

CURRICULUM VITAE

CHANG LEE SIN

PhD (UPM), BSc (Hons) – Universiti Putra Malaysia

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Email: lixinc@hotmail.com; leesin.changls@gmail.com

Specialization: Food Biotechnology, Enzyme Technology,
Food Processing, Food Chemistry



A PhD degree holder in Food Biotechnology with more than 6 years of experiences in research, mainly in Food Analysis & Food Technology. Considering my experiences in guiding students in research, I believe I am competent in delivering knowledge and information as a lecturer and researcher

- Scopus Author ID: 57201581042
- ORCID Author ID: 0000-0002-5694-3943
- Web of Science ResearcherID: AAD-4067-2019
- H-index: Seventeen (17) from Scopus

A. PERSONAL DETAILS

Name	: Chang Lee Sin
Nationality	: Malaysian
Gender	: Female
Race	: Chinese
Identification number	: 871008-14-5436
Date of birth	: 08 October 1987, Kuala Lumpur
Address	: 15, Jalan Bunga Cempaka 14, Taman Muda 56100 Kuala Lumpur, Malaysia
Status	: Married

B. ACADEMIC QUALIFICATION

Doctor of Philosophy, PhD

Faculty of Food Science and Technology, Universiti Putra Malaysia, Selangor, Malaysia (UPM)

Field of study – Food Biotechnology

Research title: Production and Properties of Shelf-stable Spray-dried Powder from Enzyme-treated Sour sop (*Annona muricata* L.) Fruit

Completed Comprehensive Examination – 16th January 2014

Date of Completed – 8th March 2018

CGPA – 3.891

Bachelor Degree, BSc (Hons)

Faculty of Food Science and Technology, Universiti Putra Malaysia, Selangor, Malaysia (UPM)

Field of study – Food Science and Technology

Dean's List Recipient – 3 Semesters

Date of Completed – 9th June 2011

CGPA – 3.762

C. LANGUAGE PROFICIENCY

Language

English

Professional working proficiency

Bahasa Malaysia

Professional working proficiency

Chinese

Native proficiency

D. WORKING EXPERIENCE

Head of Department

Nov 2023 – now

UCSI University Kuala Lumpur – Foundation in Science, Faculty of Applied Sciences

Lecturer

Mar 2022 – now

UCSI University Kuala Lumpur – Department of Food Science and Nutrition, Faculty of Applied Sciences

Lecture courses:

- Food Chemistry (MF203/BAF1024)
- General Chemistry 2 (MF010/FAS1024)
- Chemistry of Applied Sciences (BAB1004)
- Food Analysis (GF501)
- Advanced food quality and safety (GF503)
- Fundamentals of food engineering (MF204)
- Food safety, halal and legislation (MF207/BAN2063)
- Seafood industry (MS212/DAA2094)
- Research methodology and data analysis (MW308/MB114/BAN2084/BAB2024)
- Bioprocess Engineering (MB308)
- Food and Nutrition: Journey Towards Health (FAF1023)
- Basic Food Preparation (BAF1034)

- Take part in Marketing activities, including Open day, Orientation, Workshops for secondary schools
- Invited speakers for various event, social media, tv station
- Teaching Excellence Award (2023)
- Most Innovative, Teaching and Learning Award (2024)

Postdoctoral Researcher

August 2019 – February 2022, 31 months

Universiti Kebangsaan Malaysia (UKM) – Department of Food Sciences, Faculty of Science and Technology

- Postdoctoral researcher for Assoc. Prof. Dr. Lim Seng Joe
- Assist in proposals writing (See Section G) for grant application
- Mentor, supervise, and guide postgraduate students (PhD & MSc), final year project students, in their research projects
- Planned and performed research according to projects requirement
 - Project Title: Bio-conversion of edible bird's nest (EBN) glycoproteins into glycopeptides with enhanced bioactivities) – Sept 2019 – October 2020
 - Project Title: Bioremediation of sea cucumber by-products: Potential use of sea cucumber internal organs (SCiO) as functional ingredient and animal feed supplement – Nov 2020 – October 2021
- Prepared research articles and submit to high impact factor journal
- Involved and assisted in several collaboration projects with industrial partners
- Developed and applied intellectual property for videos and modules teaching.
- Attended conference and seminars to generate networking and innovative input to the university.
- Assist with ordering and procurement of supplies.

