population growth rate by its influence on fertility rates. Improved MCH is known to be associated with lower fertility as child survival improvements. More directly, an aggressive family planning program that makes available all modalities for fertility regulation and prevention of unplanned or unwanted pregnancies will help couples to attain desired reduced family sizes. A population policy that advocates a two-child family to increase contraceptive prevalence, promotes appropriate family planning methods to achieve an ideal contraceptive method mix, and encourages private sector collaboration can reduce total fertility rate to the replacement rate of 2.1. If this rate is achieved within four or five years, the Philippines can realistically hope to reduce population growth rate to manageable levels and even target zero population growth by the year 2025 or soon after.,

Keywords: *Population growth, Basic health service, Fertility, MCH, Family planning methods, Science and technology*

National Academy of Science and Technology, Volume No. 25 Issue No. 1, page 3
2003, July,
(Filipiniana Analytics)
Fil.(S) Q149 PSN25 25/1 2003

Burdensome heritage and insistent future: Teaching social anthropology in the Philippines

We must concede, however, that Western psychology, like anthropology, is slowly but progressively ridding itself of its meta theoretical biases. Freud was Austrian, and Skinner, American; but does Freud's psychology suit Austrians alone, and Skinnerianism Americans alone? (I have heard that some Indian anthropologists are eminently comfortable with Western theory, but they come from highly Britishized ghettos.) This sense of discomfort is healthy. From the perspective of philosophy of science, Enriquez seems to lean towards existential phenomenology. It would be absurd to suggest that we here should wait until Western science has completely rid itself of these biases, if such is possible. Western theory is tainted by the cultural hues of its metatheory. The fact remains, however, that Western theory is tainted by cultural bias.

Keywords: *Science and technology*

Agham-Tao, Volume No. 1 Issue No. 1, pages 9-20
1978, December,
(Filipiniana Analytics)
Fil.(S) GNI A39

Competitiveness in education , *Vea, Academician Re*

The information technologies (IT), globalization, and the movement towards knowledge-based economies are the major forces now pushing and pulling at the Philippine educational system. Amidst such an environment, Philippine engineering and technology schools must directly compete for students, faculty, research funding and outsourced services against other schools in the world and even against foreign-owned schools on Philippine soil. At the same time the schools must support the efforts to make the Philippine economy globally competitive not only by supplying properly-educated human resources but also by supplying new knowledge and applying such knowledge successfully. The competitiveness of Philippine technological education ultimately lies in the volume and the quality of its intellectual capital as reflected in its curricula, faculty qualifications, scholarly works, R & D outputs and its technical extension services to the community and industry. While it may be argued that the academic degree programs in leading schools are at par with those of other countries, it would be difficult, if not impossible, to make a case for research capabilities. Philippine schools have a lot of catching up to do. The generally weak economy constrains capability-building. Students and their families cannot afford to pay the level of tuition, nor can government afford to allocate the resources, necessary for the schools to attain world-class quality in instructions, not to mention research. The "economics" of paucity of resources is a bit involved because education can be a savior as much as it is a victim of the general economic condition. How may this vicious cycle be disrupted? Philippine technological schools can be a savior if they are able to smartly handle the opportunity presented by the country's comparative advantages, in IT-related fields, for example. But any attempts at improving competitiveness must reckon with the predominantly privately-owned nature of Philippine education. The government, for its part, has recently relaxed the regulatory environment. It is entirely up to the schools to squander or make good use of the newfound freedom.

Keywords: *globalization, knowledge-based economies, competitiveness, Philippine education, technological education, Science and technology*

National Academy of Science and Technology, Volume No. 25 Issue No. 1, page 17
2003, July,
(Filipiniana Analytics)

Competitiveness in R&D *, Sabularse, R*

In today's globalizing economies, both the developed and developing countries acknowledge the importance in investing on education and manpower resources to propel economic growth. The country's state of industrialization and economic growth entails a corollary demand for highly skilled manpower including scientists and researchers to bring the desired progress. In line with the need to develop human resource in science and technology, the Department of Science and Technology (DOST), particularly through the Philippine Council for Industry and energy Research and Development (PCIERD), has been stimulating and supporting research activities in identified priority areas. Linkages among the academe, industry and government agencies have been strengthened to effectively carry out programs and projects.

Keywords: *competitiveness, ndustrialization, ST programs, Science and technology*

National Academy of Science and Technology, Volume No. 25 Issue No. 1, page 16
2003, July,
(Filipiniana Analytics)
Fil(S) Q149 P5N25 25/1 2003

Controlled-Release Fertilizer (CRF) for Lahar Affected and Coarse-Textured Agricultural Soils *, Aganon, CI*

Pyroclastic deposits emitted by Mt. Pinatubo in 1991 are currently being utilized as a medium for crop production, however, since lahar deposits are considered marginal due to poor physico-chemical properties, low yield, high input requirement and high nutrient losses became a consequence. Production and testing therefore of a new fertilizer material suitable to overcome nutrient losses resulting from the coarse textured characteristics of the deposits were undertaken. Specifically, it aimed to determine the physical and chemical properties of coarse textured soil and lahar deposits, determine the release pattern and percent release of fertilizer nutrients from controlled release fertilizers (CRF), measure crops response to controlled release fertilizer and evaluate/identify advantages and constraints to CRF usage in both coarse textured soil and lahar deposit. The depth of lahar deposition ranged from 60 cm to more than 150 cm. Soil texture is mostly sandy clay loam with low water holding capacities and low available water (3.53 - 22.7%). Soil temperature can also go as high as 65 to 70°C during summer months. The deposits are strongly (pH 4.35) to slightly acidic (pH 6.7) with very low total N, adequate P and highly variable amount of exchangeable K ranging from deficient to adequate. Sulfur content is high which poses HS toxicity particularly to more sensitive crops such as rice and mungbean. Since lahar soil texture is mostly sandy clay loam, rapid percolation of water and leaching of nutrient particularly nitrogen and potassium are highly possible. Using soil medium, the formulation released all its N content under submerged condition at 45 DAI. Not all the N in complete fertilizer was released in lahar deposit under submerged condition even beyond 85 DAI. Phosphorus and potassium remaining in coated complete fertilizer though did not reach zero level, was much lower in submerged compared to upland condition at 65 DAI. A slower rate of K release was observed in mineral media compared to pure water. In the case of muriate of potash, a linear behavior of K released exist both under upland and submerged condition. Using CRF in onion, NPK application was reduced to only half of the rate using conventional fertilizers (COF). Full substitution by CRF outyield plants applied with either

full · COF, partially substituted COF or those applied in combination with organic fertilizer. Addition of organic fertilizer at the rate of 4.5 tons per hectare together with full COF did not show any positive effect on the growth and yield of onion as compared to those applied with full CRF during the first trial. Generally, onion applied with 4.5 tons/ha+ CRF had higher N and K uptake than the COF treated plants. In the same manner tomato had higher uptake when fertilized with CRF. The rest of the fertilized plants had comparable NPK uptake.

Keywords: *Lahar, Controlled-release fertilizer, Organic fertilizer, Science and technology*

National Academy of Science and Technology, Volume No. 25 Issue No. 1, page 33
2003, July,
(Filipiniana Analytics)
Fil(S) Q149 P5N25 25/1 2003

0552

The economic impact of the demographic crisis: it's implications on the public policy *, Medalla, Fel*

The Philippines is "over-populated" not in relation to its natural carrying capacity but in relation to the performance of its economy and government. Clearly, it would be better to improve the performance of the government and the economy than to just get government involved in fertility choices of households. However, given the history of the performance of both government and the economy, population policy can clearly help improve the nation's welfare. Government must provide public goods and services and its capability to deliver them is affected by population growth. Moreover, the impact on government of high fertility may be even more serious than suggested by the average level of total fertility rate since children's education is closely correlated with their parent's education and poorer and less educated parents tend to have more children. Government's capability to meet the needs of the country's growing population has been impaired by a weak economy and high levels of public debt. Due to high expenditures on interest payments and weak tax collections~ the government's deficit is high and its level of indebtedness may become unsustainable even at present inadequate levels of spending on basic social services and infrastructure. Government's ability to meet the needs of the population will clearly be improved if fertility can be brought down. Fertility can be reduced significantly without resorting to coercive policies. Poor and less educated parents have higher fertility than average, but their desired fertility is much lower than their actual fertility. Population policy can go a long way simply by helping people attain their desired family sizes.

