AN OUNCE OF PREVENTION IS WORTH A POUND OF CURE: INTERNATIONAL TRAINING HELPS AQUACULTURE RESEARCHERS ENHANCE EARLY DETECTION SKILLS

By Oluwaseun Adeolu Ogundijo and the Improving Biosecurity team

As a lecturer and PhD candidate in the field of aquaculture at the University of Ibadan in Nigeria, Oluwaseun Ogundijo recognized the importance of early disease detection for improved aquaculture health and food production, but he lacked access to some of the most advanced diagnostic approaches. A workshop conducted by WorldFish under the USAID-funded Feed the Future Innovation Lab for Fish activity on aquaculture biosecurity changed that.

Starting from the left is Difa Dhaniah Zharfan Engcong, Malaysia; Oluwaseun Ogundijo, Nigeria; Gan Han Ming, Malaysia; Adriana Batrisyia Binti Mohd Faisal, Malaysia; Jérôme Delamare-Deboutteville, Malaysia; Sabrina Hossain, Bangladesh; Olayemi Akinsola Okunlade, Nigeria; Rabecca Kumalindi, Malawi; and Tom Malambo, Zambia. (Photo by Shng Shng Sam, Digital Media Manager, WorldFish, Penang)

"Before undergoing this molecular diagnostics training, I had a limited understanding of applying molecular diagnostic techniques," Ogundijo said. "This was primarily due to a lack of access to training opportunities, insufficient knowledge of molecular diagnostics, and inadequate expertise in utilizing advanced technologies. These challenges were particularly significant as I embarked on my career as a Nigerian researcher."

The training took place in Penang and Kuala Lumpur, Malaysia, in early May 2023. Led by Jérôme Delamare-Deboutteville, a lead co-principal investigator for the Fish Innovation Lab activity, the workshop was conducted in collaboration with Patriot Biotech, a biotechnology company specializing in molecular diagnostics, next-generation sequencing, and bioinformatics (i.e., a software tool to help understand and read large data sets). The training aimed to enhance participants' knowledge and skills in molecular diagnostics, focusing on the latest techniques to strengthen capacity in various countries. Seven participants from Nigeria, Bangladesh, Zambia, Malawi, and Malaysia joined.

"The program showcased a diverse group of experts in the field of molecular disease diagnostics," Ogundijo said. "These facilitators included the renowned expert Gan Han Ming from Patriot Biotech, along with other industry professionals from Malaysia. Also, the interactive, in person format of the training program provided valuable networking opportunities with fellow participants and facilitators."

The seven-day molecular diagnostics training program encompassed theoretical concepts, laboratory techniques, and practical applications related to disease detection using molecular diagnostics. The

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program was delivered in a state-of-the-art laboratory, which was equipped with the latest molecular diagnostic instruments and materials for practical sessions from sample collection, DNA extraction, polymerase chain reaction (PCR), gel electrophoresis, DNA quantification, sequencing, and data analysis. The course materials, including presentations, lecture notes, and laboratory protocols, were comprehensive and served as valuable resources for future reference.

"Equipped with invaluable skills and newfound confidence from this training, my colleagues and I will be able to put into practice what we have learned about molecular disease diagnostics for effective aquaculture health management strategies in our home countries," Ogundijo said. "Moreover, this program has enhanced my research and technical capabilities, opening new career prospects. It has also entrusted us with the responsibility of implementing molecular diagnostic techniques in our respective countries, and the training has paved the way for future partnerships.

"The molecular diagnostics short course held in Malaysia has provided a valuable learning experience, enriching our knowledge and skills in this rapidly advancing field. I am optimistic that each participant will return to their country with a renewed sense of research purpose. By implementing everything we have learned in the molecular diagnostic training program, we can become catalysts for change. If sustained, this initiative has the potential to revolutionize the aquaculture industry in our respective countries."

ABOUT THE FISH INNOVATION LAB

The Fish Innovation Lab supports the United States Agency for International Development's agricultural research and capacity building work under Feed the Future, the U.S. Government's global hunger and food security initiative. Mississippi State University is the program's management entity. The University of Rhode Island, Texas State University, Washington University in St. Louis, and RTI International serve as management partners.

www.feedthefuture.gov
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