Enumerator (Research assistant)

June 2018 – December 2018, 6 months

Universiti Putra Malaysia (UPM)– Department of Food Science, Faculty of Food Science and Technology

- Research assistant for Professor Dr. Hasanah Mohd Ghazali
- Assist in proposals writing and concept paper for grant application
- Mentor, supervise, and guide postgraduate students (PhD & MSc), final year project students, internship students in their research projects
- Planned and performed research according to projects requirement
- Prepared research article and submit to high impact factor journal
- Manage laboratory functions including organization, ordering, and scheduling equipment use
- Assist and assembled documents for laboratory audit

Enumerator (Research assistant)

December 2017 – May 2018, 6 months

Universiti Putra Malaysia (UPM)– Department of Process and Food Engineering, Faculty of Engineering

- Research assistant for Professor Dr. Ir. Yus Aniza Yusof
- Assist in proposals writing and concept paper for grant application
- Mentor, supervise, and guide postgraduate students (PhD & MSc), final year project students, internship students in their research project
- Planned and performed research according to projects requirement
- Prepared research article and submit to high impact factor journal
- Data interpretation and troubleshooting procedures in research work

Research Assistant

February 2017 – August 2017, 6 months

Universiti Putra Malaysia (UPM)– Department of Food Science, Faculty of Food Science and Technology

- Research assistant for Professor Dr. Hasanah Mohd Ghazali
- Assist in proposals writing and concept paper for grant application
- Mentor, supervise, and guide postgraduate students (PhD & MSc), final year project students, internship students in their research project
- Planned and performed research according to projects requirement
- Prepared research article and submit to high impact factor journal
- Manage laboratory functions including organization, ordering, and scheduling equipment use
- Assist and assembled documents for laboratory audit

QA/QC Lab assistant

December 2009 – June 2010, 6 months

F&N Dairies Manufacturing Sdn Bhd (Industrial Trainee)

Quality control and Quality Assurance Department – Premier Milk (M) Sdn Bhd

- Perform quality checks on the raw material, packaging material, processing, and finished goods (e.g. chemical, physical and microbiological analysis)
- Ensure quality of raw materials and finished goods met the quality requirements
- Assist in developing 5s (Seiri, Seiton, Seiso, Seiketsu, and Shitsuke)
- Assist and assembled documents for food safety and quality (ISO 9001:2000, HALAL, SIRIM, DVS, and HACCP) audit
- Attended GMP and safety training
- Conduct sensory evaluation on finished good
- Upkeep of laboratory cleanliness

E. HONOURS AND AWARDS

Award

Level

Year

• Dean's list – First class Sem 1 2007/2008 (3.970), Sem 1 2010/2011 (3.950); Sem 2 2010/2011 (3.921)	Local	2007, 2010, 2011
• Gold Medal Invention, Research, and Innovation Exhibition (PRPI 2012)	International	2012
• Recognition of Reviewer Elsevier – LWT – Food Science and Technology	International	2018
• Outstanding Contribution in Reviewing Elsevier – LWT – Food Science and Technology	International	2018
• Certification of Reviewing (June 2020) Elsevier – Food Chemistry (July 2020)	International	2020
• 3 × Certification of Reviewing (June 2020) Elsevier – LWT – Food Science and Technology	International	2020
• Certification of Reviewing – Journal of the Science of Food and Agriculture – Society of Chemical Industry (SCI)	International	2020
• The 2 nd Consolation – New Invention and Innovation Category – ASEAN Categories – The Crown Prince CIPTA Award 2021 – Creative, Innovative Product and Technological Advancement (CIPTA)	International	2021
• Reviewer Certificate – Journal of Food Processing and Preservation	International	2021
• Teaching Excellence Award (2023)	University	2023
• Most Innovative Learning and Teaching Award (2024)	University	2024

F. MEMBERSHIP

Malaysian Institute of Food Technology (MIFT) – Professional member – membership number P01536

Malaysian Institute of Food Technology (MIFT) – Council member – University portfolio

Malaysian Society for Molecular Biology and Biotechnology (MSMBB) – Ordinary member – membership number M2022037

Malaysian Institute of Food Technology (MIFT) – Council member – Publicity portfolio

Innovation Centre for Confectionery Technology (MANIS), Faculty of Science and Technology, Universiti Kebangsaan Malaysia – Alliance member

Organization for Women in Science for the Developing World (OWSD) – Full member – membership number 15133

