



Curriculum Vitae

Institute of Nutrition, Mahidol University (INMU)

999 Phutthamonthon 4 Rd., Salaya, Phutthamonthon

Name: Rungtiwa Wongsagonsup, Ph.D.

รุ่งทิวา วงศกรทรัพย์

E-mail address: rungtiwa.won@mahidol.ac.th

Current position: Associate Professor

Education

Jun. 2001 – Jul. 2006 Ph.D., Biotechnology, Mahidol University, Bangkok, Thailand

Jun. 1997 – Mar. 2001 B.Sc., Biotechnology (2nd class honors), Mahidol University, Bangkok, Thailand

Research Interest and Expertise

- Processing of starch and flour obtained from various botanical sources (cereal, root, stem and fruits)
- Modification of starch by physical, enzymatic and chemical methods and its application in food products
- Product development of starch-based products for functional foods
- Starch digestibility and resistant starch

Research Experiences

Jul. 2024-Dec. 2025 Project leader, entitled: Stability of bioactive compounds in volatile oil encapsulated with porous starch by simple plating method. Source of funding: Mahidol University (Strategic Research Fund), Thailand

Dec. 2023-Sep. 2024 Team member, entitled: Using of adjuvant to increase yield of Sinlex rice. Source of funding: Mahidol University, Ammat Charoen Campus, Thailand

Oct. 2022-Sep. 2023 Team member, entitled: Creation of added value products from pineapple field residue for circular economy. Source of funding: Thailand Science Research and Innovation (TSRI) (FF66), Thailand

Feb. 2022-Jan. 2023 Adviser, entitled: Effect of dual modification of crosslinking and octenylsuccinylation on physicochemical properties and *in vitro* digestibility of cassava starch and its application on o/w emulsion. Source of funding: Postdoctoral fellowship award from Mahidol University (Year 2), Thailand

Oct. 2021-Sep. 2022 Team member, entitled: Creation of added value products from pineapple field residue for circular economy. Source of funding: Thailand Science Research and Innovation (TSRI) (FF65), Thailand



Curriculum Vitae

Institute of Nutrition, Mahidol University (INMU)

999 Phutthamonthon 4 Rd., Salaya, Phutthamonthon

-
- Feb. 2021-Jan. 2022 Adviser, entitled: Effect of dual modification of crosslinking and octenylsuccinylation on physicochemical properties and *in vitro* digestibility of cassava starch and its application on o/w emulsion. Source of funding: Postdoctoral fellowship award from Mahidol University, Thailand
- Jul. 2019-Jul. 2020 Team member, entitled: Study and development of rice aged testing machine. Source of funding: Agricultural Research Development Agency (Public Organization), Thailand
- Jan. 2019-Jun. 2019 Project leader, entitled: 1) Enrichment of rice noodles with fiber-rich fractions from cassava pulp as a by-product from syrup production process 2) Enrichment of snack product with fiber-rich fractions from cassava pulp as a by-product from syrup production process. Source of funding: Chao Khun Agro Products Co., Ltd., Thailand
- Feb. 2018 – Jan. 2021 Project Investigator - ASEAN side, entitled: Development of a sustainable technology to produce oxalate depleted starch from taro corms. Source of funding: ASEAN-India collaborative R&D program, ASEAN-India Science & Technology Development Fund (AISTDF), Department of Science and Technology, Government of India, India
- Jul. 2017 – Jun. 2018 Project leader, entitled: Product development of healthy Thai desserts from modified starch to reduce rapidly digestible starch content. Source of funding: Office of the Higher Education Commission and CP Food Lab Co. Ltd., under Talent Mobility Program, Thailand
- Jan. 2016 – Dec. 2016 Team member, entitled: Improvement of slowly digestible starch and/or resistant starch content in jasmine rice using various treatment techniques. Source of funding: CPRAM Co. Ltd., Thailand
- Jun. 2012 – May 2013 Team member, entitled: Cross-linking modification of cassava starch by non-chemical route for utilization in food products, Source of funding: National Research Council of Thailand and National Science and Technology Development Agency, Thailand
- Apr. 2010 – Mar. 2011 Project leader, entitled: Partial substitution of wheat flour with pumpkin flour for breadmaking, Source of funding: Mahidol University, Thailand



