Curriculum Vitae

Institute of Nutrition, Mahidol University (INMU)

999 Phutthamonthon 4 Rd., Salava, Phutthamonthon

Name: Dr. Nilesh Prakash Nirmal

E-mail address: nilesh.nir@mahidol.ac.th

Current position: Global Talent Researcher

Education: Ph.D. in Food Science and Technology

Research Interest and Expertise:

- Plant bioactive or plant-derived extract as a natural alternative to food/feed additive.
- Functional food product development.
- Preparation of biodegradable/ edible film incorporation with bioactive compound (Nanoscience).
- Food nanotechnology (Nanoemulsion).

Research Experiences

2020- till date

Organization: Institute of Nutrition, Mahidol University, Bangkok, Thailand

Position: Foreign Expert

Duties:

- **Research**
- **Writing a research grant proposal**
- **Publish research article**

2015-2018

Organization: Queensland Alliance for Agriculture and Food Innovation, The University of Queensland, Australia

Position: UQ-research Fellow

Duties:

- Extraction of phenolic compounds from Australian native plants and their application as food or feed additives.
- Evaluation of nutritional and functional properties of Australian native plant and fruit infusions.
- Determination of antimicrobial and antioxidant activity.
- Preparation of natural additive formulation.

- **Food presentation to the customer for sensory analysis.**
- **Liaise with food company clients.**
- **Demonstrate natural food additive concept and importance.**
- Report writing.

Food pilot plant- freeze dryer, hot-air oven dryer, centrifuge, modified atmospheric packaging (MAP), vacuum packaging

2011-2013 **Organization:** Prince of Songkla University, Thailand

Position: Research Fellow

Duties:

- Isolation and preparation of brazilin-rich extract by using the chromatographic technique.
- Antimicrobial, antioxidant, and anti-inflammatory assay in a different model system.
- Supervised graduate student.
- Report writing.

Training:

2018 **First Aid and CPR,**

Apex Training Institute (RT0-32100), Brisbane

2017 **Food Safety Supervision**

(Hygienic practices for food safety and safe food handling practices), TAFE, Brisbane

Publications International:

2022

1. Nirmal, N. P., Santivarangkna, C., Rajput, MS., Benjakul, S. and Maqsood, S. (2022) Valorization of fish by-products: Sources to end-product applications of bioactive hydrolysate. *Comprehensive Review in Food Science and Technology*.21: 1803-1842.

2. Nirmal, N. P., Santivarangkna, C., Benjakul, S. and Maqsood, S. (2022) Fish protein hydrolysate as health promoting ingredient-Recent update. *Nutrition Reviews.* 80: 1013-1026.

3. Rathod, NB., Nirmal, NP., Pagarkar, A., Ozogul, F. and Rocha, JM. (2022) Antimicrobial impacts of microbial metabolites on the preservation of fish and fishery products: A review with current knowledge. *Microoragnism*. 10: 773

4. Ghosh, S., Nag, M., Lahiri, D., Sarkar, T., Pati, S., Kari, ZA., Nirmal NP., Edinur, HA. and Ray, R. (2022) Engineered biofilm:innovative nextgen strategy for quality enhancement of fermented foods. *Frontiers in Nutrition*. 9: 808630

5. Nirmal, N.P., Mereddy, R., Webber, D. and Sultanbawa, Y. (2022) Biochemical composition and aroma of Melaleuca citrolens Barlow (*Myrtaceae*) leaves from different regions of Australian Northern Territory. *South African Journal of Botany*. 145: 78-84.

6. Mallick, S., Nag, M., Lahiri, D., Pandit, S., Sarkar, T., Pati, S., Nirmal, NP., Edinur, HA., Kari, ZA., Zai, MRA. and Ray, R (2022) Engineered nanotechnology: An effective therapeutic platform for the chronic cutaneous wound. *Nanomaterials*. 12: 778.

