Advanced Research Scholar – Post-doctoral

Lilia Fernando, Ph.D.

University of the Philippines Los Baños

Philippine University	*University of the Philippines Los Baños*
Field of Study:	*Biomolecular Materials Engineering for Agriculture*
Research Period	*June 2017 – April 2018*
US University	*Massachusetts Institute of Technology*
US Professor	*Dr. Angela Belcher*
Research Title	*Development of a Bacteriophage-Based Nano-sensor for the Detection of Ralstonia solanacearum*

Describe your research conducted in the US.

My research aimed to develop a phage- and yeast-based sensor for the detection of plant pathogen *Ralstonia solanacearum*. The strains of this pathogen contains soil-borne bacteria which are the causative agents of bacterial wilt in over 450 plant species, including economically important crops.

What was the highlight of your research in the US?

I can say that the 'highlight' of my research is figuring out on my own how I can attain my objectives without any template methodology to start with. This is very much different from my previous work with collaborators [in the US] where I proceed with optimization studies based on what the team has started. I am challenged here to basically figure out on my own how to solve problems (which I thought of) using unique or novel approaches. I find this route exciting and enthusing as a young scientist.

In what way has the USAID scholarship changed you?

The USAID scholarship provided me with opportunity to learn new skills and knowledge specifically in biological engineering. Through the USAID STRIDE, I was able to work with world renowned faculty in multiple fields of science and engineering with a commitment to interdisciplinary collaboration. I believe that through this experience, I'd be able to always welcome any challenge by thinking like how my mentor (Dr. Belcher) tackles research problems: going beyond my imagination through 'crazy [but sensible] ideas' in solving problems. I am also amazed on how my colleagues in the laboratory welcomes hurdles in their research work by solving riddles together to come up with solutions. These people truly inspired me to go beyond the usual research route through 'crazy ideas' and trust with colleagues.

How would you use the knowledge and skills gained through your research to contribute or influence economic growth in the country?

I will be mentoring students and staff with the skills and knowledge that I have learned and inculcate in them the right attitude in research to ignite their passion in innovative science and technology. The said culture plus openness to collaborations needs to proliferate in the country. I will also work on research projects in various areas (i.e. agriculture, medicine) to apply the technical skills I have learned here.

As a young scientist, what do you envision for the Philippine science, technology and innovation ecosystem in the next 10 years?

With the right attitude of scientists and an enabling environment for research, I envision the Philippine science, technology and innovation ecosystem to involve cross-disciplinary research that encompass collaborations with national and international institutions, public and private/industry partners. The latter is needed for our society to feel the impact of research.

Upon her return to the Philippines, Lia plans to submit research proposals for funding, and mentor staff and students as she applies the skills she has learned in the US. She would also maintain the collaborations with scientists and faculty from US and other universities abroad to help the country in research and capability building.

E-mail: lmfernando@up.edu.ph; limafe226@gmail.com