

## **THOO YIN YIN**

Lecturer, PhD  
Honours Coordinator  
School of Science, Monash University Malaysia



**Phone:** (+6) 03-55145691

**Email:** [thoo.yin.yin@monash.edu](mailto:thoo.yin.yin@monash.edu), [yinyinthoo@hotmail.com](mailto:yinyinthoo@hotmail.com)

**Linkedin:** <https://www.linkedin.com/in/yin-yin-thoo-73400b51/>

**Research Gate:** [https://www.researchgate.net/profile/Yin\\_Yin\\_Thoo](https://www.researchgate.net/profile/Yin_Yin_Thoo)

**ORCID iD:** <https://orcid.org/0000-0002-2581-1112>

### ***BIOGRAPHY***

Yin Yin works in the School of Science at Monash University Malaysia as a lecturer.

She is interested in alternative methods of preserving and processing food. Her research focus on the identification and development of alternative methods to provide consumer with healthier food choices as well as to fight food waste by innovative food packaging.

A central aim of her work is utilising oleogelation as an alternative processing method to structure lipid oil without generation of trans-fatty acids. The structured reduced fat spread (oleogel) resembled the texture of commercial spread products. This research utilises a variety of methodological approaches such as Fourier transform infrared (FTIR) spectroscopy, X-Ray diffraction (XRD) analysis, rheology analysis, texture analysis and Disc scanning calorimetry (DSC). Her research team is currently exploring the use of oleogel as bioactive compounds delivery vehicle in food matrix.

Another primary area of her work is to develop edible or biodegradable food packaging film using food waste. Along these lines, her research team is investigating the use of food waste as barrier film to extend shelf life by reducing or eliminating oxygen and water vapour permeation. She has published numerous papers in the areas of natural products, influence of processing on antioxidant activity as well as microencapsulation and control release and presented in numerous national and international conferences.

### ***ACADEMIC QUALIFICATION***

- Graduate Certificate in Higher Education
- Ph.D. in Food Science
- B.Sc. (Hons.) Food Science and Nutrition

## ***RESEARCH GRANTS***

### **1. Development of antioxidant blends into edible oil systems**

Funded by: School of Science Seeding Fund, Monash University Malaysia

Duration: 2013 – 2015

Role: Project Leader

### **2. Modulating physical properties of palm oil-based organogels**

Funded by: Fundamental Research Grant Scheme, Ministry of Higher Education

Duration: 2015 – 2018

Role: Project Leader

### **3. Transforming teaching of Human Nutrition from didactic lecture to case based learning**

Funded by: Monash University Malaysia

Duration: 2018 – 2019

Role: Project Leader

### **4. Transforming Effect of alternative sweeteners and carbohydrate polymers on the physical properties, shelf life and organoleptic profile of palm oil fractions for compound chocolates applications**

Funded by: Fundamental Research Grant Scheme, Ministry of Higher Education

Duration: 2018 – 2021 (On-going)

Role: Co-researcher

## ***SUPERVISION OF RESEARCH STUDENTS***

### **PhD Student (Present)**

1. Teoh Ru Wei (Main supervision) – Fabrication of zein particle loaded gellan gum-based food packaging film
2. Towhid Hasan (Co-supervision) - Frozen dessert preparation: Physicochemical properties of fat mixtures and sensory acceptance
3. Wong Keat Yi (Co-supervision) - Effect of alternative sweeteners aided with carbohydrate polymers on the physical, nutritional and sensorial properties and storage stability of dark compound chocolate

### **PhD Student (Completed)**

4. Ghan Sheah Yee (Main supervision) - Modulating physical properties of palm oil-based organogels using water
5. Ho Siyin (Co-supervision) - Microencapsulation of catechin with natural and modified cyclodextrin for functional food development

### **Master's Student (Present)**

1. Reuben Amirthalingam (Co-supervision) - biosynthesis of metal nanoparticles from spices and its bioactivities

### **Master's Student (Completed)**

1. Ghan Sheah Yee (Co-supervision) - Regeneration of alpha-tocopherol in cooking oils by natural antioxidant (*Aquilaria crassna*) crude extracts and its effect on oxidative stability of the oil under accelerated storage condition
2. Caryn Kho (Co-supervision) - Characterising properties of fermented red dragon fruit juice, its stability and post fermentation treatment