G. GRANT

Grant	Title	Amount	Duration	Status
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1.	REIG-FAS-2022/011	Bioremedy of sea cucumber by-products: Purification and evaluation of bioactive peptide from sea cucumber internal organs (SCiO) hydrolysate	RM 50,000	1 st Jun 2022 – 30 th Nov 2024	On-going (PI)
2.	PRGS/1/2022/WA-B04/UKM/02/1	Pilot scale fractionation of water soluble edible bird's nest (EBN) hydrolysates from EBN processing by-products through cross-flow filtration membranes	RM 216,700	1 st Jul 2022 – 31 Dec 2024	On-going (Co-PI)
3.	FRGS/1/2024/STG04/UCSI/02/1	Red palm olein-based beta-carotene nanoemulsion with enhanced antioxidant and antidiabetic characteristics for food fortification	RM 138,000	1 st Jun 2024 – 31 st May 2027	On-going (Co-PI)
4.	DPB-2020-314	Unraveling the secrets of edible bird nest	RM 15,000	10 th Sept 2020 – 9 th Mar 2021	Completed (Co-PI)
5.	ST-2021-005	Formulation of EBN Extracts	RM 10,000	20 th May 2021 – 19 th May 2022	Completed (Co-PI)
6.	MI-2019-003	Bioconversion of edible bird's nest (EBN) glycoproteins into glycopeptides with enhanced bioactivities	RM 100,000	1 st Mar 2019 – 28 th Feb 2021	Completed (Co-PI)

H. PUBLICATIONS

Published/Accepted:

1. **L.S. Chang**, R. Karim, A.S. Mohammed, H.M. Ghazali (2018). Characterization of enzyme-liquefied soursop (*Annona muricata* L.) puree. LWT – Food Science and Technology, 94, 40-49. DOI:10.1016/j.lwt.2018.04.027 Q1/3.714
2. **L.S. Chang**, R. Karim, A.S. Mohammed, H.M. Ghazali (2018). Production and characterization of enzyme-treated spray-dried soursop (*Annona muricata* L.) powder. Journal of Food Process Engineering, 41(5), e12688. DOI:10.1111/jfpe.12688 Q2/1.955
3. **L.S. Chang**, R. Karim, A.S. Mohammed, Y.A. Yusof, H.M. Ghazali (2018). Storage stability, color kinetics and morphology of spray-dried soursop (*Annona muricata* L.) powder: Effect of anticaking agents. International Journal of Food Properties, 21(1), 1937-1954. DOI: 10.1080/10942912.2018.1510836 Q2/1.845

4. **L.S. Chang**, R. Karim, A.S. Mohammed, K.F. Chai, H.M. Ghazali (2019). Moisture sorption isotherm and shelf life prediction of anticaking agent incorporated spray-dried soursop (*Annona muricata* L.) powder. Journal of Food Process Engineering, 42(5), e13134. DOI:10.1111/jfpe.13134 Q2/1.955
5. K.F. Chai, **L.S. Chang**, N. Mohd Adzahan, R. Karim, Y. Rukayadi, H. Mohd Ghazali, (2019). Physicochemical properties and toxicity of cocoa powder-like product from roasted seeds of fermented rambutan (*Nephelium lappaceum* L.) fruit. Food Chemistry, 271, 298-308. DOI:10.1016/j.foodchem.2018.07.155 Q1/5.399
6. C.J. Etti, Y.A. Yusof, **L.S. Chang**, V.G. Ekanem (2019). Flowability and physical properties of wheat-unripe plantain (*Musa paradisiaca*) composite flour. Food Research, 3(2), 151-156 (April). DOI:10.26656/fr.2017.3(2).129 Scopus
7. M. Fikry, Y.A. Yusof, A.M. Al-Awaadh, R.A. Rahman, N.L. Chin, E. Mousa, **L.S. Chang** (2019). Effect of the roasting conditions on the physicochemical, quality and sensory attributes of coffee-like powder and brew from defatted palm date seeds. Foods, 8(2), 61. DOI:10.3390/foods8020061 (Q2/3.011) Scopus
8. M. Fikry, Y.A. Yusof, A.M. Al-Awaadh, R.A. Rahman, N.L. Chin, **L.S. Chang** (2019). Kinetics modelling of the colour, hardness, grinding energy consumption and oil yield changes during the conventional roasting of palm date seeds. Food Science and Technology Research, 25(3), 351-362. Q4/0.448
9. S. Manzoor, Y.A. Yusof, N.L. Chin, S.M.A. Tawakkal Intan, F. Mohamed, **L.S. Chang** (2019). Thin-layer drying characteristics of papaya (*Carica papaya*) peel using convection oven and microwave drying. Pertanika – Journal of Science and Technology, 27(3), 1207-1226. Scopus
10. S. Manzoor, Y.A. Yusof, N.L. Chin, S.M.A. Tawakkal Intan, F. Mohamed, **L.S. Chang** (2019). Quality characteristics and sensory profile of stirred yoghurt enriched with papaya peel powder. Pertanika – Journal of Tropical Agricultural Science, 42(2), 519-533. Scopus
11. S.A. Mohd Baroyi, Y.A. Yusof, H.M. Ghazali, N.L. Chin, S.H. Othman, **L.S. Chang**, S.M.G. Nashratul (2019). A novel method based on passive diffusion that reduces the moisture content of stingless bee (*Heterotrigona itama* spp.) honey. Journal of Food Process Engineering, 42(6), e13221. DOI: 10.1111/jfpe.13221 Q2/1.955
12. M.T. Asghar, Y.A. Yusof, M.N. Mokhtar, M.E. Ya'acob, H Mohd Ghazali, **L.S. Chang** and Y.N. Manaf (2020). Coconut (*Cocos nusifera* L.) sap as a Q2/1.747