Keywords: *Science and technology*

National Academy of Science and Technology, Volume No. 25 Issue No. 1,
2003, July,
(Filipiniana Analytics)
Fil(S) Q149 P5N25 25/1 2003

0553

Geographical Distribution and Frequency of Albumin, Transferrin, and α -2 Microglobulin Alleles Among Anglo Nubian, Native Goats and Their F1 Crosses *, Bondoc, Orvi*

This paper J'CP?rts the geographical distribution and the frequency of albumm (Alb), transfemn ff/), and alpha 2 - microglobulin (S2a.) alleles among Anglo Nubi~ Native goats and their F1 crosses in Luzon Island, Philippines. The

blood serum protein polymorphisms were obtained from heparinized blood samples of 718 goats from 32 farms in 18 provinces using the vertical polyacrylamide gel electrophoresis (PAGE). The frequency of Alb-A and Tf-A alleles was similar in the Anglo Nubian, Native goats and F1 crosses, ranging from 62 to 66%. The S2a. -A alleles however, were highest in the Anglo Nubian (72%) than the Native (67%) and F1 crosses (62%). Native goats particularly adapted to the local subsistence level of management and environmental conditions and which have the largest number and highest density of goat populations in the country, represent a unique reservoir of genetic resources for their continuous genetic improvement. A high degree of similarity is found among Native goats in farms/provinces along routes accessible to large and popular public auction markets such as in Padre Garcia, Batangas and Urdaneta City, Pangasinan. Our data revealed a pattern of introgression of imported Anglo Nubian alleles in local programs to upgrade the Native goats in the countryside, probably originating from Department of Agriculture Regional Field Units (DA-RFUs) and/or institutional herds of major state colleges and universities. Analysis of the geographical distribution of blood protein alleles provided a clear picture and importance of Anglo Nubian introgression in strategically located goat breeding/dispersal centers to rapidly create and expand hybrid zones in an outward direction. Marketing routes, phenotypic preferences by goat farmers, adaptation to specific habitats and to production and management conditions are the main factors explaining the current distribution of various blood protein alleles of goats in the island of Luzon.

Keywords: *Albumin, alpha 2-microglobulin, Anglo Nubian, transferrin, Native goats, Science and technology*

National Academy of Science and Technology, Volume No. 25 Issue No. 1, page 28
2003, July,
(Filipiniana Analytics)
Fil(S) Q149 P5N25 25/1 2003

0554

Global competitiveness in engineering and technology practice , Lazaro, Academician

The paper first points out the many aspects of global competitiveness, then identifies the limit of discussion to global competitiveness in Engineering and Technology Practice. The various stakeholders are identified. Indicators of global competitiveness are identified and discussed, distinguishing between those applicable to individual Filipinos and to Filipino entities (companies/firms). Conclusions on the current competitiveness of Filipinos and Filipino entities are presented. The various issues affecting competitiveness are presented and analyzed. Finally, recommendations to improve or achieve global competitiveness are presented, including specific detailed course of actions and identifying the implementing agencies or organizations.

Keywords: *Global competitiveness, Engineering, Technology practice, Science and technology*

National Academy of Science and Technology, Volume No. 25 Issue No. 1, page 18
2003, July,
(Filipiniana Analytics)
Fil(S) Q149 P5N25 25/1 2003

0555

Managing S&T creativity Garcia Jr., Manuel P.

Creativity management in the context of Philippine scientific and technological development has not been extensively studied. There are few exploratory studies (Garcia 1989; Caayupan 1989; Reyes 1989) along this line and these were mostly short interviews of selected Filipino scientists and researchers. The field of research and development (R&D) management in industrialized countries has been well studied due to its contribution to Western scientific and technological (S&T) advancement.

Keywords: *Creativity management, RD bureaucracy, Research productivity, Scientific creativity, Science and technology*

Philippine Technology Journal, Volume No. 18 Issue No. 1, 113-116
1993 January - March,
(Filipiniana Analytics)
Fil(S) T1 N21

0556

Mechanical, chemical and surgical methods of contraception

Mateo, Ja

There are several methods of contraception. They may be classified as natural or artificial, temporary or permanent. The natural and temporary methods are the Cervical Mucus, Calendar Rhythm, Basal Body Temperature (BBT), Sympto-Thermal and the Lactational Amenorrhea (LAM). All these are considered periodic abstinence except the Lactational Amenorrhea Method (LAM). The artificial and temporary methods are the Barriers - both mechanical (condom and diaphragm) and chemical (spermicides), Hormonal (pills, injectables and implants) and the Intrauterine Contraceptive Devices (IUCD). The permanent methods are surgical sterilization procedures such as bilateral tubal ligation for women and vasectomy for men. This paper focuses its discussion on the Mechanical, Chemical and Surgical methods, and the Intrauterine Contraceptive Devices.

Keywords: *Corn, Consumption, Inform campaign, Science and technology*

National Academy of Science and Technology, Volume No. 25 Issue No. 1, page 12
2003, July,
(Filipiniana Analytics)
Fil(S) Q149 PSN25 25/1 2003

0557

The national health insurance program in the face of the demographic crisis

, Duque, Fra

The population of the Philippines is growing at an annual rate of 2.36 percent or an additional 1.5 million Filipinos everyday. If the growth rate remains at such level, the population would double in 29 years. The population structure is triangular suggesting a high young age dependency. Due to population momentum, the country is expected to have a young population in the next three decades. Actual fertility is one and half births more than replacement fertility and one birth more than desired fertility, suggesting unmet need for family planning. Unwanted fertility remains high due to inadequate access to FP supplies and services and as a result of the devolution of responsibility for services to the local government units. The country is one of the developing countries that is expected to make the demographic transition between 2015 and 2025. The population will be characterized by a peak ratio of workers to dependent population. Past mortality and fertility gains coupled with rising life expectancy and improvement in the health

situation will cause an irreversible and inevitable graying revolution, the increase in the elderly population. The Philippines has to be ready for this looming crisis. The National Health Insurance Program is a potential system that can help meet this challenge with its feature of universality, with an increasing membership base, improved benefits provision, and expanding administrative infrastructure. It will soon have an effective and efficient information and communication system that will complement the reengineered business process, and most important of all, the ability to leverage its robust financial position for better delivery of quality health care by both public and private health care providers. Universal health insurance coverage can help bring back the glorious days of an integrated health care system that the Philippine populace truly deserves. When the country is confronted with the demographic dividend, PhilHealth can help the country get rich before it gets old.

Keywords: *Insurance, Demographic crisis, Science and technology*

National Academy of Science and Technology, Volume No. 25 Issue No. 1, page 18
2003, July,
(Filipiniana Analytics)
Fil(S) Q149 P5N25 25/1 2003

0558

Probing the decisions behind induced abortion in the Philippines , Perez,

Often a subject of emotional debates that unleash strong and opposing views, abortion, in particular, induced abortions, remain a health concern deserving public health policy action. While there have been several studies on the causes and consequences of abortion, data on a scale that would generate reliable estimates of the prevalence of abortion for the whole country remains scarce. This paper uses a mix of available data on abortion in the Philippines and compliments the profiles of women who have had abortions with life stories to give the abortion statistics the needed human face. The compelling circumstances surrounding the hard decisions to terminate unwanted pregnancies show that Family Planning Program interventions on preventing unwanted pregnancies have a potential of reducing induced abortions. Given the combination of the secrecy of abortion decisions and procedures and the limited capacity of our health system to provide post-abortion care and treatment due to limited resources to meet competing health needs, it is crucial that imperfections in the use of the more effective methods of family planning are addressed to prevent unwanted pregnancies, an event in women's lives that push them into preventable complications and ill health effects of induced abortions and at worst, maternal deaths.

