

Food Microstructure: What You (Don't) See is What You Get

By Dr. May Wee

Date: 5th April 2016 (Wednesday)

Time: 12 – 1pm

Host: Prof. Zhou Weibiao

Venue: Seminar Room S14-06-19

Abstract

To a food scientist, foods are complex soft condensed matter which are of great interest in academic research as well as starting materials for microstructural architecture. Advanced molecular analytical techniques has allowed the advent of nano-encapsulation, micro-protein particles, or mixed biopolymer coacervation of food materials which has exciting potential uses in foods. *Theoretically*. Despite being a few years away from sending the first man to Mars, better technology does not necessarily equate to happier and healthier lives. The obesity 'outbreak' has made us rethink what food science and technology really means when for many of us, choosing to eat healthy foods or appropriate amounts for our needs has gone far beyond our free wills. The missing link here? Translation into real foods with *product development* and *food psychology*. A food is not a food until it is eaten, and anything before consumption is but carbon molecules. There is no doubt that the psychology surrounding eating behaviours is important and has substantial consequence on what we eat and therefore our health.

What we as food scientists *can* do is to re-engineer 'unhealthy' foods Trojan-horse style using food microstructure, and ensure that it passes through the gates of psychology and does end up as food, *repeatedly*. The three major outcomes of food microstructural design is to alter food textures (physicochemical and sensorial properties), oral processing behaviours (eating experience), and finally post-ingestive digestion and nutrition. For example, we know that eating rate influences the total amount of food consumed and subsequent satiety, therefore food textures can be a very effective tool used to modulate eating rate without the consumers' knowledge. Two foods may look exactly the same on the macrostructure outside, but the underlying microstructure could look no more alike than sashimi to salami. Examples of various food architectures and how they have been used in these three contexts will be covered in the seminar.

About the speaker



Dr. May Wee graduated with a diploma in Chemical Process Technology (Food) in Singapore Polytechnic, and stayed with Massey University for the next 6 years to complete her Bachelor's degree and PhD in Food Science and Technology in both Singapore and New Zealand campuses. She worked at the Food Innovation & Resource Centre for two years prior to joining A*STAR Clinical Nutrition & Research Centre (CNRC) in the Sensory Science and Ingestive Behaviour team at the start of 2017. Her research interest is on food structural characterisation of functional ingredients *i.e.* polysaccharides, proteins, medium-chain triglycerides, and mixed biopolymer systems, and how these food structures can be translated to benefits for humans using product development skills, *in-vitro* and *in-vivo* studies.

Note: There will be two honours year projects in collaboration with CNRC involving food structure design and sensory science under the supervision of Dr. May Wee and Dr. Ciaran Forde. Interested students are encouraged to attend the seminar.