Curriculum Vitae

Institute of Nutrition, Mahidol University (INMU)

999 Phutthamonthon 4 Rd., Salaya, Phutthamonthon

Academic Experience:

- Oct. 2007 – Oct. 2009 Postdoctoral Research Associate, Department of Food Science and Human Nutrition, Iowa State University, Ames, Iowa, USA
- Jan. 2005 – Jan. 2006 Visiting Research Scholar, Whistler Center for Carbohydrate Research, Department of Food Science, Purdue University, West Lafayette, Indiana, USA
- Apr. 2004 – Sep. 2004 Visiting Research Scholar, Institute for Cereal, Potato and Starch Technology, Federal Centre for Cereal, Potato and Lipid Research, Detmold, Germany

Publications

National Level

1. กิตติศักดิ์ วสันตวิวงศ์, รุ่งทิพา วงศกรทรัพย์, ดุสิต อังธารารักษ์, และ จีรณ กิ่งแก้ว. (2566). การศึกษาการเปลี่ยนแปลงค่าความเป็นกรด-ด่างของข้าวและหาสภาวะที่เหมาะสมของสารละลายอินดิเคเตอร์ผสมสำหรับพัฒนาชุดตรวจอายุการเก็บข้าวอย่างง่าย. *วารสารวิชาการพระจอมเกล้าพระนครเหนือ*, 33 (4), 1-11.
2. นงนุช สังข์อยู่ธ, ชนาภานต์ นาคเวช, สวามินี ไชยสวัสดิ์, กนกพร ไตรวิทยากร, และ รุ่งทิพา วงศกรทรัพย์. (2564). การวิเคราะห์ปริมาณไซยาไนด์ในมันสำปะหลังแผ่นด้วยเทคนิคสเปกโตรสโคปีโดยใช้ปฏิกิริยาการเกิดสารประกอบสีม่วงไดแอนไอออนของไอโนโตรฟินิลไฮดรอกซีลามีเน. *วารสารวิทยาศาสตร์เกษตร*, 52 (1) (พิเศษ), 325-328.

International Level

1. He, P., Zhang, B., Fu, X., **Wongsagonsup, R.**, Lumdubwong, N., Gao, Q., & Huang, Q. (2026). Semi-dry encapsulation of D-borneol in V-type starch for effective stabilization and sustainable release. *Food Hydrocolloids*, 170, 111715.
2. Kapcum, C., Sungayuth, N., Theeratadsanakul, T., Sutthi, W., Judprasong, K., Sridonpai, P., Boonyingsathit, K., & **Wongsagonsup, R.** (2025). Changes in vitamin D₂ content and physicochemical characteristics of food products enriched with UV-B irradiated oyster mushroom powder during cooking and storage. *NFS Journal*, 38, 100203.
3. Pinyo, J., **Wongsagonsup, R.**, Boonsanong, N., Hongsanyatham, S., Somprasong, N., Khunoad, P., Suphantharika, M., Smith, S.M., & Amornsakchai, T. (2024). Noodles made from blends of rice flour and pineapple stem starch: physical properties, cooking qualities, in vitro starch digestibility and sensory properties. *International Journal of Food Science and Technology*, 59, 5105-5117.
4. Sriprablom, J., Winuprasith, T., Suphantharika, M., & **Wongsagonsup, R.** (2024). Physical properties and in-vitro gastrointestinal digestion of oil-in-water emulsion stabilized by single- and dual-modified cassava starches with cross-linking and octenylsuccinylation. *International Journal of Biological Macromolecules*, 262, 129965.
5. Nisitthichai, J., Wannaphruek, P., Sriprablom, J., Suphantharika, M., Smith, S.M., Amornsakchai, T., & **Wongsagonsup, R.** (2024). Effect of oil addition on physicochemical properties and in vitro digestibility of extruded pineapple stem starch. *Polymers*, 16, 210.



