



## Curriculum Vitae

Institute of Nutrition, Mahidol University (INMU)

999 Phutthamonthon 4 Rd., Salaya, Phutthamonthon

---

**Name** Thunnalin Winuprasith

ธัญญ์นลิน วิญญูประสิทธิ์

**Email Address:** [thunnalin.win@mahidol.ac.th](mailto:thunnalin.win@mahidol.ac.th)

**Current position:** Associate Professor

**Management position:** Deputy Director for Innovation and Entrepreneurship Ecosystem,  
Institute for Technology and Innovation Management (iNT), Mahidol University

### Education

2014 Doctoral of Philosophy (Biotechnology) Faculty of Science, Mahidol University, Thailand

2009 Master of Science (Food and Nutrition for Development) Institute of Nutrition, Mahidol University, Thailand

2005 Bachelor of Science (Public Health) Faculty of Public Health, Mahidol University, Thailand

### Research interest and expertise

1. Food emulsions and encapsulations for controlling digestibility and release of nutrients and bioactive compounds in gastrointestinal tract
2. Nanocellulose for food applications
3. Food product development for nutritional purposes i.e., foods for the elderly with chewing and swallowing difficulties; medical foods
4. Heat treatment using a water spray retort for sterilizing food products
5. Utilization of slow digestible starch and low glycemic sugar for specific purposes

### Research Experiences:

2022-Present: - Smart packaging film with encapsulated anthocyanin extracted from butterfly pea flower in double emulsion towards express freshness monitoring of food (Fundamental Fund 2023)

- Improving chrysin bioavailability using co-encapsulation approach with quercetin in nanoemulsion delivery system and application in food product (funded by Mahidol University under MU's Strategic Research Fund)

- All-in-one texture-modified drink with complete nutrition for elderly and dysphagia patients (funded by iNT, Mahidol University, Pre-seed Fund)

-Development of high protein gel with coconut juice for athletes (funded by iNT, Mahidol University, Mahidol Incubation Program, 2023)



## Curriculum Vitae

Institute of Nutrition, Mahidol University (INMU)

999 Phutthamonthon 4 Rd., Salaya, Phutthamonthon

---

- Development and production of ready-to-use, texture modified-blenderized diet from rice and Thai agricultural raw materials for commercial use (funded by PMUC)
  - 2021-2022:
    - Development of mulberry leaf hydrogel beads using microencapsulation technique for fabricating probiotic bacteria (funded by ARDA)
    - Development of Nutritious Food Products from Cricket Powder (funded by Forcento LTD Liab Co.)
    - Development of complete, balanced nutrition product using rice, beans, sesame, and herbs (funded by M.J 2015 Intertrade Company Limited)
    - Development of beverage product with calcium extracted from tuna bone (funded by G.P.J Biotechnology Co., Ltd. and TED Fund)
  - 2019-2021:
    - Modulating fat digestion of single and mixed colloidal delivery systems using nanocellulose (funded by Thailand Research Fund)
    - Development of swallowing practice kit for swallowing difficulty (dysphagia) patients (funded by Mahidol University, Pre-seed Fund)
    - Development of low glycemic index powdered food with complete nutrition from rice flour and vegetable powder (funded by NIA and Chiangmai Bioveggie Co., Ltd.)
    - Development of energy gel product (funded by iTAP and Boon Corporation Co., Ltd.)
    - Development of Nutritious Tube Feeding Diet Using Water Spray Retort (funded by Nutribay Company Limited)
    - Sensory evaluation of texture-modified pork, boiled rice product for elderly (funded by CP Foodlab Co., Ltd.)
    - Development of encapsulation and freeze dry technique promoting nutritional value stability in food products for specific people groups (Under Talent mobility program, Office of Higher Education Commission and Mahidol University, and CP Foodlab Co., Ltd.)
  - 2018-2019:
    - Development of reduced-fat emulsion products using nanofibrillated cellulose as a functional ingredient preventing fat digestion (funded by Thailand Research Fund)
    - Development Healthy Thai Dessert from Reducing Rapidly Digestible Starch Content in Flour (Under Talent mobility program, Office of Higher Education Commission and Mahidol University, and CP Foodlab Co., Ltd.)
    - Development of low glycemic index rice pudding (funded by National Innovation Agency, Thailand)
  - 2016-2018:
    - Development of vegetable powder pudding product for improving nutritional status in elderly with tooth loss (funded by Thailand Research Fund)
    - Encapsulation of vitamin D3 in Pickering emulsion fabricated using microfibrillated cellulose from mangosteen rind (*Garcinia mangostana* L.) and its in vitro digestion study (funded by Thailand Research Fund)
-



## Curriculum Vitae

Institute of Nutrition, Mahidol University (INMU)

999 Phutthamonthon 4 Rd., Salaya, Phutthamonthon

- 
- Development of nutritious boiled rice product for elderly (funded by CPram Co., Ltd.)
- 2012-2015: - Physicochemical Properties of Biopolymer-stabilized Colloidal Particles: Microfibrillated Cellulose-stabilized Emulsions and  $\beta$ -lactoglobulin-coated Gold Nanoparticles (The Royal Golden Jubilee Ph.D. Program funded by Thailand Research Fund)

### Publications

#### International level (Peer review paper)

1. Koirala, P., Sriprabom, J., **Winuprasith, T.** (2023). Anthocyanin-Rich Butterfly Pea Petal Extract Loaded Double Pickering Emulsion Containing Nanocrystalline Cellulose: Physicochemical Properties, Stability, and Rheology. *Foods*, 12(22), 4173. <https://doi.org/10.3390/foods12224173>
2. Kumar, S.R., Tangsrianugul, N., Sriprabom, J., **Winuprasith, T.**, Wansuksri, R., Suphantharika, M. (2023). Effects of single and dual modifications with debranching and heat-moisture treatments on physicochemical, rheological, and digestibility properties of proso millet starch. *Carbohydrate Polymer Technologies and Applications*, 6, 100399. <https://doi.org/10.1016/j.carpta.2023.100399>
3. **Winuprasith, T.**; Koirala P.; McClement, D.J.; Khomein, P. (2023). Emulsion Technology in Nuclear Medicine: Targeted Radionuclide Therapies, Radiosensitizers, and Imaging Agents. *International Journal of Nanomedicine*, 18. <https://doi.org/10.2147/IJN.S416737>
4. Saechio, S.; Akanitkul, P.; Thiyajai, P.; Jain, S.; Tangsuphoom, N.; Suphantharika, M.; **Winuprasith, T.** (2023). Astaxanthin-Loaded Pickering Emulsions Stabilized by Nanofibrillated Cellulose: Impact on Emulsion Characteristics, Digestion Behavior, and Bioaccessibility. *Polymers*, 15, 901. <https://doi.org/10.3390/polym15040901>.
5. Wongniyomkaset W, Rungraung N, Muangpracha N, **Winuprasith T**, Trachootham D. Complete nutrition drink with retrograded starch is low glycemic, and the individual glucose response to the low glycemic complete nutrition drink depends on fasting insulin levels and HOMA-IR in a randomized cross-over control trial. *J Nutr Sci.* 2022; 11: 1-13. <https://doi.org/10.1017/jns.2022.23>
6. Fitri, I.A., Mitbumrung, W., Akanitkul, P., Rungraung, N., Kemsawasd, V., Jain, S., & **Winuprasith, T\***. (2022). Encapsulation of  $\beta$ -Carotene in oil-in-water emulsions containing nanocellulose: Impact on emulsion properties, in vitro digestion, and bioaccessibility. *Polymers*, 14, 1414. <https://doi.org/10.3390/polym14071414>
7. Rungraung, N., Jain, S., Mitbumrung, W., Khomin, P., Suphantharika, M., McClements, D.J., & **Winuprasith, T\***. (2022). Controlling the in vitro gastrointestinal digestion of emulsified lipids by encapsulation within nanocellulose-fortified alginate beads. *Food Structure*, 32, 100266. <https://doi.org/10.1016/j.foostr.2022.100266>



## Curriculum Vitae

Institute of Nutrition, Mahidol University (INMU)

999 Phutthamonthon 4 Rd., Salaya, Phutthamonthon

8. Mitbumrung, W., Rungraung, N., Muangpracha, N., Akanitkul, P., & **Winuprasith, T\***. (2022). Approaches for Extracting Nanofibrillated Cellulose from Oat Bran and Its Emulsion Capacity and Stability. *Polymers*, 14, 327. <https://doi.org/10.3390/polym14020327>
9. Tangsrianugul, N., **Winuprasith, T.**, Suphantharika, M., Wongkongkatep, J\*. (2022). Effect of hydrocolloids on physicochemical properties, stability, and digestibility of Pickering emulsions stabilized by nanofibrillated cellulose. *Food & Function*. <https://doi.org/10.1039/D1FO02933A>
10. Kaewsit, N., **Winuprasith, T.**, & Trachootham, D\*. (2021). Detoxification of Heterocyclic Aromatic Amines from Grilled Meat by PEITC-rich Vegetable Sauce: A Randomized Crossover Controlled Trial. *Food & Function*, 12, 10411-10422. <https://doi.org/10.1039/D1FO01733K>
11. Surangna, J., **Winuprasith, T.**, & Suphantharika, M\*. (2020). Encapsulation of lycopene in emulsions and hydrogel beads using dual modified rice starch: Characterization, stability analysis and release behaviour during *in-vitro* digestion. *Food Hydrocolloids*, 104. <https://doi.org/10.1016/j.foodhyd.2020.105730>
12. Mitbumrung W., Jain S., & **Winuprasith T\***. (2020). Properties and stability of Pickering emulsions stabilized by nanofibrillated mangosteen cellulose: Impact of oil type and emulsifier concentration. *Songklanakarin Journal of Science and Technology*, 42(2), 468-476. <https://doi.org/10.14456/sjst-psu.2020.61>
13. Rungraung, N., Trachootham, D., Muangpracha, N., Purttiponthane, S., & **Winuprasith, T\***. (2020). Textural properties and sensory acceptability of texture-modified pork balls for the elderly. *Asia-Pacific Journal of Science and Technology*, 25(01), 1-10.
14. Surangna, J., **Winuprasith, T.**, & Suphantharika, M\*. (2020). Digestion behavior and gastrointestinal fate of oil-in-water emulsions stabilized by different modified rice starches. *Food & Function*, 11, 1087-1097. <https://doi.org/10.1039/c9fo01628g>
15. Mitbumrung W., Suphantharika, M., McClements, D.J., & **Winuprasith T\***. (2019). Encapsulation of Vitamin D3 in Pickering Emulsion Stabilized by Nanofibrillated Mangosteen Cellulose: Effect of Environmental Stresses. *Journal of Food Science*, 84(11), 3213-3221. <https://doi.org/10.1111/1750-3841.14835>.
16. Pratiwi, I. A., Kemsawasd, V., & **Winuprasith, T\***. (2019). Storage stability of high fiber snack bar. *Global Health Management Journal*, 3(3), 124-137. <https://doi.org/10.35898/ghmj-33456>
17. Suttireung, P., **Winuprasith, T.**, Srichamnong, W., Paemuan, W., Phonyiam, T., & Trachootham, D\*. (2019). Riceberry rice puddings: rice-based low glycemic dysphagia diets. *Asia Pacific Journal of Clinical Nutrition*, 28(3), 467-475. <https://doi.org/10.6133/apjcn.201906/PP.0003>.
18. Treesattayakul, B., **Winuprasith, T.**, Theeranuluk, B., & Trachootham, D\*. (2019). Loss of posterior occluding teeth and its association with protein-micronutrients intake and muscle mass among Thai elders: A pilot study. *The Journal of Frailty & Aging*, 8(2), 100-103. <https://doi.org/10.14283/jfa.2019.2>
19. Surangna, J., **Winuprasith, T.**, & Suphantharika, M\*. (2019). Design and synthesis of modified and resistant starch-based oil-in-water emulsions. *Food Hydrocolloids*, 89, 153-162. <https://doi.org/10.1016/j.foodhyd.2018.10.036>



## Curriculum Vitae

Institute of Nutrition, Mahidol University (INMU)

999 Phutthamonthon 4 Rd., Salaya, Phutthamonthon

20. **Winuprasith, T.\***, Khomein, P., Mitbumrung, W., Suphantharika, M., Nitithamyong, A., & McClements, D.J. (2018). Encapsulation of vitamin D<sub>3</sub> in Pickering emulsions stabilized by nanofibrillated mangosteen cellulose: Impact on in vitro digestion and bioaccessibility. *Food Hydrocolloids*, 83, 153-164. <https://doi.org/10.1016/j.foodhyd.2018.04.047>
21. **Winuprasith, T.** & Suphantharika, M\*. (2015). Properties and stability of oil-in-water emulsions stabilized by microfibrillated cellulose from mangosteen rind. *Food Hydrocolloids*, 43, 690-699. <https://doi.org/10.1016/j.foodhyd.2014.07.027>
22. Li, Y., Driver, M., **Winuprasith, T.**, Zheng, J., McClements, D. J., & He, L\*. (2014). In situ SERS detection of emulsifiers at lipid interfaces using label free amphiphilic gold nanoparticles. *Analyst*, 139, 5075-5078. <https://doi.org/10.1039/c4an00869c>
23. **Winuprasith, T.**, Suphantharika, M., He, L. & McClements, D. J\*. (2014). Alterations in protein corona around nanoparticles by biological surfactants: Impact of bile salts on  $\beta$ -lactoglobulin-coated gold nanoparticles. *Journal of Colloids and Interface Science*, 426, 333-340. <https://doi.org/10.1016/j.jcis.2014.04.018>
24. **Winuprasith, T.**, Suphantharika, M., McClements, D. J. & He, L\*. (2014). Spectroscopic studies of conformational changes of  $\beta$ -lactoglobulin adsorbed on gold nanoparticle surfaces. *Journal of Colloids and Interface Science*, 416, 184-189. <https://doi.org/10.1016/j.jcis.2013.11.006>
25. **Winuprasith, T.** & Suphantharika, M\*. (2013). Microfibrillated cellulose from mangosteen (*Garcinia mangostana* L.) rind: Preparation, characterization, and evaluation as an emulsion stabilizer. *Food Hydrocolloids*, 32, 383-394. <https://doi.org/10.1016/j.foodhyd.2013.01.023>

### National level (Peer review paper)

1. Amornsil, P., **Winuprasith, T.**, & Trachootham, D\*. (2020). Effect of Nutri-Jelly Matrix on Cytotoxicity of Phenethyl Isothiocyanate in Oral Cancer Cells. *Thai Journal of Toxicology*, 35(1), 50-62.
2. Choublab, P., & **Winuprasith, T.** (2019) Application of Nanofibrillated Cellulose Extracted from Mangosteen Rind as a Single Emulsifier in mayonnaise. *Srinakharinwirot University (Journal of Science and Technology)*, 11(22), 119-130.
3. Chimkerd, C., Rungraung, N., Thiyajai, P., Purttiponthane, S., Sahasakul, Y., Trachootham, D., **Winuprasith, T.\***. (2019). Formulation of vegetable pudding for elderly and their storage effect on total phenolics and antioxidant activities. *Srinakharinwirot University (Journal of Science and Technology)*, 11(21), 64-76.
4. Kaewsriho, P., On-Nom, N., Suttisansanee, U., **Winuprasith, T.**, Chamchan, R., Sriden, N., Aursalung, A., & Sahasakul, Y\*. Development of Healthy Tom Yum Flavored Rice Seasoning (Furikake) from Vegetable Powder. (2018). *Agricultural Science Journal*, 49, 165-168.
5. **ธัญญ์ณลิน วิญญูประสิทธิ์\***, ยราพร สหสกุล, น้ำผึ้ง รุ่งเรือง. (2560). นาโนเซลลูโลส: การประยุกต์ใช้ในอาหารและความปลอดภัยอาหาร. *วารสารพิษวิทยาไทย*, 32, 67-79.



## Curriculum Vitae

Institute of Nutrition, Mahidol University (INMU)

999 Phutthamonthon 4 Rd., Salaya, Phutthamonthon

6. สายพิน แสงสุข, **ธัญญ์ณลิน วิญญูประสิทธิ์**, พรพรรณ ตีระพัฒน์, ฉัตรภา หัตถโกศล, พร้อมลักษณ์ สมบูรณ์ ปัญญากุล. (2559). ผลของสายพินซึ่งขาวที่มีต่อสมบัติทางเคมี-กายภาพของผลิตภัณฑ์เต้าหู้จากผลิตผลพลอยได้จากการสกัดน้ำมันถั่วดาวอินคา. *วารสารวิทยาศาสตร์เกษตร*, 47, 385-388.

### Commercialized innovations

1. Energy gel from Coconut water for athlete under "POWCO" brand
2. Texture-modified pork boiled rice for elderly with CPram
3. Nutri-Pudding in retort pouch as a healthy snack under "Taste'n Time" brand

### Consultation and others

- Present CTO and Co-founder of FOODIYPHAGE, Co., Ltd., Thailand  
Program Administrative Committee in Master of Science Program in Food Science for Nutrition (International Program), Institute of Nutrition, Mahidol University, Thailand.
- 2017-Present Part-time lecturer in Food Business Program (FBM) at Collage of Management, Mahidol University, Thailand.
- 2017-2021 Consultant at CP Foodlab Co., Ltd., Thailand.

### Article in magazine

1. Winuprasith, T. & Kittipongpittaya K. (2016). Coconut oil: 21st Century oil. Food Focus Thailand.
2. Winuprasith, T. (2016). Upcoming food trends: Functional foods and Excipient foods. Food Focus Thailand.

### Training

- 2023 - FOREFOOD Cohort #1: Tech to Market Acceleration by Food Innopolis (23-26 February 2023)
- INFOGEST static *in vitro* simulation of gastrointestinal food digestion at Food Biopolymers and Colloids Research Laboratory, Department of Food Science, University of Massachusetts, Amherst, USA (7-17 March 2023)
  - Safety evaluation of food contact materials by TRAC, Thailand (30 March 2023)
  - Mahidol Incubation Program 2023 by Institute for Technology and Innovation Management (iNT), Mahidol University



## Curriculum Vitae

Institute of Nutrition, Mahidol University (INMU)

999 Phutthamonthon 4 Rd., Salaya, Phutthamonthon

---

- ASEAN BCG Researcher by PMUB and NSTDA, Thailand
- 2022 - UHT and aseptic filling machine training
  - Workshop on FFC Japan Case Study Review of Health Claims by Food Innovation & Regulation Network (FIRN) and Food Science and Technology Association of Thailand (FoSTAT) (16 June 2022)
- 2021 Executive Development Program (EDP20) by Mahidol University (October – December, 2021)
- 2020 Particle size measurement (Anton Paar), pH-stat technique (Metrohm), preparation of microbeads using an encapsulator (Buchi)
- 2019 Multi Mentoring System 2 (MMS2) by Thailand Research Fund (TRF) and Office of Higher Education Commission (OHEC) joined with Mahidol University (April 29, 2019 – May 1, 2019)
- 2017 *In vitro* fat digestibility measurement in food emulsions and microencapsulation technique, Food Biopolymers and Colloids Research Laboratory, Department of Food Science, University of Massachusetts, Amherst, USA. (August 2017 – January 2018)
- 2016 Technique for sensory evaluation and consumer testing, FoSTAT, *Thailand*
- 2016 ACS training course communicating science to the public and publishing research, *Thailand*
- 2015 Transformative education and active learning, Mahidol University, *Thailand*
- 2014 Magnetic Resonance Imaging (MRI) for quality determination of marine products after freezing, Department of Food Science and Technology, Faculty of Marine Science, Tokyo University of Marine Science and Technology, *Japan*
- 2014 Physicochemical study of polysaccharide gel using Nuclear Magnetic Resonance (NMR) technique, Department of Food Science and Technology, Faculty of Marine Science, Tokyo University of Marine Science and Technology, *Japan*
- 2013 Spectroscopic studies, including surface-enhanced Raman scattering (SERS) technique of conformational changes of protein-coated gold nanoparticle, Food Biopolymers and Colloids Research Laboratory, Department of Food Science, University of Massachusetts, Amherst, *USA*.