- potential source of sugar: Antioxidant and nutritional properties. Food Science & Nutrition, 8(4), 1777-1787. DOI: [10.1002/fsn3.1191](https://doi.org/10.1002/fsn3.1191)
13. C.H. Kuan, S. Radu, Mahyudin, N.A., J.Y.H. Tang, S.K. Yeo, C.S. Kuan, **L.S. Chang**, E.T. Phuah, T.Y. Thung, C.W. Tan, C.Y. New, and M. Nishibuchi (2020). Efficiency of household washing pre-treatments and cooking methods for reduction of *Listeria monocytogenes* in artificially contaminated chicken offal. Food Research, 4(1), 166-174 (February). DOI:10.26656/fr.2017.4(1).268. Scopus
 14. S. Rosland Abel, Y.A. Yusof, N.L. Chin, **L.S. Chang**, I. Ishak, M. Abd Ghani (2020). The effect of particle size on the physical properties of Arabic gum powder. Journal of Food Process Engineering, 43(4), e13368. DOI:10.1111/jfpe.13368 Q3/1.448
 15. M.T. Asghar, Y.A. Yusof, M.N. Mokhtar, M.E. Ya'acob, H Mohd Ghazali, **L.S. Chang** and Y.N. Manaf (2020). Effect of processing methods on vitamin profile, antioxidant properties and total phenolic contents of coconut (*Cocos nucifera* L.) sugar syrup. International Journal of Food Science and Technology, 55(7), 2762–2770. DOI:10.1111/ijfs.14529 Q2/2.281
 16. S.E. Rosland Abel, Y.A. Yusof, N.L. Chin, **L.S. Chang**, and H.M. Ghazali (2020). Physical properties of gum arabic powder at various particles sizes. Food Research, 4(Suppl. 1), 107-115. DOI: 10.26656/fr.2017.4(S1).S32 Scopus
 17. **L.S. Chang**, S.M. Eau Yong, L.P. Pui (2020). Production of spray-dried “Terung Asam” (*Solanum lasiocarpum* Dunal) powder. Walailak Journal of Food Technology, 18(1), 6922. DOI: 10.48048/wjst.2021.6922 Scopus
 18. **L.S. Chang**, Y.L. Tan, L.P. Pui (2020). Production of spray-dried enzyme-liquefied papaya (*Carica papaya* L.) powder. Brazilian Journal of Food Technology, 23, e2019181. DOI: 10.1590/1981-6723.18119 Scopus
 19. M.T. Asghar, Y.A. Yusof, M.N. Mokhtar, M.E. Ya'acob, H Mohd Ghazali, J. Varith, **L.S. Chang** and Y.N. Manaf (2020). Processing of coconut sap into sugar syrup using rotary evaporation, microwave and open-heat evaporation techniques. Journal of the Science of Food and Agriculture, 100(10), 4011–4019. DOI: 10.1002/jsfa.10446 Q1/2.422
 20. A.K.L. Yong, K.W. Lai, H. Mohd Ghazali, **L.S. Chang**, L.P. Pui (2020). Microencapsulation of *Bifidobacterium animalis* subsp. *Lactis* BB-12 with mannitol. Asia Pacific Journal of Molecular Biology and Biotechnology, 28(2), 32-42. DOI: 10.35118/apjmbb.2020.028.2.04 Scopus