Keywords: *Induced abortion, Health policy, Unwanted pregnancies, post-abortion care, Science and technology*

National Academy of Science and Technology, Volume No. 25 Issue No. 1, page 21
2003, July,
(Filipiniana Analytics)
Fil(S) Q149 P5N25 25/1 2003

0559

Subsequent Effects of Intraruminal Soluble Glass Bolus on Plasma Calcium, Phosphorus and Magnesium Content of Grazing Does Under Backyard Conditions in Selected Areas in Nueva Ecija, Philippines Orden, E

The effects of intra-ruminal administration of soluble glass bolus (SGB) containing selenium (Se), copper (Cu) and cobalt (Co) on the blood mineral content was determined among 60 grazing upgraded goats raised under backyard condition. The animals were fed only with available feed resources within the paddy field and mango orchard. The subsequent effects of SGB supplementation on plasma Ca, P, and Mg were determined for 12 months. Plasma mineral concentrations were determined using Inductively Coupled Plasma SOB administration did not affect the Ca, P, and Mg contents in the blood. Except for the marked increase in the plasma Mg level of animals in the control group during the early stage of the trial, there was no clear indication of monthly variations in plasma mineral concentrations among animals with by the bolus supplementation. Results also revealed that plasma Ca concentrations of the animals appeared to be more stable than P and Mg. On the other hand, plasma Ca concentration showed seasonal variation. The plasma P concentrations for both groups were significantly lower during the rainy season than during the dry season. The normal plasma Ca, P, and Mg concentration suggests that the available feed resources under a typical rice-based and mango orchard farming conditions could provide adequate amount of these essential elements to support gestation and lactation. Hence, Ca, P or Mg imbalance is unlikely to happen even without SOB supplementation.

Keywords: *Plasma minerals, Goats, Science and technology*

National Academy of Science and Technology, Volume No. 25 Issue No. 1, page 29
2003, July,
(Filipiniana Analytics)
Fil(S) Q149 P5N25 25/1 2003

0560

Using the capabilities approach to analyze access to information and communication technologies by the poor *, Alampay, E*

This paper applies Amartya Sen's "capabilities approach" to the access and use of ICTs. An important issue raised by the Capabilities Approach is that while access to a basic good, in this case information and communication technologies (ICTs), is a prerequisite to its usage, individual differences, capabilities and choice also play a role on the use, value and application of these goods. As such, the paper investigates the extent to which people have access to ICTs the characteristics of people who make use of it, and how and for what ends they are utilized. Based on household surveys conducted in urban and rural barangays in Puerto Princesa City, it attempts to analyze access beyond the traditional method of considering teledensities and number of internet service providers (ISPs), but instead focuses on key demographic traits of a community and how these influence their capabilities, functioning and freedoms with respect to ICT use.

Keywords: *ICT, Information, Communication technologies, Teledensities, Capabilities approach, Science and technology*

National Academy of Science and Technology, Volume No. 25 Issue No. 1, page 20
2003, July,
(Filipiniana Analytics)
Fil(S) Q149 P5N25 25/1 2003

0561

Water Quality Analysis and Utilization of Small Farm Reservoirs (SFRs) for Aquaculture in Region III *Torres,*

This research project was conducted to improve aquaculture production in Region III through water quality analyses and utilization of small farm reservoirs (SFRs) for sustainable community development. A total of 23 farmer-cooperators (FCs) from various municipalities of the region were involved in the study after seminar-orientation. Two different culture systems, extensive (GMT) and semi-intensive (GMT, GIFT and FAC Selected Lines) randomly assigned were tested using the genetically improved strains of *Oreochromis niloticus* (Nile tilapia). Growth monitoring is done every month and water analysis is bi-monthly or weekly if necessary while pesticide residue and metal detection were performed prior to each culture system. In phase I, results showed that most SFRs have water pH within the ideal range for fish culture while DO and BOD were at tolerable levels. Phosphate values are less than 200 ppm while two sites gave higher than the allowable values but corrective measures were done at once: Abucay, Bataan and Talugtug, Nueva Ecija showed positive results for Organophosphorous using Rapid Field Kit (RFK) however, Gas Chromatographic analysis confirmed the presence of the same for Talugtug, Nueva Ecija. Step-wise regression model identified percentage recovery related to phosphate and sodium as the independent contributors, but phosphate as the lone predictor of average body weight (ABW) and average growth rate (AGR). Phase II revealed that total ammonia level remained below the safe level while heavy metals, Cu and Hg were minimal and within the tolerable limit set by USFDA. No detectable residue was detected for both analyses for pesticide residue. Copper, predator, fish strain, mercury, BOD, hardness, DO and potassium ion were predictors of percentage recovery using the same regression model. Further, predator and strain as predictor of ABW while strain was the lone predictor variable of AGR. Both type of culture systems exhibited high percentage recovery though lower fish density than the carrying capacity resulted to better growth rate and fish average body weight (ABW). Combination of rain, deep well and natural spring as sources of water is beneficial to tilapia and water exchange of at least 2-3 times every culture period yielded better harvest. Generally, SFRs water in the region is classified hard and relatively safe, an indication of its suitability for fish culture.

Keywords: *Water quality management, Water quality assessment, Science and technology*

National Academy of Science and Technology, Volume No. 25 Issue No. 1, page 30
2003, July,
(Filipiniana Analytics)
Fil(S) Q149 P5N25 25/1 2003

0562

Water supply in the Philippines Cebu as object of a case study *, Añonuevo, Estrel*

This paper intends to show that the understanding of nature's water supply system is essential for a sound management of a water distribution system. The focus of the paper is Cebu City with its direct surrounding, because it is a contained supply and consumption system that has some historical data. From 1911 until World War II Cebu relied on surface water (Buhisan dam) and groundwater (Jagobiao spring) for its distribution system. When the cleanup of the war damage reached Cebu, deep wells were added to the system. The inspiration of the Buhisan dam produced two feasibility studies with plans for two high dams. The growing demand has been followed by a further exploitation of ground water resources by government and private entities. The progressive sea water intrusion proves that the narrow coastal aquifer is under stress. Over-extraction of ground water from the coastal aquifer does not really lower the water table, because the sea resupplies without limits. The problem is that 1% seawater mixed with 99% fresh water establishes 250 ppm Cl⁻, which is the upper limit acceptable according to WHO guidelines. Two percent seawater produces 500 ppm Cl⁻, a concentration which the local population does not accept. The sad irony is that Cebu talks about sufficient surface water in its own backyard while it acts to permanently destroy the ground water source that can supply one third of its needs.

Keywords: *Migration, Reintegration, Social cost, Feminine responsibility, Migrant women , Science and technology*

National Academy of Science and Technology, Volume No. 25 Issue No. 1, page 15
2003, July,
(Filipiniana Analytics)
Fil(S) Q149 P5N25 25/1 2003

0563

Writing scientific papers for publication

Bondad, N.D.

A good scientific paper is accurate, brief, clear, direct, and effective. Its writer is fair and ethical. He observes standard writing practices in preparing a short title full of keywords, an abstract which emphasizes on results of research work, a sufficient but unpadding review, and a repeatable method. Results are presented and discussed using internationally recognized units, symbols, abbreviations, nomenclature, and statistical notations. Works cited are available and listed with standard abbreviations of periodical titles. Scientific writing principles are the same regardless of discipline but practices differ and, while international (even universal) standards on practically all areas have been set by authoritative organizations, much disagreement remains in listing references. Authors are obliged to adopt the style of the journal of choice but where they are free to select the manner of listing, the 1972 style of the Council of Biology Editors is recommended. For all other aspects of scientific writing, the 1972 and 1983 editions are equally suitable although the latter is logically more abreast with recent developments in biological conventions.

Keywords: *Nomenclature, International codes, Scientific writing, By-line, Science and technology*

Philippine Technology Journal, Volume No. 18 Issue No. 1, 101 - 112
1993 January - March,
(Filipiniana Analytics)
Fil(S) T1 N21

SOCIAL SCIENCES

0564

Anthropologists and the anthropology of power

, Bennagen, Ponci

Moreover, political anthropology has been formalized as a sub discipline. Already, anthropologists talk about social anthropology of the nation-state as well as of the supranational organization of production. We see an anthropology as social knowledge used in the conquest of one part of mankind by another. It appears, then, that the anthropology of power has been hitherto the study of the powerless. Some of them now discuss "Marxist perspectives in anthropology" as well as publish in a new journal called *Dialectical Anthropology*. Weren't anthropologists used against the peoples of Asia, Africa and America as researchers and consultants in counter-revolutionary projects? Indeed no longer do anthropologists deal with *Homo sapiens sapiens*, with *Homo faber*, with *Homo ludens*, with *Homo economicus*, with *Homo hierarchichus* but also with *Homo politicus*.

