

# PlantLink Researcher in the spotlight

## Jean Yong (“John”)

October 2018

*Jean Yong (“John”) is starting as a Professor at Department of Biosystems and Technology at SLU this autumn. John has a background at the Australian National University, various universities in Singapore, Brown University, MIT and most recently, University of Western Australia and Curtin University. He has a broad interest in plant and environmental sciences; with a current research focused on defining and understanding the role of phytohormones in biostimulants and natural soil fertility.*



### **-What is currently on top of your research agenda?**

Imagine living in a world where the bulk of plant nutrition could be met sustainably by organic matter (like seaweeds, composts, earthworms’ faeces, coconut water, biosolids, etc) and beneficial microorganisms! We are therefore making a bold attempt to bridge the divide between conventional and organic fertilizer usage globally. We are living in exciting times.

### **-What led you into your particular field of research?**

Charles Darwin’s seminal observation that earthworms are associated with natural soil fertility. But no one really demonstrated unequivocally the growth promotion properties of earthworms’ faeces until 2013 where we [found growth promoting phytohormones \(microbial-derived\) in the faeces \(vermicompost\)](#) and in levels similar to what you would add in a typical axenic plant tissue culture medium!

### **-What are the implications of your research for the society?**

There is paradigm shift globally towards the use of organic additives (“Biostimulants”) to improve crop productivity and to reduce the reliance on chemical-based fertilizers usage. Ecologically, this approach is making major impact on strategies used during ecological restoration and improving degraded soils.

### **-Finally, let’s say you got unlimited research funds; where would your research be five years from now?**

We are critically re-assessing the effectiveness of the century-old N-P-K (nitrogen-phosphorus-potassium) concept in governing fundamental plant nutrition. We are now in the process of setting a new criteria called **A-NPK**. **A** refers to the **A**ctive ingredients or **A**ctive compounds present in any given fertilizers. **A** is not just any phytohormones like cytokinins, but includes the other phytohormones like auxins, gibberellins, etc., their stabilizing (“chelating”) associates like humic and fulvic acids, etc) and other novel unknown compounds. Think further about Smart Seeds, Smart Soils and Smart Biofertilizers!