



Making science
work for you

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Expert alerts researchers on detecting fake journals

By **Fatima M. Moncada**
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The Internet has made a lot of things easier. Unfortunately, these include the creation of a new breed of predatory system of which Filipino scientists and researchers should be wary.

In a symposium on predatory journals and conferences held recently at Hotel Jen in Pasay City, Dr. Fidel R. Nemenzo, Vice-Chancellor for Research and Development at the University of the Philippines-Diliman, raised the issue of hijacked journals- fake journals that steal the identity of legitimate ones to trick scientists and researchers into submitting their research articles.

"They ride on the prestige of legitimate journals, they solicit paper submissions, and they collect publishing fees through fake websites," detailed Dr. Nemenzo. He added that the websites used by hijacked journals are usually more visually attractive than the legitimate websites. This makes it possible for scientists and researchers to fall for the bait.

Consequently, good research will be tainted with bad reputation when published in bogus publications.

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DOST Secretary Maro G. Montejo speaking during DOST-PCHRDs anniversary. Montejo calls for ICT-based programs to help improve the medical services in the country.

Sec. Montejo bats for ICT-enabled health tools to help improve medical services in PH

By **Espie Angelica A. De Leon**
S&T Media Service, *DOST-STII*

Department of Science and Technology (DOST) Secretary Mario G. Montejo recently said that ICT-enabled products and systems for healthcare will greatly help in improving medical services in the country.

"ICT has changed the way we live, and healthcare is among the areas that could benefit from its capability. DOST sees this opportunity to find innovative solutions and to allow the Mang Juans and Aling Marias in the countryside to receive faster and less expensive type of medical services," Montejo said.

Montejo spoke of the ICT-enabled solutions during the 34th anniversary of DOST's Philippine Council for Health Research and Development (PCHRD) last March 17, 2016 at the New World Hotel in Makati City, with the theme "Going Global: Increasing International Partnerships in Research and Innovation for Health."

One of these innovative solutions is RxBox, a device capable of storing and transmitting patient data to allow health workers in remote communities to consult with medical

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specialists in urban areas. RxBox is equipped with a blood pressure monitor, pulse oxymeter, electrocardiogram, fetal heart monitor, maternal tocometer, and temperature sensor.

"Several RxBox units have been deployed in different remote areas in the country," said Montejo. "Based on their collective feedback, local officials and health workers in those areas view RxBox as an effective tool in pushing equitable access to quality healthcare by all Filipinos regardless of socio-economic status."

Montejo also highlighted the eHATID LGU project or eHealth TABLET for Informed Decision Making of LGUs. It is funded by DOST-PCHRD in partnership with Ateneo de Manila University.

eHATID LGU is a software application for mobile android devices that offers health

information system and decision-making support to LGUs through an Electronic Medical Record that generates particular health reports for the Department of Health and the Philippine Health Insurance Corporation.

Montejo also shared that the first public-private partnership in biomedical research between DOST-PCHRD and Orthopedic International Inc. (OII) has resulted in a locally-developed, innovative, and affordable knee replacement system suitable for Asians.

Called the Axis Knee System, it is a knee replacement technology half the price of imported knee implants which cost around P100,000 to P120,000. The Axis Knee System brings down the cost to P60,000 in government orthopedic hospitals and P70,000 in private hospitals.

It is one of the products designed, developed, and manufactured by OII, an ISO 13485-certified facility based in Cabuyao, Laguna which aims to solve various orthopaedic problems through its technologies.

DOST's efforts in developing ICT-enabled products and systems for healthcare are among its major contributions to address various issues in the health sector," Montejo said. Among these issues are the limited number of medical staff, equipment, and facilities in far-flung areas.

Montejo also cited the importance of DOST's various partnerships with the academe, private sector, and other government agencies to allow innovative ideas for healthcare translated into reality and be used by many Filipinos.

"The problem with this is that research results that are published in both hijacked journals and predatory journals are now finding themselves into research literature. So just imagine the ripple effect of this contamination of legitimate research by fraudulent research that are published in these journals that do not screen paper submissions," said Dr. Nemenzo.

To prevent getting victimized not only by hijacked journals but by other types of predatory journals and conferences as well, Dr. Nemenzo advised the scientific community to exercise due diligence. He mentioned a number of red flags that scientists and researchers should look out for such as high acceptance rate, faulty grammar in website content and formal letters, aggressive solicitation, and rapid publication among others.

Dr. Nemenzo also cited a number of online references that list legitimate journals such as the Directory of Open Access Journals (www.doaj.org) and the Open Access Scholarly Publishers Association (www.oaspa.org). Meanwhile, he cites the Beall's list (www.scholarlyoa.com) which identifies potential, possible, or probable predatory journals and publishers that scientists and researchers should avoid.