21. A.J.W. Ling, **L.S. Chang**, A.S. Babji, S.J. Lim (2020). Recovery of value-added glycopeptides from Edible Bird's Nest (EBN) co-products: Enzymatic hydrolysis, physicochemical characteristics and bioactivity. *Journal of the Science of Food and Agriculture*, 100(13), 4714–4722. DOI: 10.1002/jsfa.10530 Q1/2.422
22. S.R. Ng, H.S. Mohd Noor, R. Ramachandran, H.Y. Tan, S. Ch'ng, **L.S. Chang**, A.S. Babji, S.J. Lim (2020). Recovery of glycopeptides by enzymatic hydrolysis of edible bird's nest: The physicochemical characteristics and protein profile. *Journal of Food Measurement and Characterization*, 14(5), 2635–2645. DOI: [10.1007/s11694-020-00510-4](https://doi.org/10.1007/s11694-020-00510-4) Q3/1.415
23. J.Y. Gan, **L.S. Chang**, N.A. Mat Nasir, A.S. Babji, S.J. Lim (2020). Evaluation of physicochemical properties, amino acid profile and bioactivities of edible bird's nest hydrolysate as affected by drying methods. *LWT-Food Science and Technology*. 131, 109777. DOI: 10.1016/j.lwt.2020.109777 Q1/3.714
24. J. W. A. Ling, **L. S. Chang**, R. Mohd Khalid, W. A. Wan Mustapha, N. S. Sofian-Seng, N. S. Mohd Razali, H. A. Rahman, N. A. Mohd Zaini, & S. J. Lim (2020). Sequential extraction of red button ginger (*Costus woodsonii*): Phytochemical screening and antioxidative activities. *Journal of Food Processing and Preservation*, 44(10), e14776. DOI: [10.1111/jfpp.14776](https://doi.org/10.1111/jfpp.14776) Q3/1.288
25. N. A. Mohd Fauzиеe, **L. S. Chang**, W. A. Wan Mustapha, A. R. Md Nor, and S. J. Li, (2021). Functional polysaccharides of fucoidan, laminaran and alginate from Malaysian brown seaweeds (*Sargassum polycystum*, *Turbinaria ornata* and *Padina boryana*). *International Journal of Biological Macromolecules*, 167, 1135-1145. DOI: [10.1016/j.ijbiomac.2020.11.067](https://doi.org/10.1016/j.ijbiomac.2020.11.067) Q1/5.162
26. P. K. Chong, S. L. Mun, **L. S. Chang**, A. S. Babji and S. J. Lim (2022). Fractionation of edible bird's nest glycoprotein hydrolysates: Characterisation and antioxidative activities of the fractions. *Food Science and Human Wellness*, 11 (4), 886-894. DOI: 10.1016/j.fshw.2022.03.015 Q1/5.154
27. C. W. Ho, **L. S. Chang**, S. K. Syed Muzni, S. Fazry, A. Lazim, U. K. Hj Hussain Zaki, & S. J. Lim (2021) Functional beverage production through acetous fermentation of soursop: physicochemical, toxicity and organoleptic properties. *Food Bioscience*, 39, 100812. Q2/3.067
28. N. S. Mohamad Ghazali, Y. A. Yusof, H. Mohd Ghazali, N. L. Chin, S. Othman, Manaf, H. Y. M., **L. S. Chang**, & S. A. H. Mohd Baroyi (2021). Effect of surface area of clay pots on physicochemical and microbiological properties of stingless bee (*Geniotrigona thoracica*) honey. *Food Bioscience*, 40, 100839 Q2/3.067
29. Y. V. G. Chng, **L. S. Chang**, & L. P. Pui (2020). Effects of maltodextrin concentration and inlet temperature on the physicochemical properties of Scopus