7. Aslam, S., Akhtar, A., Nirmal, N., Khalid, N. and Maqsood S. (2022) Recent developments in starch based delivery systems of bioactive compounds: Formulation and applications. Food Engineering Review, 1-21

2021

8. Nirmal, N.P., Mereddy, R. and Maqsood, S. (2021) Recent development in emerging technologies for beetroot pigment extraction and its food applications. *Food Chemistry*-356, 129611.

9. Ujifard, A.,Benjakul, S., Nirmal, N. P. and Bashirzadeh, S. (2021) Chemical, nutritional, microbial, and sensory characteristic of fish sauce *Suragh* from Hormozgan, Iran. Journal of Aquatic Food Product Technology-DOI:10.1080/10498850.20201866727.

10. Nirmal, N.P., Webber, D., Mereddy, R. and Sultanbawa, Y. (2021) Biochemical, antioxidant and sensory evaluation of Davidsonia pruriens and Davidsoina jerseyana fruit infusion. *Food Chemistry*.-342-128349

11. Olatunde, O.O., Della Tan, S.L., Shiekh, K.A., Benjakul, S. and Nirmal, N.P. (2021) Ethanolic guava leaf extracts with different chlorophyll removal processes: Anti-melanosis, antibacterial properties and the impact on qualities of Pacific white shrimp during refrigerated storage. *Food Chemistry-341-128251.*

2020

12. Rajput, M. S., Nirmal, N. P., Rathore, D. and Dahima, R. (2020) Dimethyl fumurate exerts neuroprotection by modulating calcineurin/NFAT1 and NFκB dependent BACE1 activity in $A\beta_{1-42}$ treated neuroblastoma SH-SY5Y cells. *Brain Research Bulletin*- 165, 97-107

13. Rajput, M. S., Nirmal, N. P., Rathore, D. and Dahima, R. (2020) Dimethyl fumurate mitigates tauopathy in Aβ-induced neuroblastoma SH-SY5Y cells. *Neurochemical Research*- 45 (11), 2641-2652

14. Nirmal, N. P., Santivarangkna, C., Rajput, M.S. and Benjakul, S. (2020) Trends in shrimp processing waste utilization: An industrial prospective. *Trends in Food Science and Technology*-103, 20-35.

2018

15. Alderees, F., Mereddy, R., Webber, D., Nirmal, N. and Sultanbawa,Y. (2018) Mechanism of action against food spoilage yeasts and bioactivity of *Tasmannia lanceolata*, *Backhousia citriodora* and *Syzygium anisatum* plant solvent extracts. *Foods,* 7 (11) 179.

16. Nirmal, N.P., Webber, D., Mereddy, R. and Sultanbawa, Y (2018) Biochemical and functional properties of indigenous Australian herbal infusions. *Food Bioscience,* 26, 133-138.

17. Nirmal, N. P., Mereddy, R., Li, L. and Sultanbawa, Y (2018) Formulation, characterization and antibacterial acvtivity of lemon myrtle and anise myrtle essential oil in water nanoemulsion. *Food Chemistry,* 254, 1- 7.

2017

18. Rajput, M. S., Sarkar, P. D. and Nirmal, N. P. (2017) Inhibition of DPP-4 activity and neuronal atrophy with genistein attenuates neurological deficits induced by transient global cerebral ischemia and reperfusion in streptozotocin induced diabetic mice. *Inflammation,* doi:10.1007/s10753-017-0509-5.

19. AlAsmari, F., Nirmal, N., Chaliha, M., Williams, D., Mereddy, R., Shelat, K. and Sultanbawa, Y. (2017) Physiochemical and fungal profile of Saudis four commercial fresh date (Phoenix dactylifera L) cultivars. *Food Chemistry*, 221, 644-649.

20. Mereddy, R., Chan, A., Fanning, K., Nirmal, N., Sultanbawa, Y., (2017) Betalain rich functional extract with reduced salts and nitrate content from red beetroot (*Beta vulgaris* L.) using membrane separation technology. *Food Chemistry*, 215, 311-317.

