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**Modeling of single droplet drying of noni juice to unveil the drying mechanism****Chuang Zhang<sup>1</sup>, Nan Fu<sup>2</sup>, Xiao Dong Chen<sup>2</sup>, Paul Kilmartin<sup>1</sup> and Siew Young Quek<sup>1</sup>**<sup>1</sup>University of Auckland, New Zealand<sup>2</sup>Soochow University, China

Drying based microencapsulation technique has been applied to mask the unpleasant odor and to protect the bioactive juice including noni. Noni juice is one of the most popular noni supplements and it has attracted increasing attention due to the abundant phytochemicals including iridoids, xeronine, phenolics and flavonoids. Current study aimed to investigate the microencapsulation of noni juice by gum acacia and maltodextrin using single droplet drying technique to unveil the drying mechanism. The changes of droplet temperature, droplet size and moisture content during drying were followed and the Reaction Engineering Approach (REA) was used to model the drying process to correlate the drying histories and drying kinetics. Based on the results, the REA model provides an accurate description of the drying behavior of different noni juice systems consisted of different core to wall material ratio and wall material type. This model can be applied to investigate large scale operations of spray drying of noni juice via dryer-wide simulation software, providing reliable data for scale up of the drying process. Overall, this study has provided a fundamental knowledge for future large-scale explorations of spray drying microencapsulation of liquid phase containing bioactive compounds.

**Biography**

Chuang Zhang is currently a PhD student at the University of Auckland in New Zealand.

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