### **Honours Student (Present)**

1. Khor Yong Xen (Main supervision) - Mechanical and thermal properties of acidified and basified gellan gum films and those loaded with zein as well as the potential as food packaging substitute
2. Vani Kotnala (Main supervision) - Development and characterization of Gellan/Glycerol/ Sunflower Oil as Biodegradable coating material

### **Honours Student (Completed)**

1. Lee Boon Jen (Main supervision) - Ozone Treatment of Watermelon Juice
2. Sientrina (Main supervision) – Characterization and application of cellulose nanofiber/whey protein isolate as fat replacer on ice cream
3. Pak Yi Wen (Main supervision) - Effect of oil type on gelation and thermal properties soy lecithin-based organogels
4. Lim Pei Yiin (Co-supervision) - Effect of different alternative sweeteners on the physicochemical, textural and sensory properties of dark compound chocolate
5. Kuan Lai Yee (Co-supervision) - Physicochemical and antioxidant properties of purple, orange and yellow sweet potato powder processed by vacuum and convection drying methods
6. Tommy Kristanto (Co-supervision) - Academic burnout and eating disorder among students in Monash University Malaysia

### **Third Year Project Students (Completed)**

1. Hamsan Muthayya (Main supervision) – Synthesis of aerogel from banana peel and to investigate it's efficiency in oil/organic solvent absorption
2. Nurul Fadhilah Syahirah (Main supervision) - Regeneration of alpha-tocopherol in cooking oils by natural antioxidant (*Aquilaria crassna*) crude extracts and its effect on oxidative stability of the oil under accelerated storage condition
3. Hani Hafeeza Halim (Main supervision) - Effect of sonication time on lipid oxidation & accelerated storage of sonicated sunflower oil & palm oil
4. Vivi Veronica (Main supervision) - Influence of various extraction parameters on the antioxidant content and capacity from Gaharu (*Aquilaria malaccensis*)
5. Wee Wen Ye (Main supervision) - Thermal stability of *Centella asiatica* extract and its effect on oxidative stability of sunflower oil
6. Thresia (Main supervision) - Oxidative stability of sunflower oil supplemented with *Centella asiatica*(pegaga) extract and  $\alpha$ -tocopherol under accelerated storage.

## **RESEARCH OUTPUT**

### **Scientific publications**

1. Ghan, S.Y., Siow, L.F., Tan, C.P., Cheong, K.W. and **Thoo, Y.Y.** (2020). Influence of Soya Lecithin, Sorbitan and Glyceryl Monostearate on Physicochemical Properties of Organogels. *Food Biophysics*, 15, 386-295.
2. Ho, S., **Thoo, Y.Y.**, Young, D.J. and Siow, L.F. (2019). Stability and recovery of cyclodextrin encapsulated catechin in various food matrices. *Food Chemistry* 275, 594-599.
3. Ho, S., **Thoo, Y.Y.**, Young, D.J. and Siow, L.F. (2019). Probing the interaction of catechin and its  $\beta$ -CD inclusion complex with different food models. *LWT-Food Science and Technology*.209, 368-373.
4. Choo, K.Y., Kho, C., Ong, Y.Y., **Thoo, Y.Y.**, Lim, R.L.H., Tan, C.P. and Ho, C.W. (2018). Studies on the storage stability of fermented red dragon fruit (*Hylocereus polyrhizus*) drink. *Food Science and biotechnology* 27 (5), 1411-1317.
5. Halim, H.H. and **Thoo, Y.Y.** (2018). Effect of ultrasound treatment on oxidative stability of sunflower oil and palm oil. *International Food Research Journal*, 25(5), 1959-1967.
6. Ho, S., **Thoo, Y.Y.**, Young, D.J. and Siow, L.F. (2017). Inclusion complexation of catechin by  $\beta$ -cyclodextrins: characterization and storage stability. *LWT – Food Science and Technology*, 86, 555-565.
7. Ho, S., **Thoo, Y.Y.**, Young, D.J. and Siow, L.F. (2017). Cyclodextrin encapsulated catechin: Effect of pH, relative humidity and various food models on antioxidant stability. *LWT-Food Science and Technology*, 85, 232-239.
8. Kristanto, T., Chen, W.S. and **Thoo, Y.Y.** (2016). Academic burnout and eating disorder among students in Monash University Malaysia. *Eating Behaviors*, 22, 96-100. <http://dx.doi.org/10.1016/j.eatbeh.2016.03.029>
9. Ghan, S.Y., Chin, J.H., **Thoo, Y.Y.**, Yim, H.S. and Ho, C.W. (2016). Acute oral toxicity study of *Aquilaria crassna* and  $\alpha$ -tocopherol in mice. *International Journal of Pharmaceutical Sciences and Research*, 7(4), 1456-1464. DOI: 10.13040/IJPSR.0975-8232.7(4).
10. Kuan, L.Y., **Thoo, Y.Y.** and Siow, L.F. (2016). Bioactive components, ABTS radical scavenging capacity and physical stability of orange, yellow and purple sweet potato (*Ipomoea batatas*) powder processed by convection- or vacuum-drying methods. *International Journal of Food Science & Technology*, 51(3), 700-709. Doi:10.1111/ijfs.13023.
11. Ho, S. K., Tan, C.P., **Thoo, Y.Y.**, Abas, F. and Ho, C.W. (2014). Ultrasound-Assisted Extraction of Antioxidants in Misai Kucing (*Orthosiphon stamineus*). *Molecules*, 19: 12640-12659.
12. Hedegaard, R., Santos, C., **Thoo, Y.Y.**, and Skibsted, L. (2014). Free radical processes in non-enzymatic browning of glucose and lysine. Influence of temperature and unsaturated lipids. *Australian Journal of Chemistry*, 67(5): 805-812.
13. **Thoo, Y.Y.**, Ho, S.K., Abas, F., Ho, C.W., Lai, O.M. and Tan, C.P. (2013). Optimal binary solvent extraction system for phenolic antioxidants from mengkudu (*Morinda citrifolia*) fruit. *Molecules*, 18(6): 7004-7022.