2016

21. Ahmad, M., Nirmal, N.P., Danish, M., Chuprom, J., Jafarzedeh, S. (2016) Characterization of composite films fabricated from collagen/chitosan and collagen/soy protein isolate for food packaging applications. *RSC Advances* 6 (85), 82191-82204.

22. Ahmad, M., Nirmal, N.P.Chuprom, J. (2016) Molecular characteristics of collagen extracted from the starry triggerfish skin and its potential in the development of biodegradable packaging film. *RSC Advances,* 6, 33868-33879.

23. Prasad, R.G.S.V., Aparna, R.S.L. and Nirmal, N.P. (2016) An injectable in-situ conducting thermosensitive gel for controlled delivery of vancomycin in osteomyelitis treatment and bone regeneration *Science of Advanced Materials,* 8,1470-1477.

2015

24. Ahmad, M., Nirmal, N.P. and Chuprom, J. (2015) Blend film based on fish gelatin/ curdlan for packaging applications: spectral, microstructural and thermal characteristics. *RSC Advances,* 5, 99044-99057.

25. Nirmal, N., Rajput, M., Sarkar, P., Sinha, S. and Gupta, A. (2015) Amino acid esters prodrugs of an arylalkonic acid COX inhibitor: synthesis and biopharmaceutical and pharmacological evaluation. *Journal of Taibah University for Science,* 9 (4), 455-464.

26. Sarkar, P. D., Rajput, M. S. and Nirmal, N. P. (2015) Tailored methods for preclinical assessment of fibrinolytic agents *in vitro*. *Journal of Chemical and Pharmaceutical Research*, 7: 1130-1135.

27. Nirmal, N. P., Rajput, M. S., Prasad, R.G.S.V., and Ahmad M. (2015) Brazilin from *Caesalpinia sappan* heartwood and its pharmacological activities: A review. *Asian Pacific Journal of Tropical Medicine*, DOI: 10.1016/S1995-7645(14)60355-2, 421-430.

28. Ahmad, M., Hani, N.M., Nirmal, N. P., Mohtar, N. F. and Romli, S.R.(2015) Optical and thermo-mechanical properties of composite films based on fish gelatin/rice flour fabricated by casting technique. *Progress in Organic Coatings*, 84:115-127.

29. Nirmal, N. P. and Panichayupakaranant, P. (2015) Antioxidant, antibacterial and anti-inflammatory activity of standardized *Caesalpinia sappan* heartwood extracts. *Pharmaceutical Biology*. 9: 1339-1343.

30. Nirmal, N. P., Benjakul, S., Ahmad, M., Arfat, Y. and Panichayupakaranant, P. (2015) Undesirable enzymatic browning in crustaceans: causative effects and its inhibition by phenolic compounds. *Critical Reviews in Food Science and Nutrition.* 55, 1992-2003.

2014

31. Nirmal, N. P., Prasad, R.G.S.V. and Keokitichai S. (2014) Wound healing activity of standardized brazilin rich extract from *Caesalpinia sappan* heartwood. *Journal of chemical and Pharmaceutical Research*, 6: 195-201.

32. Nirmal, N. P. and Laxman, R. S. (2014) Enhanced thermostability of fungal alkaline protease by using different additives. *Enzyme Research*. MS No.109303.

33. Nirmal, N. P. and Panichayupakaranant, P. (2014) Anti-*Propionibacterium acnes* assay guided purification of brazilin and preparation of brazilin rich extract from *Caesalpinia sappan* heartwood. *Pharmaceutical Biology*. 52: 1204-1207.

2013

34. Patidar, D., Rajput, M.S., Nirmal, N.P. and Savitri W. (2013) Implementation and evaluation of adverse drug reaction monitoring system in a tertiary care teaching hospital in Mumbai, India. *Interdisciplinary Toxicology,* 6, 41-46.