- spray-dried kuini powder. Asia Pacific Journal of Molecular Biology and Biotechnology, 28(4), 117-131. DOI: 10.35118/apjmbb.2020.028.4.10
30. N. Mokhtar, **L. S. Chang**, Y. Soon, W. M. Wan Mustapha, N. S. Sofian-Seng, H. A. Rahman, N. S. Mohd Razali, S. Shuib, A. Abdul Hamid, & S. J. Lim (2021). Harvesting *Aurantiochytrium* sp. SW1 using organic flocculants and characteristics of the extracted oil. Algal Research, 54, 102211 DOI: 10.1016/j.algal.2021.102211 Q1/4.008
 31. H. S. Mohd Noor, R. Mohd Ariff, **L. S. Chang**, X. Y. Chai, T. Hui Yan, N. A. Daud, A. S. Babji and S. J. Lim (2022). Enzymatic recovery of glycopeptides from different industrial grades edible bird's nest and its by-products: Nutrient, probiotic and antioxidant activities, and physicochemical characteristics Food Science and Human Wellness, 11, 1555-564. DOI: 10.1016/j.fshw.2022.06.013 2213-4530 Q1/5.154
 32. S. J. Lim, **L. S. Chang**, S. Fazry, W. A. W. Mustapha, & A. S. Babji (2021). Functional food & ingredients from seaweed, edible bird's nest and tropical fruits: A translational research. LWT – Food Science and Technology, 151, 112164. DOI: 10.1016/j.lwt.2021.112164 Q1/4.006
 33. J. W. A. Ling, **L. S. Chang**, A. S. Babji, J. Latip, M. Koketsu, & S. J. Lim (2022). Review of sialic acid's biochemistry, sources, extraction and functions with special reference to edible bird's nest. Food Chemistry, 367, 130755. DOI: 10.1016/j.foodchem.2021.130755 Q1/6.306
 34. L. P. Pui, A. Abdullah, **L. S. Chang**, S. Y. F. Chan (2022). The effect of drying methods on the physicochemical and antioxidant properties of Bintangor orange (*Citrus nobilis*) powders. Acta Scientiarum Polonorum Technologia Alimentaria, 21(1), 111-122. DOI: 10.17306/J.AFS.2022.0901 Scopus
 35. L.Y. Zhu, Y.H. How, H.M. Ghazali, **L.S. Chang**, K.L. Nyam, L.P. Pui (2021). Effect of thermal treatments on the storage stability of *Lactobacillus acidophilus* La-14 tamarind juice with or without beta-glucans. Malaysian Journal of Microbiology, 17(4), 424-434. DOI: 10.21161/mjm.211124 Scopus
 36. **L.S. Chang**, K.Q. Lau, C.P. Tan, Y.A. Yusof, K.L. Nyam, L.P. Pui (2021). Production of 'Kedondong' (*Spondias cytherea* Sonnerat) powder as affected by different drying methods. Acta Scientiarum Polonorum Technologia Alimentaria, 20(4), 417-421. DOI: 10.17306/J.AFS.2021.0903 Scopus
 37. **L. S. Chang**, Y. W. Ooi, L. P. Pui (2022). Production of enzymatic hydrolysed spray-dried honeydew melon (*Cucumis melo* L.) powder. Journal of Agriculture and Food Research, 10, 100364. DOI: 10.1016/j.jafr.2022.100364 NA (Scopus)
 38. K.I. Unal, **L. S. Chang**, W. M. Wan Aida, N. S. Mohd Razali, A. S. Babji, & S. J. Lim (2022). Edible bird's Nest, a valuable glycoprotein source: Current Q4/1.009

- research prospects and challenges in Malaysia. *Sains Malaysiana* 51(9): 2829-2842. DOI: 10.17576/jsm-2022-5109-08
39. R. Mohd Ariff, **L. S. Chang**, X. Y. Chai, S. Fazry, B. A. Othman, A. S. Babji and S. J. Lim (2023). Recent trends in kombucha: Conventional and alternative fermentation in development of novel beverage. *Food Bioscience*. 53, 102714. DOI:10.1016/j.fbio.2023.102714 Q1/5.318
 40. C. C. Boon, **L. S. Chang**, A. S. Babji, C.M.F. Yap, J.M. Tan, N.S. Mohd Razali and S. J. Lim (2023). Keberkesanan Tokoferol sebagai Antioksidan dalam Ayam Salai (Effectiveness of Tocopherol as Antioxidant in Chicken Jerky). *Sains Malaysiana* 52(4): 1243-1258. DOI: 10.17576/jsm-2023-5204-16 (Impact factor: 1.006 – Q4) Q4/1.006
 41. Y. S. Koh, Z. Y. Ter, R. Mohd Ariff, N. F. Abd Rahman, **L. S. Chang**, A. S. Babji, S. J. Lim (2024). Kesan Transglutaminase kepada Ciri-Ciri Fizikokimia dan Aktiviti Biologi Hidrolisat Sarang Burung Walit (Effect of Transglutaminase towards Physicochemical Properties and Biological Activities of Edible Bird's Nest Hydrolysates). *Sains Malaysiana*. 53(1)(2024): 171-188. Q4/0.800
 42. Z. Y. Ter, **L. S. Chang**, A. S. Babji, N. A. Mohd Zaini, S. Fazry, S. R. Sarbini, C. K. Peterbauer & S. J. Lim (2024). A review on proteolytic fermentation of dietary protein using lactic acid bacteria for the development of novel proteolytically fermented foods, *International Journal of Food Science and Technology*, 59, 1213–1236. doi:10.1111/ijfs.16888 Q2/3.30
 43. S. L. Mun, Z. Y. Ter, R. Mohd Ariff, N. F. Abd Rahman, **L. S. Chang**, J. Latip, A. S. Babji, S. J. Lim. (2024). Fractionation and characterisation of sialylated-mucin glycoprotein from edible birds' nest hydrolysates through anion exchange chromatography. *International Journal of Biological Macromolecules*, 269, 1, 132022. doi.org/10.1016/j.ijbiomac.2024.132022 Q1/8.2
 44. L. A. K. Saleena, K. Y. L. Tan, **L. S. Chang**, L. P. Pui (2024). Enzymatic Liquefaction and characterization of *Mangifera laurina* Blume. *Food Processing: Techniques and Technology*, 54(1):37–47. doi.org/10.21603/2074-9414-2024-1-2485 Scopus
 45. K. I. Unal, **L. S. Chang**, W. A. Wan Mustapha, N. S. Mohd Razali, A. S. Babji, S. J. Lim (2024). Extraction, Structural Analysis and Biological Activities of Edible Bird's Nest Sialylated Mucin (Siamuc) Glycoproteins: A Review. *Food Bioscience*, 104791 In Press Q1/5.2
(ISI Indexed, IF = 5.2, WOS Q1, Citescore = 5.6, Scopus Q1)
 46. **L. S. Chang**, K. L. Liew, L. P. Pui (2024). Production of Plantain Powder using Enzyme-Liquefied Feed through Spray Drying Operation. *Asia Pacific Journal of Molecular Biology and Biotechnology*. Accepted on 17 July 2024 (Citescore = 0.8, Scopus Q4) Scopus
 47. Ghazali, N. S. M., Chin, N. L., Othman, S. H., **Chang, L. S.**, Baroyi, S. A. H. M., & Yusof, Y. A. (2024). Stability of physicochemical and microbiological properties of Geniotrigona thoracica honey after moisture reduction and