Keywords: *Anthropology, Anthropologist, Social sciences*

The Badjao communities in metro Cebu and Bantayan Islands: some ethnographic data and observations

, Uy, Zena

This paper is a preliminary ethnographic report. It describes clearly, we hope, some characteristic features of Badjao slum dwellers in the city and province of Cebu. The first part describes the Badjaos living in the slums of Alaska, Mambaling, while the second part is on another settlement in the Bantayan Islands in the northern part of Cebu province. Cebu City, second largest in the country, is the capital of Cebu in Central Visayas. The data upon which the description is chiefly based were obtained during field observations undertaken in the summer of 1979. A colleague, Nestor Horfilla and four anthropology majors (Homer Bana, Valentina Inoc, Victor, Villamera and Basco Fernandez) constituted our research team. The Bantayan settlements, on the other hand, were closely studied by Mary Evelyn Neri who is presently undertaking an in-depth study of their monetized economy for her master's thesis. The Badjaos constitute the lowest class among the nine Muslim groups of Sulu. They belong to a tribe of nomadic boat dwellers commonly found about the islands of Siasi and Sitankai in the Sulu archipelago. Some land dwelling and sedentary Muslims do not consider them as Muslims and hesitate to include them in their political organizations. An interesting group of these shy and gentle fisherman nomads of the Sulu sea presently constitutes an identifiable component of slum dwellers along the shoreline of Mambaling in Cebu City. The purpose of this introductory ethnography is to trigger the acquisition of contemporary and accurate information concerning the Badjao "squatters " which could form the basis of an in-depth study of these people by the junior author.

Keywords: *Ethnographic research, Ethnography, Social sciences*

The case for the multi-purpose chico 4 project

, Itchon, G

During the coming years, characterized by probable food shortages as well as an uncertain and increasingly costlier oil supply, the country cannot afford to forego the benefits that will be generated by the Chico multipurpose project. These benefits will accrue to the country as a whole, to Cagayan Valley as a region, and particularly to the people residing along the banks of the Chico and Pasil Rivers.

Keywords: *Chico , Social sciences*

Can Cheap Oil Hurt Net Importers? Evidence from the Philippines

Brucal, Arlan Z.I. , Abrigo, Michael R.M.

Conventional wisdom suggests that oil price increases have a negative effect on the output of oil-importing countries. This is grounded on the experience of the United States between the 1940s and the late 1980s, where recessions were generally preceded by oil price increases. This paper evaluates the impact of oil price shocks on the Philippines—a developing country and a net oil-importing economy. Following Kilian's (2008) structural decomposition of real oil price change, we find indications that the 2008-2009 and 2014-2015 oil price drops may have lowered the Philippine economy's output growth, potentially due to the economy's reliance on remittances from abroad and the export market. **(Author's abstract)**

Keywords: Crude oil, Empirical strategy, Social sciences

Philippine Journal of Development, Volume No. 43 Issue No. 1, 51-62
2016,
(Filipiniana Analytics)
Fil(S) HD85 J821p 43/1 2016

The chico river basin development project: a situation report

, Cariño,

The present paper is both long and at the same time inadequate. Its purpose is to serve as a basis for present discussion and further research. One of the major constraints that has emerged as part of its preparation is the general inadequacy of available information concerning this project in particular, and development projects in general. Reference is made at several points in the following report to this lack of information. Hopefully, after this dialogue we will be able to fill in some of these gaps to gain a clearer and broader perception of the difficulties of development. A basic theme of the paper that follows is that this lack of information is a constraint in the comprehension of the problems manifest in this project and in the resolution of said problems. Seeking as it does to pose questions rather than answer them, this paper should be seen by the members of this association as the beginning of a program of inquiry into development within our country. In such a development enquiry, anthropologists should be willing to play an active role because it seems likely from past experiences that in their absence policy formulation and implementation continue unabated. However, it has to be said that an association like this must perceive any such enquiries within their full social context, and that our orientation to the development along parallel, but not necessarily identical lines, of all the peoples of the Philippines must be that it comes from the people themselves. The long standing role of the anthropologist has been to interpret different cultures, to make the seemingly strange comprehensible. At this time of rapid changes and with the thrusts of development being as they are, we feel that anthropologists must necessarily convey the perception of the future of the people with whom they have for so long been associated. The writers of this paper see development exactly in terms of comprehension and participation of those directly affected by and therefore involved in development. The present paper is divided into several sections each, we recognize, with their own limitations

Keywords: Social sciences

Climatic Insights on Academic Calendar Shift in the Philippines

Villafuerte, II, Marcelino Q. , Juanillo, Edna L. , Hilario, Flaviana D.

A number of Philippine universities have shifted their academic calendar (AC) from June-March (old AC) to August-May (new AC). Such AC shifting was primarily aimed to synchronize with other higher education institutions in Southeast Asia, which could provide flexibility for collaborative research works and eventually promote their global competitiveness. Considering the country's climatic pattern, this study provides a comprehensive analysis on how the country's climate could affect the recent AC shift. Subsequently, this study has revealed that school days seem to be better placed in the new AC than in the old AC, particularly in areas classified under rainy season Type 1, where rainy season occurs from mid-May to mid-October, and Type 3 (rainy season covers almost the latter half of the year). Such advantages of the new AC in comparison to the old AC include fewer rainy school days, lesser extreme rainfall events, and a reduced number of possible tropical cyclone-related cancellations of classes. However, a few downsides have been noted in implementing the new AC. It was revealed here that school days in the new AC, in areas characterized with rainy season Types 1 and 3, coincide with extremely hot days. Additionally, this study has revealed that graduation day seems to be better placed in the old AC than in the new AC because that day coincides with the rainy season and a higher possibility of tropical cyclone to occur in the latter, particularly over most areas in Luzon. These findings should therefore be considered in school-related activities to contribute in achieving a climate-resilient country. **(Author's abstract)**

Keywords: *Academic calendar, Climate extremes, Climate resilience, Philippines, Rainy season, Social sciences*

A conceptual model of dispute settlement among Meranao: an alternative approach in the study of conflict resolution

, Abdullah, Int

Studies on dispute settlement in the Philippines have been done mostly in terms of viewing conflict resolution as but a function of only one system of law. In these studies, an ethnic group is usually assumed to have developed and possessed only one system of law. This is popularly described as customary or traditional to differentiate it from the Philippine Law under the Republic. For further identification in tenus of the diverse ethnic groups in the country, the name of an ethnic group is used as modifier in describing the law of that group. For example, Meranao Law has been used to identify the customary law of the natives of Lake Lanao region from those of other ethnic groups. The dissertation of Baradas is one specific example of this. 2 Due to the narrower perspective of these studies in viewing the nature of conflict resolution, these works cannot explain the nature of settling disputes in a setting where several systems of law co-exist with each other as a result of culture contact situation for a number of years. This article is designed to be an initial filler in this neglected problem.

Keywords: *Anthropology, Conflict resolution, Social sciences*

Agham-Tao, Volume No. Issue No. , pages 40-51
1981,
(Filipiniana Analytics)
Fil(S) GNI A39

0571

The conflict in Mindanao: perspectives from south of the border
, Sothi Rachag

This paper seeks to outline the background of the conflict in the Southern Philippines which resulted in the flood of evacuees into Sabah, to analyze their numbers and distribution in Sabah, and to examine the many implications their continued presence in Sabah poses to Sabah, to Malaysia in general, and to Malaysian-Philippine relations.

Keywords: *Anthropology, Mindanao, Conflict in Mindanao, Social sciences*

Agham-Tao, Volume No. Issue No. , pages 52-83
1981,
(Filipiniana Analytics)
Fil(S) GNI A39

0572

Corporate-community partnership towards sustainability: The case of the community-based organizations in Mauban, Quezon, Philippines
Geges, Dhino B.

This case study described the corporate-community initiative between two community-based organizations in Mauban, Quezon, Philippines. It specifically aimed to describe the socio-economic attributes of the members of the organizations; discuss the existing Corporate Social Responsibility (CSR) programs of Quezon Power Ltd; determine existing strategies of engagement; and propose recommendations to further enhance the partnership strategies data were gathered using qualitative methods. Results showed that there were opportunities and mechanism to further improve and sustain CSR efforts of the company. market linkage, network building and continuous capacity building through a collaborative governance approach were found to be salient skills, capabilities and resources, on the other hand, were seen as critical activities. The value chain strategy was also perceived to be helpful in anchoring the micro-enterprise to the needs of the market. Essentially, establishing market-driven business activities and provision of business advisory services to the organizations are considered to be vital.

Keywords: *Corporate social responsibility, Market-driven approach, Sustainability, Partnership, Social sciences*

Journal of Human Ecology, Volume No. 3 Issue No. 1, 26-40
2014,
(Filipiniana Analytics)
Fil(S) GF1 C65

A Critical Study of some Investigations made of our Pre-Historic Past
Fores-Ganz

This study is limited to an act account of the period before written records were made. The latter are sufficiently numerous to leave no doubt about the occurrence of events recorded in them, but the subject matter of this study belongs to what is customarily referred to as pre-historic, which, in the Philippines, is generally the period before the arrival of the Spaniards in the sixteenth century.

