

Advanced Research Scholar – PhD Dissertation

Kramer Joseph Lim

University of San Carlos



Field of Study:
Research Period
US University
US Professor
Research Title

Food and Waste Engineering
March 2016 – February 2017
Case Western Reserve University
Dr. Daniel Lacks
Product Development of Mango-Derived Nutraceuticals
by Spray Drying Technology

Describe your research conducted in the US.

The Philippines is one of the top mango producing countries all over the world and about half is utilized to make commercial products such as juices, dried mangoes, jams, candies, etc. either for local patronage or for export. More often than not, industries only make use of the flesh or pulp. Seeds and peels are discarded as waste which then become potential threats to the environment and people's health

With the notion of "zero waste," this study aims to address the challenge of finding high-value products from the mango seed, thereby valorizing such industrial byproduct. Previous studies reveal that seeds contain polyphenols, high-value products with important health and economic benefits. When the processes for the extraction and purification of such products are made available to industry, the commercial-scale production will be possible.

What was the highlight of your research in the US?

I was given the opportunity to be trained to use state of the art equipment and methodology for characterization like Scanning Electron Microscopy, high performance liquid chromatography and lab view programming. Capacity building is practiced at CWRU with students doing synthesis of samples and characterization analyses.. I learned that for as long as the equipment is available and is open for use by students, then anyone in the university can be trained to use it for research. Not to mention that equipment availability can also bud collaboration between research groups.

In what way has the USAID scholarship changed you?

Being a USAID scholar has developed my skills and perspective in conducting research. I used to be someone who lacks confidence. But since I was alone, I had to speak for myself and had to see to it that I get things done. I realized that though we come from a developing country, we are equally footed intellectually with scholars from other countries. Though faced with challenges, I also learned that things happen for a reason. No matter how bad it may seem, continue to have a positive outlook. Moreover, it also pays to tap someone else's expertise about a subject matter. We cannot be an expert on everything. Being able to acknowledge one's weakness is actually key to moving on.

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

Although I am currently working in mango seed kernel bioactive materials research, this does not limit me to this type of feed stock. In our country, with a tropical climate, we are blessed with abundance of a wide variety of plant materials which have potential to be replicated into other systems. The study that I am in can actually serve as a baseline for other researches. The team is looking into other possible fruit-based plant materials for research. The study that I am currently working in can actually serve as a baseline for other researches. But, I want to expand my research to other types of feed stock. My team are now looking into other possible fruit-based plant materials for research.

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

I envision a country wherein we have a robust, research centered academic system, and more opportunities for collaboration, and partnership between the academe, industry, government and private sectors. I look forward to the development of research centers with state of the art facilities that will help researchers like me accomplish their work without leaving the country.

After obtaining his Doctor of Engineering degree from the University of San Carlos in Cebu, Kramer will resume his work as faculty in the same university.

E-mail: kramerjosephlim@gmail.com