14. **Thoo, Y.Y.**, Abas, F. Lai, O.M., Ho, C.W., Yin, J., Hedegaard, R.V., Skibsted, L.H. and Tan, C.P. (2013). Antioxidant synergism between ethanolic *Centella asiatica* extracts and  $\alpha$ -tocopherol in model system. *Food Chemistry*, 138 (2-3): 1215-1219.
15. **Thoo, Y.Y.**, Ng, S.Y., Khoo, M.Z., Wan Aida, W.M. and Ho, C.W (2013). A binary solvent extraction system for phenolic antioxidants and its application to the estimation of antioxidant capacity in *Andrographis paniculata* extracts. *International Food Research Journal*, 20(3): 1103-1111.
16. Chew, K.K., Khoo, M.Z., Ng, S.Y., **Thoo, Y.Y.**, Wan Aida, W.M. and Ho, C.W. (2011). Effect of ethanol concentration, extraction time and extraction temperature on the recovery of phenolic compounds and antioxidant capacity of *Orthosiphon stamineus* extracts. *International Food Research Journal*, 18(4): 1427-1435.
17. Chew, K.K., Ng, S.Y., **Thoo, Y.Y.**, Khoo, M.Z., Wan Aida, W.M. and Ho, C.W., (2011). Effect of ethanol concentration, extraction time and extraction temperature on the recovery of phenolic compounds and antioxidant capacity of *Centella asiatica* extracts. *International Food Research Journal*, 18(2): 566-573.
18. **Thoo, Y.Y.**, S.K. Ho, J.Y. Liang, C.W. Ho, and C.P. Tan, (2010). Effects of binary solvent extraction system, extraction time and extraction temperature on phenolic antioxidants and antioxidant capacity from mengkudu (*Morinda citrifolia*). *Food Chemistry*, 120(1): 290-295.