2012

35. Nirmal, N.P., and Benjakul, S. (2012) Effect of green tea extract in combination with ascorbic acid on the retardation of melanosis and quality changes of Pacific white shrimp during iced storage. *Food and Bioprocess Technology*, 5, 2941-2951.

36. Nirmal, N.P., and Benjakul, S. (2012) Biochemical properties of polyphenoloxidase from cephalothorax of Pacific white shrimp (*Litopenaeus vannamei*). *International Aquatic Research,* 4, 6.

37. Ahmad, M., Benjakul, S., Sumpavapol, P., and Nirmal, N. P. (2012) Quality changes of sea bass slices wrapped with gelatin film incorporated with lemon grass essential oil. *International Journal of Food Microbiology*, 155, 171-178.

38. Nirmal, N.P., and Benjakul, S. (2012) Inhibition kinetics of catechin and ferulic acid on polyphenoloxidase from cephalothorax of Pacific white shrimp (*Litopenaeus vannamei*). *Food Chemistry,* 131, 569-573.

2011

39. Nirmal, N.P., and Benjakul, S. (2011) Inhibitory effect of mimosine on polyphenoloxidase from cephalothorax of Pacific white shrimp (*Litopenaeus vannamei*). *Journal of Agricultural and Food Chemistry,* 59, 10256-1060.

40. Nirmal, N. P., Shankar, S., and Laxman, R. S. (2011) Fungal protease: an overview. *International Journal of Biotechnology and Biosciences*, 1, 1-40.

41. Nirmal, N.P., and Benjakul, S. (2011) Retardation of quality changes of Pacific white shrimp by green tea extract treatment and modified atmosphere packaging during refrigerated storage. *International Journal of Food Microbiology*, 149, 247-253.

42. Nirmal, N.P., and Benjakul, S. (2011) Inhibition of melanosis formation in Pacific white shrimp by the extract of lead (*Leucaena leucocaphala*) seed. *Food Chemistry,* 128, 427-432.

43. Nirmal, N.P., and Benjakul, S. (2011) Use of green tea extracts for inhibition of polyphenoloxidase and retardation of quality loss of Pacific white shrimp during iced storage. *LWT- Food Science and Technology*, 44, 924-932.

2010

44. Nirmal, N.P., and Benjakul, S. (2010) Effect of catechin and ferulic acid on melanosis and quality of Pacific white shrimp subjected to prior freeze-thawing during refrigerated storage. *Food Control*, 21, 1263-1271.

2009

45. Nirmal, N.P., and Benjakul, S. (2009) Melanosis and quality changes of Pacific white shrimp (*Litopenaeus vannamei)* treated with catechin during iced storage. *Journal of Agricultural and Food Chemistry*, 57, 3578-3586.

46. Nirmal, N.P., and Benjakul, S. (2009) Effect of ferulic acid on inhibition of polyphenoloxidase and quality changes of Pacific white shrimp (*Litopenaeus vannamei*) during iced storage. *Food Chemistry*, 116, 323-331.

Invited Book Chapters

1. Selvamuthukumaran, M., Nirmal, N. P. and Sajid Maqsood. (2021). Chapter-3- High hydrostatic pressure processing for dairy products in *Non-thermal Processing Technologies for the dairy Industry*, CRC Press (Taylor & Francis Gropu, LLC).

2. Nirmal, N. P. and Santivarangkna, C. (2021). Chapter-9- Bio preservation of dairy products: A non-thermal processing & preservation approach for shelf life extension of dairy products in *Non-thermal Processing Technologies for the dairy Industry*, CRC Press (Taylor & Francis Gropu, LLC).

3. Prasad, RGSV. Nirmal, NP. And Hoque, EM. (2014). Chapter -11- 3D Organ Printing-Future Designer Organs, , in Nanotechnology Vol. 12 *Bioimaging*, Studium Press LLC, USA, pp. 285-310.