- long-term storage in different containers. *Journal of Food Composition and Analysis*, 106767.
48. Gan, M. Q., Poh, J. M., Lim, S. J., & Chang, L. S. (2024). The Potential of Protein Hydrolysates from Marine By-products: Mechanisms, Health Benefits, Applications, Future Prospects, and Challenges. *Process Biochemistry*, 147, 489-504. Q2/ 3.4
 49. S. J. Lim, M. A. R. Nor-Khaizura, L. S. Chang (2024). Novel advancements in food science, technology and nutrition from ASEAN perspective: Editorial. *International Journal of Food Science & Technology*. 59(10), 7689-7681. Q2/3.30
 50. Z. Y. Ter, S. J. Lim, L. S. Chang (2024). Untargeted Metabolomics Profiling for Revealing Water-Soluble Bioactive Components and Biological Activities in Edible Bird's Nest. Accepted on 4 November 2024 Q1

Book and book chapters

1. M. T. Asghar, Y. A. Yusof, M. N. Mokhtar, M. E. Yaacob, H. M. Ghazali, Y. N. Manaf and **L. S. Chang** (2021). Production and application of coconut palm sugar (pg 205-230). In. *The Coconut Palm (Cocos nucifera)*. Ed. Probir Kumar Ghosh. Nova Science Publishers, Inc.: New York.
2. S. J. Lim, **L. S. Chang** and B. Abdul Salam (2021). *Unravelling the Secrets of Edible Bird's Nest*. Penerbit Universiti Kebangsaan Malaysia: Malaysia

Conference and proceeding

1. H. M. Ghazali and **L. S. Chang** (2012). Production of enzyme-clarified noni (*Morinda citrifolia* L.) juice and effect of pasteurization on its properties. The 14th Food Innovation Asia Conference 2012 'Green and Sustainable Food Technology for All'. 14-15 Jun 2012, Bangkok, Thailand.
2. **L.S. Chang**, R. Karim, A.S. Mohammed, H.M. Ghazali (2016). Application of enzyme in feedstock preparation for the production of spray dried soursop (*Annona muricata* L.) powder. Proceedings of the 3rd International Conference on Agricultural and Food Engineering (Cafei2016). Faculty of Engineering, Universiti Putra Malaysia, Malaysia pp. 363-367
3. M. Fikry, Y.A. Yusof, A.M. Al-Awaadh, R.A. Rahman, N.L. Chin, **L.S. Chang** (2018). Moisture transfer kinetics during roasting of palm date seeds (*Phoenix dactylifera* L.). *Journal of Science and Technology – Pertanika*, 27(2).
4. S. R. Ng, H. S. Mohd Noor, R. Ramachandran, H. Y. Tan, S. E. Ch'ng, **L. S. Chang**, A. S. Babji, and S. J. Lim (2019). Recovery of glycopeptides from edible bird's nest: The physicochemical characteristics and protein efficiency ratio. *ASEAN Emerging*

Researcher Conference (ASEAN ERC 2019) – 9th & 10th Disember 2019 – Sunway University, Malaysia