Keywords: *Pre-Historic Past, Philippine Culture, Social sciences*

Social Sciences and Humanities Review, Volume No. 17 Issue No. 1, 3-44
1952,
(Filipiniana Analytics)
FIL H8 P5

A critique of present scholarship on rizalist cults and millenarian movements: towards radical anthropology
, Quibuyen,

These two publications have dominated and influenced the thinking in Philippine academic circles regarding millenarian movements. The most salient contribution of Balandier is that stress is an inevitable feature of the colonial situation. Thus the colonial situation, breeds among other oddities, millenarian movements in the Third World. (Balandier, "The Colonial Situation" in P. Wallace's view that millenarian groups are revitalization movements. To understand such movements, therefore, we must first explicate the colonial situation. These countries which are collectively referred to as the Third World were all former colonies, and as such share one common feature in their history - the "colonial situation" (Balandier, "The Colonial Situation: A Theoretical Approach") . Indeed, Redfield's concepts of "The Little Tradition" and "The Great Tradition" have exerted a most seductive influence on American and Philippine scholarship on millenarian movements.

Keywords: *Anthropology, Social sciences*

Agham-Tao, Volume No. Issue No. , pages 18-25
1981,
(Filipiniana Analytics)
FII(S) GNI A39

Day care parents and their perceptions of the importance of intergenerational play
Ilagan, Merry

This study aimed to determine the knowledge and attitudes of day care parents on play with their children, identify the level of importance they give to play with their children, and to relate their socio-demographic characteristics to the level of importance given to play with their children. A questionnaire was administered to 45 respondents from

three barangays. Findings showed that parents saw play as a form of recreation and a learning process. The most common play activity that the respondents engaged in with their children was dramatic play and play duration with their child was usually for less than an hour. Fifty-eight percent stated that playing with their children was important to them. It was determined that the scores of the respondents for the importance given to parental play with children were mostly on the average level. All the correlations between the scores and quantitative socio-demographic characteristics (e.g. age, income, educational attainment, number of children, and number of hours given to parental play with children) resulted to weak positive correlations. None of the relationships were statistically significant. Still, parental play with children leads to positive developmental outcomes. Further studies with a larger and more diverse sample can be done to better look into intergenerational play as a social context for child development.

Keywords: *Intergenerational play, Day care parents, Parenting, Social sciences*

Journal of Human Ecology, Volume No. 3 Issue No. 1, 1-13
2014,
(Filipiniana Analytics)
Fil(S) GF1 C65

0576

Decision-making and authority in Papua New Guinea: comments on power and the quality of life
, Pataki-schweize

Some 80 to 85 percent of those people are essentially "traditional" in enculturation: small-scale, subsistence, non-literate local groups linked by strong ties of dialect, kinship, and reciprocity. In the 1960s, these spheres of authority were transposed through the development of Local Government Councils which bridged hitherto autonomous local groups. The two areas together became "self-governing" Papua New Guinea in December 1973, in preparation for full independence which followed in September 1975. Papua New Guinea, recently independent and still extensively traditional, is an excellent example of this dilemma given also the vivid acculturative changes occurring there. Ultimately, the social exercise of power must refer to some relatively local sphere and to the domain of self. The proper relation between power and the person has preoccupied human society since social time began.

Keywords: *Anthropology, Social sciences*

Agham-Tao, Volume No. Issue No. , pages 110-115
1981,
(Filipiniana Analytics)
Fil(S) GNI A39

0577

Deviations and adherences in Philippine familism
Pal, Aga

Authors' notation: This paper will analyze only one phase of a larger study, "Changes in the Philippine Family", which was planned by the authors in 1954. The following year, Dr. pal went to the United States and Mr. Arquiza continued the work. The authors used a questionnaire distributed to more than 200 junior and senior college students in Silliman University. Late in 1956, an analysis of the data collected was started, using Unisort analysis cards.

Keywords: *Filipino family, Philippine familism, Philippines -- culture, Social sciences*

Silliman Journal, Volume No. 4 Issue No. 1, 1-7
1957 1st Qtr,
(Filipiniana Analytics)
Fil(S) AS538 S55

0578

The Dorpat Peace (1920) and the East Karelian Conflict between Finland and Russia
Ellinger, Tage

It is the purpose of this and an earlier paper to present the records of the Finnish-Russian political relations from the outbreak of the Russian Revolution in March 1917 to the end of the Kerelian Conflict in 1923. An Attempt has been made, in digesting a very large number of official documents, to bring out clearly the viewpoints and policies of the two countries. Other material has been included only in so far as it was deemed desirable to supplement the official data with information from other sources. The author wishes to express his gratitude for assistance rendered him by his Finnish friends, former Minister to Washington Hjalmar J. Procope, Minister to Canada Urho Toivola and Mr. Risto Solanko. He is furthermore indebted to Dr. Benjamin Akzin and to Dr. Vladimir Gsovski, both of the staff of the Library of Congress, for painstaking translations of documents in the Russian language and for advice on questions of Soviet law. The researches were conducted at the American University, Washington D.C.

Keywords: *Finnish Russian Political, East Karelian, Dorpat Peace, Social sciences*

Social Sciences and Humanities Review, Volume No. 17 Issue No. 1, 45-78
1952,
(Filipiniana Analytics)
FIL H8 P5

0579

Employment Generation Potential of the Rice Value Chain: The Case of Mlang, North Cotabato in Mindanao
Balgos, Carol Q., Digal, Larry N.

This paper aims to examine the employment generation potential of the rice value chain. It analyzes the issues in the chain and the strategies to address them, including their impact on job generation. A value chain framework was used in the analysis focusing on the case of Mlang, North Cotabato. Both primary and secondary data were utilized. Key informant interviews and focus group discussions were applied to collect primary data. Two rice farmer surveys in Mindanao by the World Bank (2014) and Catholic Relief Services (2015) also served as inputs.

Using the job estimation for Mlang, the total jobs generated in the rice value chain in North Cotabato is estimated at 23,011 from a total area of 125,731 hectares (ha) in 2014. For Mindanao, an estimated 221,796 jobs were generated from a total of 1,189,266 ha of harvested area in 2014. A range of issues affecting the performance of the rice value chain from

production, postproduction, to marketing can be addressed by enhancing profitability through improved productivity, pricing, lowering cost, and diversifying income sources through intercropping, processing, and product differentiation. Implementing these strategies particularly to address severe constraints can potentially generate 36,672 additional jobs. (**Authors' abstract**)

Keywords: *Rice value chain, Production, Postproduction, Marketing, Social sciences*

Philippine Journal of Development, Volume No. 43 Issue No. 1, 1-28
2016,
(Filipiniana Analytics)
Fil(S) HD85 J821p 43/1 2016

0580

Ethnolinguistic concerns in the Philippines

Malicsi, Jona

Even studies of speech play and the so-called "verbal art" may well be claimed by anthropology, by folklore in particular. On the other hand, the classification and interpretation of resemblances among language, especially within a historical framework, could very well belong to historical-comparative linguistics. But because its immediate relevance to such language teachers, ethnolinguistics has remained largely identified with the study of the cultures of our less populous groups. Furthermore, as it equivocates in its own name as a field of specialization, it is also saddled with the problem of defining itself apart from the other interdisciplinary studies of language. The field of sociolinguistics can lay claim to studies of language and the socialization process, social structure and the formation of speech communities, and the effect of social factors on linguistic change.

Keywords: *Teaching, Social sciences*

Agham-Tao, Volume No. 1 Issue No. 1, pages 31-40
1978, December,
(Filipiniana Analytics)
Fil.(S) GNI A39

0581

Flood Vulnerability of the Town of Tanay, Rizal, Philippines

Pati, Romeo C. , Cruz, Amabel P.

Flood and social vulnerability analyses were used to assess the dynamics and social impact of flood in the flood plains of Tanay. Flood simulation was carried out using the derived hydrograph as input in the simulation model. The social vulnerability of each of the flood-prone barangays in the town was also determined using proxy indices such as strength of public infrastructure, demographic and socio-economic factors. The model successfully predicted the flood depths and delineated the spatial extent of flooding in the different barangays of the town. This was shown by the simulated flood depths that were comparable with the observed flood depths of the communities in seven out of nine flood-prone communities in Tanay. Barangay Tabing Ilog had the highest overall vulnerability index, indicating that this barangay is the most vulnerable to flood and needs a comprehensive flood risk preparedness and social development plan to increase the coping capacity of the residents to flooding. (**Author's abstract**)

Keywords: *Flood simulation, Flood vulnerability, GIS mapping, Socio-economic index, Social vulnerability, Storm hydrograph, Social sciences*

Philippine Journal of Science, Volume No. 146 Issue No. 2, 117-127
2017 June,
(Filipiniana Analytics)
Fil(S) Q1 P55 146/2 2017

0582

Food intake and lifestyle practices of business process outsourcing (BPO) workers from Cainta, Rizal and Los Baños, Laguna
Barrion, Aimee She

The industry of business process outsourcing (BPO) has greatly contributed to the economic and communication status of the country. However, people working in BPO companies have been attributed to different nutrition and lifestyle problems. This study aimed to determine the association between the food intake and lifestyle practices of BPO workers. A total of 64 respondents were involved in the study; 47 were from Cainta, Rizal and 17 were from Los Baños, Laguna. Moderate associations between the food intake and lifestyle practices of the BPO workers particularly in terms of energy and smoking; protein and physical activity; and phosphorus and coffee consumption were observed. The average one-day food intake of the BPO workers was 756.0g with the highest proportion from cereals and cereal products in terms of food groups followed by meat products and highest proportion from carbohydrates in terms of energy derived from macro nutrients. The one-day meal pattern of the BPO workers with a total energy count of around 1464 kcal, consisted of cereal, meat and miscellaneous with rice as the most commonly consumed food item. Moreover, more than half of the study population was able to meet the recommended amounts of protein, niacin, phosphorous, and iron. The common reported lifestyle practices included coffee consumption, smoking, alcohol drinking, and engagement in physical activities.

Keywords: *Lifestyle practices, Business process outsourcing, Food intake, Social sciences*

Journal of Human Ecology, Volume No. 3 Issue No. 1, 14-25
2014,
(Filipiniana Analytics)
Fil(S) GF1 C65

0583

Holy warriors, deviants and other fanatics: a prelude to doing research in a national security conscious state
, Dorall, Rich

This article is an attempt to understand the Malaysian national setting in which social science research must currently take place. This is, indeed, a study of the power configurations which with ever mounting pressure dictate the theories, methodologies, even study areas, and the probabilities of getting one's research published. This is the first stage in the study of power which the anthropologist, or for that matter any social scientist, must undertake before he can even think of doing "normal" research.

Keywords: *Anthropology, Social sciences*

The Human resources development program of the National Manpower Youth Council for Muslims of Region X
Redoble, Tomasito G.

The findings disclosed that more of the respondents had intermediate and secondary levels of educational attainment. Before the training, 43 percent of the respondents were jobless. After the training, 19 percent were immediately employed either by the government or private agencies, and 54 percent ventured on self-employment enterprises with an average income of P3,783.02. However, 26 percent were still unemployed. The study further revealed that out of the 17 skill crafts offered by the three centers, automotive had more enrollees followed by garments. The married respondents would like their children to earn a college degree while some would settle for a two-year vocational technical education. The program as a whole was relevant to their interests and needs. Out-of-school youths and adults worked as apprentice while the rest observed the activities of the respondents in the shop. Sex, age, level of educational attainment and initial capital played very significant roles in the income level of the respondents. Male respondents earned more than the females; the older the respondents the lesser was the income capability and the higher the level of educational attainment the higher the income; and the higher the initial capital the higher was the gross income of the respondents. The weak areas of the program were the absence of classification of the grade level of the respondents; inadequacy of small hand tools, engines, sewing machines; and materials for demonstration purposes, exclusion of cooperatives and banking procedures, rules and regulations, in that order. The strong areas, in their order of importance were the offering of skill crafts relevant to the needs of the people in the areas; and qualification of the trainers and strategic location of the centers.

Keywords: National Manpower and Youth Council, Livelihood training, Western Mindanao, Social sciences

Indigenous religions and Christianity in the modernization process of the Philippines
, Demetrio, Franci

There was until last year in the Kawasaki area in Villanueva, . Oriental, a Balete tree that stood alone in the of that industrial. This tree had resisted all efforts to fell it since the very A number of lives had as the Hanil, a Korean Road Building Corporation, tried to get it out the . way. The folks around claimed that the environmental spirits or engkantos have their hospital ; hence, they would never think of leaving the place. Since the spirits were adamant, the had to yield and the tree was left standing in all its splendor until a . was called in to intercede. After the performance of appropriate sacrifices, the was finally able to fell the and a fee of P 1000 was paid for his services. A mute testi. mony to the power of the "spirits" over man and his technical projects. Perhaps, too, it was a mute witness

to something else. This, we shall try to isolate in the course of this paper. As the title reads, my paper expected to be a descriptive one, describing the roles of indigenous religions and Christianity in the modernization process.

Keywords: *Anthropology, Cultural Ecology, Social sciences*

Agham-Tao, Volume No. 1 Issue No. 1, pages 89-110
1978, December,
(Filipiniana Analytics)
Fil.(S) GNI A39

0586

A partial survey of cultural ecology studies on the Philippines , Brett, June

Like the broad discipline of anthropology, cultural ecology is apparently a product both of Western tradition and of colonialism. In terms of creative contributions to cultural ecology, to anthropological knowledge, to the whole scientific enterprise, what have we accomplished? But even with ecosystem analogies in cultural ecology, problems are still encountered by their strict application, e.g. 'Ibis is a sad fact, from the nationalist viewpoint because it suggests the scholarly impotence in which students of anthropology, particularly those utilizing cultural ecology in the Philippines, proceed. Later, however, the concept developed into a focused area of investigation which anthropologists call "cultural ecology." What is cultural ecology? To what extent have anthropologists outside the country whose area of specialization is the Philippines contributed to cultural ecology?

Keywords: *Ethnographic research, Social sciences*

Agham-Tao, Volume No. 1 Issue No. 1, pages 71-89
1978, December,
(Filipiniana Analytics)
Fil.(S) GNI A39

0587

The peasant struggle for power in the Philippines: Overview , Mondejar

Without its powerful support, the people's democratic revolution can never succeed. Its problem cannot but be the main problem of the people's democratic revolution. Together with the Bangsa Moro Army (BMA)**, they represent the continuing of the Filipino peasantry for power. It appears as the most dramatic manifestation of the Filipino peasantry's struggle for power, and a logical successor to the previous numerous peasant uprising revolts, rebellions. The main content of the people's democratic revolution is the fulfillment of the peasants' demand for land and the eradication of the various forms of feudal and semi-feudal exploitation. Let us go back in time and try to review the numerous attempts of the Filipino Peasantry to struggle for power.

Keywords: *NPA, Anthropology, Social sciences*

Agham-Tao, Volume No. Issue No. , pages 5-17
1981,
(Filipiniana Analytics)

Philippine culture-personality research: A review
, Lagmay, L

The culture and personality field, referred to by John Honigmann (1967) as "another approach to cultural understanding ... concentrates on the actors who keep a way of life going ... studies culture as it is embodied in its carriers' personalities." In the words of Robert A. Levine (1974) the province of culture and personality research "may be defined as the interrelation between the life cycle, psychological functioning and malfunctioning, and social and cultural institutions." Concerned with the importance of the culture and personality field, Bert Kaplan (1961) states that it "is no less important for an understanding of personality functioning. The question that is most generally posed by psychologists and psychiatrists concern the nature of the influence of the social environment in which the person develops, and its effect on the course of his development. ... Work in the field of communication has been especially concerned with what actually goes on when one person influences another. One might ask as well, what happens when a person is influenced by a culture pattern." The basic issues of culture and personality have long been given attention, and workers in the field have concerned themselves with discussions on the interrelation between culture, personality, and society. Such discussions have stimulated research in psychology, social sciences, and education. In the Philippines, we find a fast-accumulating literature of culture and personality research. Local scholars, however, have expressed dissatisfaction with how the central methodological problems have been neglected. This paper, therefore, will try to summarize the trends and development most evident in Philippine culture-personality research, and then, using the analytical evaluations of some major culture and personality studies done by our social scientists, the paper will also try to indicate that, in paying more attention to method and by reconsidering conceptual orientations, a greater accuracy and validity in culture and personality research may be achieved.

Keywords: Anthropology, Social sciences

Agham-Tao, Volume No. 1 Issue No. 1, pages 111-125
1978, December,
(Filipiniana Analytics)
Fil.(S) GNI A39

Philippine prehistoric research: an appraisal
, Cabanilla,

This brief paper is an attempt to critically assess Philippine prehistoric research from the American Occupation to the present. It tackles two main issues: first, the internal issue which is generated within the scientific field of archaeology itself and answers the question: how well is the science of archaeology conducted; and second, the external issue generated outside archaeology and answers the question: why pursue this particular science? The scope of this paper is not exhaustive, for it is impossible to cover in so short a paper all the prehistoric research done in the country. It is assumed that the audience has basic anthropological knowledge specifically pertaining to the definition of culture and to the relationship between anthropology and archaeology. The paper dwells briefly on the descriptive presentation of specific researchers since its main intention is to criticize rather than to describe. It is hoped, therefore, that the audience will refer to the researches and to descriptive articles summarizing them.

Keywords: Social sciences

Philippine Telecommunications Laws and Regulations: A TPP Gap Analysis

Uy, Krystal T. , Villamil, Isabela Rosario G.

This paper aims to promote competitive access for telecommunications providers. Among other things, it includes provisions for interconnection, access to physical facilities, and transparency. Reforms in these areas will likely benefit consumers and help businesses become more competitive.

There is a need, however, to determine if or what regulatory and policy reforms are necessary for the Philippines to qualify for entry into emerging new trade agreements such as the Trans-Pacific Partnership Agreement (TPPA). This paper uses the TPPA Final Text on Telecommunications (Chapter 13, Article XIII.4) released on February 6, 2016, to measure the Philippines' readiness to join the trade agreement.

Key recommendations include:

1. To ease restrictions on foreign ownership, the Philippines must address the constitutional provisions that constrain the growth and productivity of the country, either by amending the Constitution or through creative legislation that expands opportunities for foreign investment but in a manner consistent with the Constitution. Congress is well within its powers to redefine "public utilities": so that it narrows the areas of the economy that would remain covered by the Constitution, and opens up more opportunities for foreign investment in previously protected sectors.
2. At the minimum, comprehensive amendments to Republic Act No. 7925 (Public Telecommunications Policy Act of 1995) must be in order, especially with respect to interconnection, unbundling of network elements, cross-subsidization, number portability, and the powers of the National Telecommunications Commission (NTC) to police the market players. Additional provisions may be necessary to allow the NTC to impose obligations on major players with significant market power, as well as to create a universal service fund.
3. Given the broad mandate and powers given to the newly formed Philippine Competition Commission (PCC), and the positive impact that addressing these issues may have on the environment for competition in the telecommunications sector, it may now be possible for the PCC and the NTC, working together, to bridge these gaps through a series of administrative issuances.

4. Ensure adequate competition in the sector that upholds the public welfare and promotes the international competitiveness of Philippine enterprises, for which information and communications technology services is a key input for enterprises and represent significant costs of doing business. (**Authors' abstract**)

Keywords: *Trans-Pacific Partnership Agreement (TPPA), Interconnection, Access to physical facilities, Transparency, Social sciences*

Philippine Journal of Development, Volume No. 43 Issue No. 1, 63-81
2016,
(Filipiniana Analytics)
Fil(S) HD85 J821p 43/1 2016

0591

Planning for regional development: The experience of region I , Alabanza,

This paper is concerned with how regional decisions on the development of the region are made. It therefore focuses on (1) the planning process as a tool for decision-making; (2) the Regional Development Council as the planning and decision-making body; and (3) the environment within which planning and decisions occur. Major issues affecting these areas will also be highlighted. This paper is not intended to represent general observations on the state of regional planning and development in the country, nor does this represent the official position of the NEDA or the RDC in Region I.

Keywords: *Regional planning, Social sciences*

Agham-Tao, Volume No. Issue No. , pages 14-26
1979, December,
(Filipiniana Analytics)
Fil.(S) GNI A39

0592

Quality at work Yap, Mari

This article expounds on quality as a standard, a goal or a set of requirements. It provides a wider perspective of having a quality at work.

Keywords: *Social sciences*

Philippine Journal of Nursing, Volume No. 71 Issue No. 1-2, pages 23-31
2001 January - June,
(Filipiniana Analytics)
Fil(S) RT1 P53 71/1-2 2001

Regional development and the ethnic question in Mindoro: the historical perspective
, Lopez, V

Ethnolinguistic diversity is as much a feature of the Philippines as that of the other insular countries of Southeast Asia, i.e., Indonesia and Malaysia. Within a comparatively small land area of 115,820 sq. miles, one finds close to a hundred ethnolinguistic groupings only recently united in the use of the national language, Pilipino. With ethnolinguistic diversity comes concomitant regional variations in methods of agricultural production, patterns of exchange, types of rice produced, and supplementary food taken, as well as their manner of preparation. One may further observe significant regional variations in the degree of political sophistication and interest in regional autonomy and in the underlying matrix of economic and social institution, as well as in the articulation and direction of individual aspirations of a good life. It is more appropriate, therefore, to regard the Philippines as a cluster of distinct regions than as a homogenous entity. Historically speaking, the Philippines has had no tradition of a strong centralized government or incipient forms of it as may be seen in the great Sri-Vijayan and Majapahit empires of Indonesia or the Angkor kingdoms of ancient Khmer. In their initial encounter with Philippine culture, the Spanish chroniclers noted the absence of "absolute kingship or monarchy". As one Spanish explorer observed: Their government was not monarchic, for they did not have an absolute king; nor democratic, for those who governed a state or village were not many; but an aristocratic one, for there were several magistrates (called *maginoo*s or *datus*) who participated in governmental activity, advising the chief in all important matters of policy and administration in the *barangay* (de San Antonio 1883 in Blair and Robertson 1903:348). What the Spaniards found in the Philippines, therefore, were regional political units or as one Filipino political scientist describes it, "limited monarchies" -i.e., the *barangay* (Arcellana 1954 :208). The extent of *barangay*, 1 "sovereignty" Arcellana argues, was necessarily delimited by its "regional" domains, had customs and laws applied and enforced among its constituents and at times even beyond. The Philippine historical experience therefore reflects a strong "regional tradition." Today's major sociopolitical and economic regions may in fact be traced to the earlier pre-Hispanic dominant *datu* chiefdoms and "rajahship" centered around the strategic regions (largely riverine principalities) of the Manila-Luzon area, Cebu-Visaya, and the Mindanao-Sulu-Brunei regions. Thus, despite the "centripetal forces" that have emerged during the past three or four centuries² which served to bind these regions together into a viable Philippine state, the "centrifugal forces" making for regionalism (e.g., the Islamic confederacy in Mindanao) remain strong.

Keywords: *Ethnographic research, Ethnography, Social sciences*

Agham-Tao, Volume No. Issue No. , pages 155-185
 1979, December,
 (Filipiniana Analytics)
 Fil.(S) GNI A39

Religiosity, masculinity, and homosexuality: The attitudes towards homosexuals of male members of religious organizations and fraternities
Piamonte, Samuel Brando H.

The study aimed to determine whether the attitudes towards homosexuals of male members of religious organizations and fraternities are related to their religious and masculine characteristics. Thirty-eight male members of religious organizations and eighty fraternity members were randomly selected to answer the Index of Attitudes towards Homosexuals (IAH). A religiosity questionnaire was distributed to the selected male members of religious organizations while a gender role belief measure was given to the selected fraternity members. Results of the study revealed that members of both populations exhibit negative attitudes towards homosexuals. However, there is no significant difference between the attitudes of the members of these groups. Furthermore, homophobia was found to

be exhibited by majority of the members of the two groups but there is no significant difference between its prevalence between the two populations. Lastly, combined with age, scores from the religiosity and gender role ideology measures were found to be significant factors in predicting homophobia. It can be concluded that religion provides a wide set of beliefs including the non-existence of homosexuality to its subscribers; and masculine characteristics typified by fraternities are incompatible with possessions of non-masculine traits.

Keywords: *Religiosity, Masculinity, Homosexuality, homophobia, Social groups, Social sciences*

Journal of Human Ecology, Volume No. 3 Issue No. 1, 41-54
2014,
(Filipiniana Analytics)
Fil(S) GF1 C65

0595

Research on adaptive strategies in the Philippines: directions and prospects *, Cadelina, R*

Economic; social; and political/ideological; are relevant to each of these population groups. To have a sense of direction and focus, and to have such a direction recognized are two different things. But to make our presence felt, let us have a sense of direction and focus. The degree of their disenfranchisement differ in terms of the degree of dependence on the wider national economy. The rather detailed questions that I have raised earlier for every aspect of the adaptive infrastructure: i.e. We need to work together and define what we should do as a way of contributing to our task of nation building. I personally believe that policy formulation is not a monopoly of technocrats but also a responsibility of people who are concerned with the welfare of people.

Keywords: *Anthropology, Social sciences*

Agham-Tao, Volume No. Issue No. , pages 84-94
1981,
(Filipiniana Analytics)
Fil(S) GNI A39

0596

Rumor and tremor in a Visayan community: some anthropology reflections on symbolic power *, Dumont, Jea*

So is the social power that, within a household, everybody seems to have over everybody else. In the meantime, the rumor began circulating. The parish priest's religious power or the copra dealer's economic power are cases in point. The late nineteenth century when Cebuanos and Boholanos came and settled there looking for economic opportunities have long gone by. There is a certain formality attached to the delivery of balak and folktale; they are part of an oral tradition. The rumor actualized the transformation of an unconcerning natural event into a cultural phenomenon of considerable magnitude. Its people, as I was repeatedly told, are "peaceful and law-abiding citizens," and, as I experienced, affable to a fault. While the tremors belonged to the domain of experience, the volcano belonged at best to the domain of social memory.

Keywords: *Anthropology, Social sciences*

A socioeconomic calendar in Ethnographic reporting and social planning
, Manuel, E. A

I have not seen this utilized in ethnographic work, so this is the motivation for this short paper. A socioeconomic calendar is an instrument for ordering cultural data according to the common Gregorian calendar and calibrating them with natural phenomena. The second is an abstraction and generalization stage on an ethnic, regional and national scale; and the third, an application by the social scientist and planner. It is usual for fieldworkers to devise tools or ways and means to obtain the utmost data possible and to arrange them for use. Three stages are contemplated: the first is attainable on an empirical basis, while the ethnographer is making observations and gathering data in particular communities or ethnic groups.

Keywords: Social planning, Ethnography, Social sciences

The tinggians of Abra and cellophil: a situation report

The Tinggians of Abra are a distinctive national cultural community with their own dialects, cultural traditions and political based on communal decision-making led by village elders and an intricate system of peace pacts governing inter tribal relations. They are closely related to the other cultural communities indigenous to the Cordilleras of Northern Luzon. They live in largely self-sufficient, valley-bottom villages, and their economy is based primarily on irrigated wet-rice cultivation, some kaingin-making, hunting, river fishing, livestock rearing, and handicrafts.

Keywords: Social sciences

Use of physical anthropology , Recio, Dolo

Past and present physical anthropology have been concerned with at least six topics, viz., evolution, osteology and odontology, somatology and somatiscopy, genetics/familial, growth and maturation, and bodily systems and soft tissues (Krogman 1976:1-14). The concerns of physical anthropologists are directed towards an understanding of biological human origins as these may have predictive value towards the future of man. The big topic of evolution is a primary concern here. Part of this topic is focused on primatology which contributes not only to an understanding of biological origins, but also to present behavior of man. The topics are not mutually exclusive. In fact, it is extremely difficult to talk of evolution without talking about any of the others. The topical delineation is merely one of emphasis, based on the peculiar interest of a scientist. Some have been dealt with more often than others and some are dealt with because of opportunities offered by archeology and by funding institutions. This paper will review some of the salient reports published during the decade in order to highlight some uses of physical anthropology. First, we will examine the overall preoccupation of physical anthropologists which is man's origin, and second, we will deal with the new concerns of nutritional anthropology and medical anthropology.

Keywords: *Social sciences*

Agham-Tao, Volume No. Issue No. , pages 191-202
1979, December,
(Filipiniana Analytics)
Fil.(S) GNI A39

VETERINARY MEDICINE

0600

Gene Expression Analysis of Swine Leukocyte Antigen (*SLA-1* and *SLA-2*) Involved in Porcine Pre-Weaning and Post-Weaning Diarrhea in Nueva Ecija, Philippines

Uy, Mary Rose D. , Garcia, Gemerlyn G. , Aquino, Jeffrey P. , Sampang, Joan F. , Abuyuan, Reginaldo V. , Mingala, Claro N.

The immune responses of two breeds of piglets to diarrhea at pre-weaning and post-weaning were evaluated in terms of the relative quantification of Major Histocompatibility Complex (MHC) glycoproteins represented by the swine leukocyte antigen (SLA) class I. The expression of *SLA-1* and *SLA-2* genes of diarrheic and non-diarrheic Native and Large White piglets were measured using real time polymerase chain reaction (qPCR). Blood samples from 20 Native and 20 Large White piglets were used in this study. It is comprised of 5 Native piglets with clinical signs of diarrhea and 5 Native piglets with no diarrhea at pre-weaning. Same number of piglets were used for Native piglets at post-weaning and Large White piglets at pre-and post-weaning periods. The cDNA samples were amplified using primers for *SLA-1* and *SLA-1* alleles having amplicon sizes of 217 bp and 126 bp, respectively. Factors that were considered in the study include breed and status of piglets. Relative quantification was done using comparative threshold cycle (C_T) method. Significantly higher levels of *SLA-1* were noted in diarrheic pigs compared to those of non-diarrheic piglets ($P=0.040$) of the Native and Large White breeds at pre-weaning period. This observation was not analogous with the non-significant differences in *SLA-2* expression, deduced as SLA-linked immune responses of piglets from the Native and Large White breeds with and without diarrhea observed at pre-weaning and post-weaning stages. The upregulation of *SLA-1* in piglets with diarrhea at pre-weaning in the two breeds of swine examined the potential role of *SLA-1* in the host's response to diarrhea. These data associate the significance of the *SLA-1* gene as a marker for diarrhea in pre-weaning piglets (**Author's abstract**)

Keywords: *Diarrhea, Post-weaning, Pre-weaning, SLA-1, SLA-2, Veterinary medicine*

ZOOLOGY

0601

Protein Profile of Three Developing Stage Chorion (Eggshell) of *Oxya hyla hyla* (Orthoptera: Acrididae)

Roy, Arpita Shyam , Ghosh, Durgadas

Protein profile of three developing stage chorions of *Oxya hyla hyla* i.e. follicle cell stage, oviduct stage and after laying stage eggs were established through SDS-PAGE analysis. Eight polypeptides, 12 polypeptides and six polypeptides were detected in follicle cell, oviduct stage and after laying stage eggshell of *Oxya hyla hyla* respectively. 47.9kDa, 33.1kDa, 31kDa, 23.4kDa and 15.1kDa polypeptides were present in every developing stages of chorion and can be considered as major chorion proteins in *Oxya hyla hyla*. Polypeptides with 83.2kDa and 55kDa molecular weights were present in two early developing stages of chorion maturation and evaluated as minor chorion proteins. (**Author's abstract**)

Keywords: *chorion, eggshell, Oxya hyla hyla, Orthoptera, SDS-PAGE, Zoology*

0602

New record of *Thalassina spinosa* (Crustacea: Decapoda: Gebiidea: Thalassinidae) from the Philippines

Bedi, Agatha Maxine B. , Primavera, Jurgenne H.

The mud lobster *Thalassina spinosa* Ngoc-Ho and de Saint Laurent, 2009 is reported for the first time in the Philippines based on material collected from a mangrove swamp of Ibajay, Aklan in Panay Island. It is the third species of the genus *Thalassina* recorded from the country. Although burrowing activities of the *Thalassina* species create volcano-like mounds that are commonly seen in coastal areas, their species are very little known in the country. Four plots, each measuring 10 m x 10 m, were laid out in the 44-ha Katunggan It Ibajay Eco-Park (KII) which is situated inside a 70-ha mangrove patch with 27 mangrove species in the villages of Naisud and Bugtong-Bato. Juvenile specimens of *T. spinosa* and *T. anomala* specimens were obtained from the same plot located in a mixed forest along the banks of the main tidal creek. The mud lobsters' mounds ranged from 2 cm to 30 cm in height and 4 cm to 15 cm in width. All *T. spinosa* specimens showed a spinose carapace and an armed cervical groove. Diagnostic characters and geographical distribution of *T. spinosa* are briefly discussed. (**Author's abstract**)

Keywords: *Gebiidea, Indo-West Pacific, Panay Island, Philippines,, Thalassina, Zoology*

Philippine Journal of Science, Volume No. 147 Issue No. 3, 357-361
2018 September,
(Filipiniana Analytics)
Fil(S) Q1 P55 147/3 2018

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