**Papers published in international conferences, proceeding, seminars, workshops and exhibitions**

1. Ghan, S.Y., Siow, L.F., Tan, C.P., **Thoo, Y.Y.** (2018). Effect of organogelator on the physicochemical properties of palm olein-based organogels. 8<sup>th</sup> International Colloids Conference, June, 10-13, Shanghai, China, Poster.
2. Pak, Y.W., Siow, L.F., **Thoo, Y.Y.** (2017). Comparative analysis of palm oil and sunflower oil organogels containing beeswax. Proceedings of the 15<sup>th</sup> ASEAN Conference on Food Science and Technology, November 14-17, 2017, Ho Chi Minh City, Vietnam, Oral presentation.
3. Ghan, S.Y., Siow, L.F., Tan, C.P., **Thoo, Y.Y.** (2017). Structure and physical properties of organogels developed with sunflower oil. 10<sup>th</sup> International Conference and Exhibition on Nutraceuticals & Functional Foods (ISNFF) 2017, October 22-25, 2017, Gunsan, South Korea, Oral presentation.
4. Ho, S., **Thoo, Y.Y.**, Young, D.J. & Siow, L.F (2016). Effect of selected parameters on the stability, antioxidant properties and physicochemical properties of inclusion complex of catechin by  $\beta$ -cyclodextrins. 1st Food chemistry conference, Amsterdam, Netherlands, October 30 – November 1, Poster.
5. Rikke V. Hedegaard, Cecile Santos, **Thoo Yin Yin** and Leif H. Skibsted (2012). AGE formation as influenced by lipid oxidation. 11<sup>th</sup> International Symposium on the Maillard Reaction (September 16-20, 2012), Poster.
6. Tan, C.P., **Thoo, Y.Y.**, Ho, C.W., Abas, F. and Lai, O. M. (2011). Antioxidant activity of extracts from ultrasound-assisted extraction of *Centella asiatica* and synergism with  $\alpha$ -

tocopherol. 9<sup>th</sup> Euro Fed Lipid Congress (September 18-21, 2011), Oxidation, Deep Frying, Marine Lipids Posters.

7. **Thoo, Y.Y.**, Ng, S.Y., Khoo, M.Z., Tan, C.P. and Ho, C. W., (2009). Effect of ethanol concentration on polyphenol content and antioxidant capacity of plant extracts: *Andrographis paniculata*, *Centella asiatica*, and *Orthosiphon stamineus*. 100<sup>th</sup> AOCS Annual Meeting and Expo (May 3-6, 2009), Lipid Oxidation and Quality Posters.

### **Papers published in national conferences, proceeding, seminars, workshops and exhibitions**

1. Ghan, S.Y., Siow, L.F., Tan, C.P., **Thoo, Y.Y.** (2018). Formation of oleogel using palm olein. 14th International Symposium on Biocatalysis and Agricultural Biotechnology, October 22-23, 2018, Pullman Kuala Lumpur City Centre, Oral presentation.
2. Ho, S., **Thoo, Y.Y.**, Young, D.J. & Siow, L.F. (2017). Stability of Cyclodextrins complexed catechin in various storage and processing conditions and various food models, MIFT 10<sup>th</sup> National Food Science and Technology Competition, March, 17-23, 2017, Poster.
3. Ghan, S.Y., Siow, L.F., Tan, C.P., **Thoo, Y.Y.** (2017). Effect of types and concentrations of organogelators on the physicochemical properties of palm olein-based organogels. MIFT 10<sup>th</sup> National Food Science and Technology Competition. March 17-18, 2017, Taylor's University Lakeside Campus, Oral presentation.
4. Pak, Y.W., Siow, L.F. and **Thoo, Y.Y.** (2016). Comparative analysis of palm oil and sunflower oil organogels containing beeswax with commercial margarine. Monash Science symposium (November 21-23, 2016), Poster.
5. **Thoo, Y.Y.**, Abas, F., Lai, O.M., Ho, C.W. and Tan, C.P., (2012). Antioxidant synergism between *Morinda citrifolia* extract and  $\alpha$ -tocopherol. International Conference on Food Science and Nutrition 2012 (April 2-4, 2012), Natural Product and Innovative Food Processing Posters.
6. **Thoo, Y.Y.**, Abas, F., Lai, O.M., Ho, C.W. and Tan, C.P., (2011). Enhancement of the extraction of bioactive compounds from *Tinospora crispa* using ultrasound. 7<sup>th</sup> MIFT Food Science & Technology Seminar (February 19-20, 2011), Oral presentation.
7. Tan, C.P., Ho, C.W., Ho, S.K. and **Thoo, Y.Y.**, (2009). Optimization of extraction condition on phenolic compounds and antioxidant capacity from *Phyllanthus niruri* (Dukung Anak) using response surface methodology. Pameran reka cipta, penyelidikan dan inovasi UPM 2009 (July 28, 2009), Poster.
8. Tan, C.P., Ho, C.W., **Thoo, Y.Y.** and Ho, S.K., (2009). Optimisation of binary solvent extraction system for polyphenols and antioxidant capacity from Mengkudu aerial parts using response surface methodology. Pameran reka cipta, penyelidikan dan inovasi UPM 2009 (July 28, 2009), Poster.