5. **L. S. Chang**, N. A. Mohd Zaini, A. S. Babji, and S. J. Lim (2020). Bioconversion of edible bird's nest (EBN) glycoproteins into glycopeptides. International Symposium on Food Sciences, FST, UKM – GIFU University 2020 – 22nd – 23rd September 2020 – UKM, Malaysia
6. **L. S. Chang**, D. Nur' Aliah, N. N. Muhammad, A. S. Babji, C. H. Chan, C. C. Tey and S. J. Lim (2021). Production of spray-dried sea cucumber (*Cucumaria frondosa*) by-products hydrolysate powder. YSN-ASM International Scientific Virtual Conference (ISVC) 2021 – 29th March – 1st April 2021 – Zoom
7. **L. S. Chang**, D. Nur' Aliah, N. N. Muhammad, A. S. Babji, C. H. Chan, C. C. Tey and S. J. Lim (2022). Production of spray dried sea cucumber (*Cucumaria frondosa*) by-products hydrolysate powder - 4th International Conference on Molecular Biology & Biotechnology (ICMBB2021) hosted from Kuala Lumpur, Malaysia – 1st – 3rd June 2021 – Zoom
8. **L. S. Chang**, D. Nur' Aliah, N. N. Muhammad, A. S. Babji, C. H. Chan, C. C. Tey and S. J. Lim (2022). Production of spray dried sea cucumber (*Cucumaria frondosa*) by-products hydrolysate powder - International Symposium of Science and Technology UKM-PSU 2022 (ISSTUP2022) – Organised by Universiti Kebangsaan Malaysia and Prince of Songkla University – 16th – 17th March 2022 – Zoom
9. **L. S. Chang**, D. Nur' Aliah, N. N. Muhammad, A. S. Babji and S. J. Lim (2023). Utilization of marine industry by-products: Protein hydrolysate from sea cucumber internal organs - The 5th International Symposium on Processing of Food, Vegetables and Fruits (ISPFVF 2023) – Organised by University of Nottingham – 22nd – 23d June 2023 – Cititel Hotel Kuala Lumpur.

I. COURSES/SEMINAR/WORKSHOP ATTENDED

- | | | |
|---|---|------|
| → | Committee (Culinary) – Program Food Fair 2009 – Faculty Food Science and Technology, Universiti Putra Malaysia – 6 th -8 th August 2009 | 2009 |
| → | Presenter – Product Development Day – Faculty Food Science and Technology, Universiti Putra Malaysia – 29 th October 2010 | 2010 |
| → | Participant – 7 th MIFT Food Science & Technology Seminar, Monash University Malaysia by Malaysian Institute of Food Technology – 19 th -20 th February 2011 | 2011 |

→	Participant – Workshop on Writing Journal Articles for International Submission: Basic Strategy and Steps, Institute of Biosciences and School of Graduate Studies, Universiti Putra Malaysia – 11 th May 2012	2012
→	Participant – The PhD Examination Process Seminar, School of Graduate Studies, Universiti Putra Malaysia – 14 th July 2012	2012
→	Poster presenter – Research and Innovation Exhibition (PRPI 2012), Universiti Putra Malaysia – 17 th -19 th July 2012	2012
→	Participant – Thomson Reuters Seminar 2013 – Driving Success in Research, Innovation and Commercialization – Universiti Putra Malaysia – 20 th August 2013	2013
→	Participant – The 15 th Malaysian International Food and Beverage (MIFB) Trade Fair Conference: Enhancing Food Security through Food safety and Innovation– 18 th June 2014	2014
→	Participant – Guide to Writing Scientific Papers for International Journals – Faculty Food Science and Technology, Universiti Putra Malaysia – 12 th & 13 th August 2014	2014
→	Participant – Water Activity – The Impact on Product Stability and Shelf Life Study*	2016
→	Participant – How to Successfully Write and Publish your Research Article by Wiley – 30 th November 2016	2016
→	Oral presenter – The 3 rd International Conference on Agricultural and Food Engineering (CAFEi2016) – Seri Pacific Hotel, Kuala Lumpur, Malaysia – 23 rd – 25 th August 2016	2016
→	Participant – MIFT 10 th National Food Science and Technology Competition – Taylor’s University Lakeside Campus – 17 th & 18 th March 2017	2017
→	Participant – Workshop on Academic Writing and Publishing – by ;enago academy, Universiti Putra Malaysia – 5 th September 2017	2017
→	Participant – MIDA – Supply Chain Conference “MNCs & SMEs – Development & Opportunities”*	2017
→	Participant – Winning and Managing High Impact Research Grant Forum*	2018
→	Speaker – RTM2 talk show – What say you? Topic on Food Safety and Security*	2018
→	Participant – TMS Seminar 2018 “Key to Unlock the Potential of Purification, