Interview with Dr. Jose Isagani Janairo, De La Salle University

Microplastics are tiny plastic particles that have become a permanent part of the marine environment, and many consider their impact on marine life a pervasive global concern. The ingestion of microplastics has been discovered in many species of marine wildlife. Many believe humankind may be harming itself by introducing health risks into the food chain.

Contamination of the marine environment by microplastics was first made apparent to the public in 1971 by Edward Carpenter of the Woods Hole Oceanographic Institution. But the pollution began far earlier than that. The mass production of plastics started in the 1940s and has been an issue ever since.

While some experts believe the threat to marine life and human health is significant, others remain skeptical. Humans have altered the biology of the planetary seas by introducing microplastics, yet a consensus regarding the health impacts of microplastic ingestion remains to be reached. Some studies report the negative impact of microplastics exposure on various organisms, while others report minimal to no effects.

Dr. Jose Janairo is a Biology Professor at De La Salle University in Manila, Philippines, working to raise public awareness of the negative impacts mismanaged plastics can have on the environment.

"At this crucial point, I think it is important to arrive at clear conclusions about the health impacts of microplastics to guide the public and implement interventions," Dr. Janairo explains.

His research is guided by the Sustainable Development Goals, a collection of 17 interlinked global goals developed by the United Nations, which are designed to be a "blueprint to achieve a better and more sustainable future for all".
"Broadly, I hope my research will contribute to the attainment of the SDGs and help society harmoniously co-exist with the environment. Furthermore, I hope my research helps create a more sustainable future for the next generation, especially for my one-year-old daughter,” Dr. Janairo elucidates.

Dr. Janairo spends most of his time developing environmentally-friendly strategies utilizing the principles of green chemistry. For example, the team he heads up recently developed an environmentally-friendly pest control strategy for cacao that can replace more toxic choices. The cacao mirid bug is an insect that disrupts cacao and cocoa cultivation. Janairo and his team characterized the chemical signals used by the insects and used these chemicals as lures to trap them. In another ongoing project, his team is developing functionalized nanomaterials using agricultural waste.

However, Dr. Janairo’s research is primarily focused on the study of microplastics, specifically in marine commodities. His proximity to the sea has helped motivate this decision.

“The Philippines generates a substantial amount of plastic wastes, which motivated me to investigate the presence of microplastics in marine commodities. I believe this research is highly relevant since the Philippines is an archipelagic country and marine resources and commodities are abundant. I think focusing on this research will help the public make informed choices and help policymakers create the necessary policies to address these environmental challenges,” Dr. Janairo says.

To Inform, Inspire and Empower

Dr. Janairo was selected to become one of the lead authors for the youth-oriented version of the Global Environment Outlook -6, Asia-Pacific, published by the United Nations Environment Programme. He and his colleagues were given the task of summarizing the current and emerging environmental challenges in the Asia-Pacific region. This program and report were created to inform, inspire, and empower students and young professionals so they may understand and address environmental issues now and in the future.3

He also worked with local TV network, GMA News, and government-managed analytical laboratory, ADMATEL, to create a news feature that investigated the presence of microplastics in mussels harvested in multiple locations in the Philippines. The news feature raised awareness to the public regarding the negative environmental impact brought by plastic pollution.

The DST laboratory utilized PerkinElmer micro FT-IR to analyze the microplastic samples obtained from mussels. The findings of Dr. Janairo and the DST reported that two out of the three samples were found to be positive for microplastics, specifically Polyethylene. The third sample tested positive for “suspected microplastics.”

“Micro FT-IR is critical in microplastic analysis since it aids in the identification of the type of microplastic present in the sample. Knowledge of the type of microplastic present is important. It provides insights on the environment,” Dr. Janairo declares.

“One thing I liked about the PerkinElmer micro FT-IR was the clarity of the report generated. For the end-user like me, the way the data was presented was easy to interpret and understand,” he explains.

With the help of simple-to-operate PerkinElmer instrumentation, Dr. Janairo and team found they were able to achieve fast and accurate results to accelerate their research into the presence of microplastics in marine environments.

“I am motivated to contribute to this research since we most likely ingest microplastics daily,” Dr. Janairo says.

Footnotes:
3. https://www.unep.org/