Curriculum Vitae

Institute of Nutrition, Mahidol University (INMU)

999 Phutthamonthon 4 Rd., Salaya, Phutthamonthon

6. Pinyo, J., **Wongsagonsup, R.**, Panthong, N., Kantiwong, P., Huang, Q., Tangsrianugul, N., & Suphantharika, M. (2024). Effects of different edible oils on in vitro starch digestibility and physical properties of rice starch and rice flour. *International Journal of Food Science and Technology*, 59, 170-180.
7. Achayuthakan, P., **Wongsagonsup, R.**, Sriprablom, J., Suphantharika, M., Intra, P. (2023). Effect of pulsed electric field treatment on the protein, digestibility, and physicochemical properties of starch granules in wheat flour. *Polymers*, 15, 4087.
8. Namnouad, P., Kongkaew, M., Pikulthong, S., **Wongsagonsup, R.**, Amornsakchai, T., Smith, S.M., & Bunchuay, T. (2023). Synthesis of tosyl starch in eco-friendly media. *New Journal of Chemistry*, 47, 14134.
9. Namphonsane, A., Amornsakchai, T., Chia, C.H., Goh, K.L., Thanawan, S., **Wongsagonsup, R.**, & Smith, S.M. (2023). Development of biodegradable rigid foams from pineapple field waste. *Polymers*, 15, 2895.
10. Bumrungrnok, K., Threepopnatkul, P., Amornsakchai, T., Chia, C.H., & **Wongsagonsup, R.**, Smith, S.M. (2023). Toward a circular bioeconomy: Exploring pineapple stem starch film as protective coating for fruits and vegetables. *Polymers*, 15, 2493.
11. Thongphang, C., Namphonsane, A., Thanawan, S., Chia, C.H., **Wongsagonsup, R.**, Smith, S.M., and Amornsakchai, T. (2023). Toward a circular bioeconomy: Development of pineapple stem starch composite as a plastic-sheet substitute for single-use applications. *Polymers*, 15, 2388.
12. Sriprablom, J., Suphantharika, M., Smith, S.M., Amornsakchai, T., Pinyo, J., and **Wongsagonsup, R.** (2023). Physicochemical, rheological, in-vitro digestibility, and emulsifying properties of starch extracted from pineapple stem agricultural waste. *Foods*, 12, 2028.
13. Namphonsane, A., Suwannachat, P., Chia, C.H., **Wongsagonsup, R.**, Smith, S.M., and Amornsakchai, T. (2023). Toward a circular bioeconomy: Exploring pineapple stem starch film as a plastic substitute in single use applications. *Membranes*, 13, 458.
14. Kumar, S.R., Tangsrianugul, N., Sriprablom, J., **Wongsagonsup, R.**, Wansuksri, R., and Suphantharika, M. (2023). Effect of heat-moisture treatment on the physicochemical properties and digestibility of proso millet flour and starch. *Carbohydrate Polymers*, 307, 120630.
15. Tangsrianugul, N., Hongsanhatham, S., Kapcum, C., Sungayuth, N., Boonsanong, N., Somprasong, N., Smith, S.M., Amornsakchai, T., Pinyo, J., and **Wongsagonsup, R.** (2023). Physicochemical and sensory properties of corn grits and pineapple stem starch-based extruded snacks enriched with oyster mushroom powder. *International Journal of Food Science and Technology*, 58, 1528-1540.
16. Sriprablom, J., Tatikunakorn, P., Lerdpriyanun, P., Suphantharika, M., and **Wongsagonsup, R.** (2023). Effect of single and dual modifications with cross-linking and octenylsuccinylation on physicochemical, *in-vitro* digestibility, and emulsifying properties of cassava starch. *Food Research International*, 163, 112304.



Curriculum Vitae

Institute of Nutrition, Mahidol University (INMU)

999 Phutthamonthon 4 Rd., Salaya, Phutthamonthon

17. Kapcum, C., Pasada, K., Kantiwong, P., Sroysang, B., Phiwtawee, J., Suphantharika, M., Belur, P.D., Agoo, E.M.G, Janario, J.I.B., and **Wongsagonsup, R.** (2022). Effects of different cooking methods on chemical compositions, *in vitro* starch digestibility and antioxidant activity of taro (*Colocasia esculenta*) corms. *International Journal of Food Science and Technology*, 57, 5144-5154.
18. Kizhakedathil, M.P.J., Belur, P.D., **Wongsagonsup, R.**, Suphantharika, M., Agoo, E.M.G., and Janairo, J.I. (2021). Evaluation of enzymatic and chemical treatments to produce oxalate depleted starch from a novel variety of *Colocasia esculenta* grown in Joida, India. *Starch/Stärke*, 74, 2000231.
19. **Wongsagonsup, R.**, Nateelerdpaisan, T., Gross, C., Suphantharika, M., Belur, P.D., Agoo, E.M.G., and Janairo, J.I.B. (2021). Physicochemical properties and *in vitro* digestibility of flours and starches from taro cultivated in different regions of Thailand. *International Journal of Food Science and Technology*, 56, 2395-2406.
20. Kizhakedathil, M.P.J., Suvarna, S., Belur, P.D., **Wongsagonsup, R.**, Agoo, E.M.G., and Janairo, J.I.B. (2020). Optimization of oxalate-free starch production from taro flour by oxalate oxidase assisted process. *Preparative Biochemistry & Biotechnology*, 51, 105-111.
21. Bunyasetthakun, T., Huang, Q., Sureepisan, K., Suphantharika, M., Tangsrianugul, N., and **Wongsagonsup, R.** (2020). Effects of dual pullulanase-debranching and temperature-cycling treatments on physicochemical properties and *in vitro* digestibility of sago starch and its application in Chinese steamed bun. *Starch/Stärke*, 72, 2000034.
22. Suwannarong, S., **Wongsagonsup, R.**, and Suphantharika, M. (2020). Effect of spent brewer's yeast β -D-glucan on properties of wheat flour dough and bread during chilled storage. *International Journal of Biological Macromolecules*, 156, 381-393.
23. Tangsrianugul, N., **Wongsagonsup, R.**, and Suphantharika, M. (2019). Physicochemical and rheological properties of flour and starch from Thai pigmented rice cultivars. *International Journal of Biological macromolecules*, 137, 666-675.
24. Suwannarong, S., **Wongsagonsup, R.**, Luangpituksa, P., Wongkongkatep, J., Somboonpanyakul, P., and Suphantharika, M. (2019). Optimization of yeast β -glucan and additional water levels, and chilled storage time on characteristics of chilled bread using response surface methodology. *Journal of Food Measurement and Characterization*, 13, 1683-1694.
25. **Wongsagonsup, R.**, and Jane, J. (2017). Effects of different mill types on ethanol production using uncooked dry-grind fermentation and characteristics of residual starch in distiller's dried grains (DDG). *Cereal Chemistry*, 94, 645-653.
26. Arworn, W., Rintarak, P., Khamrat, S., Chaiwat, W., **Wongsagonsup, R.**, Suphantharika, M., and Dangtip, S. (2017). Study of surface morphology of low-pressure plasma treated rice by SEM and contact angle measurement. *Microscopy and Microanalysis Research*, 1, 33-36.
27. Nakthong, N., **Wongsagonsup, R.**, and Amornsakchai, T. (2017). Characteristics and potential utilizations of starch from pineapple stem waste. *Industrial Crops & Products*, 105, 74-82.