However, Dr. Jose Florencio F. Lapeña of the University of the Philippines Manila, one of the reactors in the symposium, said that caution should still be observed when using whitelists and blacklists. He explained that there are journals listed in the Beall's list that are actually legitimate and journals indexed in whitelists that are predatory in nature. "No list is infallible," he said.

Hence, to better equip the Filipino scientific community with the capacity to discern the good from the bad, Dr. Nemenzo and Dr. Lapeña, along with other reactors in the symposium namely, Dr. Jose Maria Balmaceda (University of the Philippines Diliman), Dr. Franco Teves (Mindanao State University – Iligan State University), and Dr. Evelyn Mae Tecson-Mendoza (National Academy of Science and Technology), have all agreed that information drive should be the first step to

take. Dr. Tecson-Mendoza further emphasized that it is especially important that the younger generation of Filipino scientists and researchers be informed about the dangers of predatory journals and conferences and how to avoid them.

The symposium was organized by the National Academy of Science and Technology, an attached agency of the Department of Science and Technology, in partnership with the University of the Philippines Diliman.

should be involved, especially the youth, the future generation. You should not be complacent all the time; stop believing in false rumors and learn from your history, it's better to be safe than sorry," Perez remarked.

The Science for Resilient Business and Government Services Seminar-Workshop was organized by the Department of Science and Technology - Science and Technology Information

Institute, Samar- Eastern Samar Energy Press Club, the Local Government of Calbayog City and its tourism office, and the National Grid Corporation of the Philippines. The workshop aimed to increase the awareness of the local government units, as well as private companies and the member of the media, on disaster preparedness and the needed tools that will help them in developing their respective business continuity plans.

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DOST study shows shrimps and egg shell mix can clean up oil spill

By Violy Conoza

S&T Media Service, DOST-ITDI



A new green technology to remediate oil spills on fresh and marine waters is being explored by the Environmental and Biotechnology Division of the Industrial Technology Development Institute (DOST-ITDI).

Led by Emelda A. Ongco, her five-member team has developed a mixture of chitosan- a by-product of chitin from shells of shrimp, crab, or lobster- from shrimp and calcium carbonate for use as biosorbent to remove petroleum spills from water.

"Largely dismissed by some as a problem that 'will go away in time' what is alarming in oil spills is that the damage it causes is permanent and takes quite a while to clean up," Ongco explained.

As is its natural characteristic, oil spills float on water and prevent sunlight from passing through it. This makes it difficult for plants and sea animals to survive. A coating of oil can kill seabirds, mammals, shellfish, and other organisms.

Ongco clarified, "We now know that it affects seabirds and other mammals because petroleum can penetrate into the structure of feathers and fur breaking down their insulating capability. This makes them vulnerable to temperature fluctuations; most commonly die from hypothermia."

In addition, oil that washes into coastal marshes, mangroves and other wetlands also coats rocks and sands, making the area unsuitable as plant and animal habitats. Those

that sink into the mangrove environment can damage fragile underwater ecosystem, killing fishes and fish eggs, among others.

Everyday materials, new green results

Chitosan has long been used as a biopesticide. Its other uses for medical and industrial purposes have been increasingly receiving attention in research circles. Of particular interest is its industrial use as sorbent material for oil removal in water.

"There are other organic and inorganic materials which may do as well. It is indeed amusing to know that our everyday shrimp and egg have found themselves on our lab tables," Ongco said.

"Let me explain. While most have been using pure chitosan as sorbent material, we have chosen to work on chitosan, which come from shrimp shells, and calcium carbonate from eggshells. Why? Because these are waste materials that can be reused, are cheap, and widely available. In addition, their biocompatibility, biodegradability, and safety make for an ideal composite. Chitosan, of course, has film-forming ability while surface roughness in calcium carbonate make them excellent sorbent materials," Ongco explained.

Cleaning up oil spills is a great challenge, she admitted. Lack of technology and expertise, as well as great financial demands of the task, including factors such as amount and type of oil spilled, water temperature

(which affects rate of evaporation and biodegradation), and type of shorelines and beaches can sorely test concerned groups

But what reassured her team was that they were able to show that a 50:50 composite of chitosan and calcium carbonate in flakes and granular forms works.

"Simply, we wanted to develop a material that has a strong affinity for oils rather than water." Combining chitosan with calcium carbonate thus dramatically increased adsorption capacity of the green technology.

Which then of the composite flakes and composite granules tested better?

Testing the composites using a 5000 ppm (parts per million) concentration of diesel oil and bunker fuel oil in synthetic wastewater, Ongco related that it "was a relief because they showed satisfactory results." Both scored a removal rate of 99.9 percent in the oil and grease test including a final concentration average of 4 ppm for composite granules and 5 ppm for composite flakes.

Not content, the team also conducted a Total Petroleum Hydrocarbon (TPH) analysis.

If at all, determination of the maximum capacity of the composite to adsorb oil added substance to their findings.

Clearly, everyday materials are presenting new and exciting prospects to better address various needs. For now, Ongco and her team are batting for a green reversal technology for oil spills.

DOST-PHIVOLCS tells Calbayog: Be on your toes

By Romelie Janelle Maranan
S&T Media Service, DOST-STII

Is Calbayog City safe from tsunami because it does not face the Pacific Ocean and there are islands that can block the upsurge?

The Department of Science and Technology-Philippine Institute of Volcanology and Seismology (DOST-PHILVOCS) resident geologist Jeffrey S. Perez says “no”, debunking the belief that this city in Eastern Samar is free from the effects of any seismic activity within and outside the province, especially tsunami.

In his presentation on the overview on geological hazards and warning systems at the recent Science for Resilient Business and Government Services Seminar-Workshop at Calbayog City Convention Center recently, Perez advised the Samar-based participants to be always prepared for any disaster, especially earthquakes and tsunamis that can possibly hit the province.

For many years now, the residents of Calbayog City thought that they are safe from the severe aftermath of disasters as the city lies on the west side of Samar, away from the Pacific Ocean. But Perez reiterated the possibilities of earthquakes, volcanic eruptions, and tsunamis hitting the city, based on the historical records of seismic activities of Region VIII.

The people also had the belief that since there are three islands at the Samar Sea, namely Sto. Nino, Tagapul-an, and Almagno, that are “blocking and protecting” their city from the Pacific Ocean, it is impossible for a tsunami to hit them.

“Just because you are located away from

the Pacific Ocean and there are islands in front of you does not necessarily mean that no tsunami will reach you. Historically, your side of the province, including Calbayog, has already experienced tsunami before,” Perez stressed.

The Philippines is prone to numerous natural hazards due to its geologic and geographic setting, and Calbayog City and the whole Region VIII are not exempted.

According to Perez, there are a few active faults, volcanoes and trenches around Calbayog City. The nearest active fault in fact is 10.5 kilometers away from the city.

From 1975-2013, 14 damaging earthquakes, one every three years, have already struck different provinces in Region VIII. Meanwhile, three of these earthquakes, including one in 1925, with average magnitude of 7.0 to 7.6, have caused one to two meters of tsunami.

Moreover, a historical record in 1960 showed that during the magnitude 9.5 “great earthquake” in Chile, which is 24 hours away from the country, tsunami reached the Eastern Philippine shores 24-26 hours after the disaster.

In the eastern shoreline of Samar Island, eyewitnesses reported that the tsunami that reached them has a height of 6 meters, while the tsunami waves that reached Tacloban, Leyte has a height of one meter, based on tight gauge records. If these waves have reached Leyte, there is a big possibility that Calbayog was also affected during that time.

Perez also mentioned that Calbayog folks should disregard their belief that the islands in front of them will spare them from tsunamis because these very islands can even worsen the situation.

“Although there are islands blocking you from the ocean, the tsunami waves will only go around it and may even become bigger when it gets to you. And remember that tsunami waves from the West Philippine Sea can also affect you,” Perez added.

Prepare, prevent or minimize, and respond

Possible hazards and its effects in the city must be “imagined” to be able to create and execute appropriate preparation, mitigation and response, and recovery. Disasters like earthquake, volcanic eruption, and tsunamis are sudden onset events and inevitable so everyone must always be alert and prepared.

Aside from the actions for disaster risk management, Perez underlined the importance of knowing how to read and understand maps since everyone should rely on hazard maps now to be able to identify their safe zones.

He also emphasized the significance of following the proper design, using standard materials, and appropriate construction practices in constructing buildings and structures to avoid further casualties during earthquakes.

“Earthquake doesn’t kill. What kills people are falling and collapsing structure due to the tremor,” Perez said.

Perez reminded everyone that DOST-PHILVOCS provides accurate information and reliable tools that the communities can use to be safe.

“Always keep in mind the important information needed during disasters. Everyone

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CALBAYOG CITY IN SAMAR GETS SMART-READY FOR DISASTERS.

Director Richard P. Burgos (second from right) of the Department of Science and Technology – Science and Technology Information Institute (DOST-STII) turns over the hazard map of Calbayog City and the Reference for Emergencies and Disasters (RED) Book to Calbayog City Mayor Ronaldo P. Aquino (rightmost). Assisting the turn over are (from left) STII’s Dr. Aristotle P. Carandang and Project NOAH’s Mariano Raphael B. Reyes. The hazard map shows areas prone to usual hazards (floods, earthquake, etc) so that the local government can identify risky as well as safe areas for evacuation. The map can also be used for urban planning reference. The RED Book, meanwhile, is a handy reference on how to’s during disasters. The turnover is part of the “Science for Resilient Business and Government Services” seminar-workshop held at the Calbayog Cultural Convention Center March 29, 2016. Organizers of the workshop are DOST-STII, Radyong Bayan – Calbayog, and the Calbayog City Tourism Office.

