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From shells to fishes: A continuing research story from Japan to the Philippines

Frolan A. Aya

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(SEAFDEC/AQD), Binangonan Freshwater Station, Binangonan, Rizal, Philippines

Year Graduated: 2010

I was one of the fortunate Filipino students to be a recipient of the *Monbukagakusho* scholarship and be educated in the Hokkaido University, one of the prestigious universities in Japan. My journey as a student was not always smooth sailing, and the technical difficulties I experienced in learning the ropes in research made me a resilient, resourceful and productive researcher that I am today. And I am forever indebted to my generous and ever supportive Academic Supervisor, Professor Isao Kudo.

Coming from a tropical country and moving in to Hokkaido in 2004, experiencing my first *White Christmas* for the first time was thrilling. The Japanese food was healthy and *oishii*. Learning the *Nihongo* was tongue twisting but I must learn it to survive in my daily student life.

I started my research work on Japanese scallops or *hotate*, a shellfish species, in 2006 for my MSc studies, and continued learning the “*hotate* language”, as described by Prof. Kudo, for my PhD dissertation work until 2010. Using the stable isotope analysis, I was interested in what specifically the scallops were eating – an aspect of their feeding ecology. While doing this type of thesis in Japan was relatively easy because the required laboratory supplies and equipment for analysis were readily available, learning to operate the equipment by myself and spending sleepless night to analyze a lot of samples were exhausting. Nonetheless, perseverance to overcome the technical difficulties really work! Interestingly, I found that *hotate* were getting their nutrition from sinking particles, not only from the phytoplankton as previously known, and their isotope signatures also changed with age. For these groundbreaking results, I was conferred the *Allan Ansell Award for Best Student Oral Presentation* by the National Shellfisheries Association during my presentation at the 2009 International Pectinid Workshop in Galicia, Spain. Of course, with the sterling guidance of Prof. Kudo.

Shortly after my PhD studies, I was thinking then that I wanted to do similar work on tropical scallops when I go back to the Philippines. But, how could I apply the techniques I have learned in Japan?

The first two years of doing research in the Philippines was a period of adjustment – learning new field and/or new species to work on. As a newly-hired researcher at SEAFDEC Aquaculture Department in 2010, doing different fields of research – on fish breeding and nutrition – was indeed challenging. In fact, it took me three years developing a seed production technology and closing the life cycle of silver perch (*Leiopotherapon plumbeus*), a dwindling but important freshwater food fish. Likewise, on fish nutrition – I have been involved in developing fish feeds using alternative feedstuff for other tropical fish and crustacean species to benefit the local feed industry. But, the key to successful research career is to: collaborate!

I have maintained my collaboration with Prof. Kudo throughout the years and conduct relevant studies with other researchers in the Philippines. And as I gained more experience, I am trying to expand my research interests, this time, on fish physiology. In fact, visiting Japan last October 2024 for a study tour to different universities, including Hokkaido University, and research institutions enhanced my upcoming research on tropical anguillid eels. I was fortunate to meet Prof. Kudo, five months before his retirement and had the pleasure of catching up with him after more than 14 years since I got my PhD degree. Indeed, this is a continuing story of my research career which started in Japan, continued in the Philippines and further enhanced in Japan.



Hokkaido University Commencement Exercises,
25 March 2010



With fellow Filipino graduates and Monbukagakusho scholars



Study visit at the Laboratory of Fish Reproductive
Physiology, Graduate School of Fisheries Science,
22 October 2024



Meet up with Professor Isao Kudo, 19 October 2024

My two years at Hokkaido University: A journey of growth and ambition

Philip Anggo Krisbiantoro (Postdoctoral researcher, National Taiwan University)

My name is Philip Anggo Krisbiantoro, and I was a masters student at the Graduate School of Environmental Science, Hokkaido University, under Prof. Yuichi Kamiya, from 2018 to 2020. My two years in the department were crucial to my aspiration of becoming a scientist and deepened my sense of responsibility to contribute to environmental protection through catalysis. At the time I started my masters studies, I was a very naïve student, new to the field of catalysis. Understanding this, Prof. Kamiya introduced me to catalysis science from the fundamentals to advanced and taught me with sincerity, patience, and care until finally, I could think and do research in the way a catalysis researcher should. Under him, I worked on the development of heterogeneous catalysts for the ozonation of ammonia nitrogen in water, research that was motivated by severe water pollution in Indonesia. Moreover, I was also intensively trained in how to do a good presentation and scientific writing, skills that I continue to benefit from today. Currently, I hold a PhD degree; despite not being under him, it is still majorly because of the excellent training he gave me during my masters.

Beyond my research, my time in the department was also about building friendships and experiencing cultural exchange. In the lab, I formed strong friendships with my fellow lab members, and I am deeply grateful for their kindness. They not only helped me adapt to Japanese culture but also assisted me in learning how to use lab instruments. Outside the lab, on the other hand, it was about traveling and enjoying the beautiful nature of Hokkaido. The more I travel through Hokkaido, the more I grow the sense of responsibility in preserving our environment from a simple act of reducing, reusing, and recycling to an advanced contribution of remediating the environment through catalysis. This then led me to work on catalytic plastic recycling during my PhD (from 2020 to 2024) at the National Taiwan University, Taiwan. Currently, I am a postdoctoral researcher at the same university and still working on the development of high-performance catalysts for plastic recycling. In the future, I am keen to work on biomass conversion into high-value-added chemicals to further contribute to the effort of the catalysis society to shape a sustainable environment.

Overall, I am grateful for the opportunity to complete my masters studies at Hokkaido University. The two-year training made me even more ambitious in doing more research and gaining more knowledge to contribute to improving our environment. Finally, I will ensure that Dr. William S. Clarks famous message of "Boys, be ambitious" does not go to waste. I will be ambitious for our environment and society.



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