Curriculum Vitae

Institute of Nutrition, Mahidol University (INMU)

999 Phutthamonthon 4 Rd., Salaya, Phutthamonthon

28. Pinyo, J., Luangpituksa, P., Suphantharika, M., Hansawasdi, C., and **Wongsagonsup, R.** (2017). Improvement of sago starch extraction process using various pretreatment techniques and their pretreatment combination. *Starch/Stärke*, 69, 1700005.
29. Chaiwat, W., **Wongsagonsup, R.**, Tangpanichyanon, N., Jariyaporn, T., Deeyai, P., Suphantharika, M., Fuongfuchat, A., Nisoa, M., and Dangtip, S. (2016). Argon plasma treatment of tapioca starch using a semi-continuous downer reactor. *Food and Bioprocess Technology*, 9, 1125-1134.
30. Pinyo, J., Luangpituksa, P., Suphantharika, M., Hansawasdi, C., and **Wongsagonsup, R.** (2016). Effect of enzymatic pretreatment on the extraction yield and physicochemical properties of sago starch. *Starch/Stärke*, 68, 47-56.
31. **Wongsagonsup, R.**, Kittisuban, P., Yaowalak, A., and Suphantharika M. (2015). Physical and sensory qualities of composite wheat-pumpkin flour bread with addition of hydrocolloids. *International Food Research Journal*, 22(2), 745-752.
32. **Wongsagonsup, R.**, Deeyai, P., Chaiwat, W., Horrungsawat, S., Leejariensuk, K., Suphantharika, M., Fuongfuchat, A., and Dangtip, S. (2014). Modification of tapioca starch by non-chemical route using jet atmospheric argon plasma. *Carbohydrate Polymers*, 102, 790-798.
33. **Wongsagonsup, R.**, Pujchakarn, T., Jitrakbumrung, S., Chaiwat, W., Fuongfuchat, A., Varavinit, S., Dangtip, S., and Suphantharika, M. (2014). Effect of cross-linking on physicochemical properties of tapioca starch and its application in soup product. *Carbohydrate Polymers*, 101, 656-665.
34. Deeyai, P., Suphantharika, M., **Wongsagonsup, R.**, and Dangtip, S. (2013). Characterization of modified tapioca starch in atmospheric argon plasma under diverse humidity by FTIR spectroscopy. *Chinese Physics Letters*, 30 (1), 018103.
35. Ritthiruangdej, P., Pambankled, S., Donchedee, S., and **Wongsagonsup, R.** (2011). Physical, chemical, textural and sensory properties of dried wheat noodles supplemented with unripe banana flour. *Kasetsart Journal (Natural Science)*, 45 (3), 500-509.
36. **Wongsagonsup, R.**, Varavinit, S., and BeMiller, J. N. (2008). Increasing slowly digestible starch content of normal and waxy maize starches and properties of starch products. *Cereal Chemistry*, 85 (6), 738-745.
37. **Wongsagonsup, R.**, Shobsngob, S., Oonkhanond, B., and Varavinit, S. (2005). Preparation and physicochemical properties of dialdehyde tapioca starch. *Starch/Stärke*, 57, 166-172.
38. **Wongsagonsup, R.**, Shobsngob, S., Oonkhanond, B., and Varavinit, S. (2005). Zeta potential (ζ) and pasting properties of phosphorylated or crosslinked rice starches. *Starch/Stärke*, 57, 32-37.
39. **Wongsagonsup, R.**, Shobsngob, S., Oonkhanond, B., and Varavinit, S. (2005). Zeta potential (ζ) analysis for the determination of protein content in rice flour. *Starch/Stärke*, 57, 25-31.

Books/Book Chapters:

International Level

1. Jane, J., Maningat, C. C., and **Wongsagonsup, R.** (2010). Starch characterization, variety and application. In: Singh, B.P. (ed.) *Industrial Crops and Uses*. CABI, Oxfordshire, UK. pp. 207-235.