



Curriculum Vitae

Institute of Nutrition, Mahidol University (INMU)

999 Phutthamonthon 4 Rd., Salaya, Phutthamonthon

Name: Rungtiwa Wongsagonsup, Ph.D.

รุ่งทิวา วงศกรทรัพย์

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Current position: Associate Professor

Education

Oct. 2007 – Oct. 2009 Postdoctoral Research Associate, Department of Food Science and Human Nutrition, Iowa State University, Ames, Iowa, USA.

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 and their physicochemical properties
- Starch digestibility and resistant starch
- Rice and rice products

Research Experiences

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



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- 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

Academic Experience:

- 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
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Publications

National Level

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

International Level

1. Sriprabhom, 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.
2. Nisitthichai, J., Wannaphruek, P., Sriprabhom, 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.
3. 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.
4. Achayuthakan, P., **Wongsagonsup, R.**, Sriprabhom, 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.
5. 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.
6. 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.
7. 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.
8. 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.



9. Sriprablom, J., Supphantharika, 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.
10. 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.
11. Kumar, S.R., Tangsrianugul, N., Sriprablom, J., **Wongsagonsup, R.**, Wansuksri, R., and Supphantharika, M. (2023). Effect of heat-moisture treatment on the physicochemical properties and digestibility of proso millet flour and starch. *Carbohydrate Polymers*, 307, 120630.
12. Tangsrianugul, N., Hongsanatham, 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.
13. Sriprablom, J., Tatikunakorn, P., Lerdpriyanun, P., Supphantharika, 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.
14. Kapcum, C., Pasada, K., Kantiwong, P., Sroysang, B., Phiwtawee, J., Supphantharika, M., Belur, P.D., Agoo, E.M.G, Janairo, 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.
15. Kizhakedathil, M.P.J., Belur, P.D., **Wongsagonsup, R.**, Supphantharika, 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*, 2000231.
16. **Wongsagonsup, R.**, Nateelerdpaisan, T., Gross, C., Supphantharika, 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.
17. 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.
18. Bunyasetthakun, T., Huang, Q., Sureepisan, K., Supphantharika, 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.



19. Suwannarong, S., **Wongsagonsup, R.**, and Supphantharika, 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.
20. Tangsrianugul, N., **Wongsagonsup, R.**, and Supphantharika, M. (2019). Physicochemical and rheological properties of flour and starch from Thai pigmented rice cultivars. *International Journal of Biological macromolecules*, 137, 666-675.
21. Suwannarong, S., **Wongsagonsup, R.**, Luangpituksa, P., Wongkongkatep, J., Somboonpanyakul, P., and Supphantharika, 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.
22. **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.
23. Arworn, W., Rintarak, P., Khamrat, S., Chaiwat, W., **Wongsagonsup, R.**, Supphantharika, 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.
24. Nakthong, N., **Wongsagonsup, R.**, and Amornsakchai, T. (2017). Characteristics and potential utilizations of starch from pineapple stem waste. *Industrial Crops & Products*, 105, 74-82.
25. Pinyo, J., Luangpituksa, P., Supphantharika, 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.
26. Chaiwat, W., **Wongsagonsup, R.**, Tangpanichyanon, N., Jariyaporn, T., Deeyai, P., Supphantharika, 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.
27. Pinyo, J., Luangpituksa, P., Supphantharika, 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.
28. **Wongsagonsup, R.**, Kittisuban, P., Yaowalak, A., and Supphantharika M. (2015). Physical and sensory qualities of composite wheat-pumpkin flour bread with addition of hydrocolloids. *International Food Research Journal*, 22(2), 745-752.
29. **Wongsagonsup, R.**, Deeyai, P., Chaiwat, W., Horrungsawat, S., Leejariensuk, K., Supphantharika, 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.
30. **Wongsagonsup, R.**, Pujchakarn, T., Jitrakbumrung, S., Chaiwat, W., Fuongfuchat, A., Varavinit, S., Dangtip, S., and Supphantharika, M. (2014). Effect of cross-linking on physicochemical properties of tapioca starch and its application in soup product. *Carbohydrate Polymers*, 101, 656-665.



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31. 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.
32. 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.
33. **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.
34. **Wongsagonsup, R.**, Shobsngob, S., Oonkhanond, B., and Varavinit, S. (2005). Preparation and physicochemical properties of dialdehyde tapioca starch. *Starch/Stärke*, 57, 166-172.
35. **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.
36. **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.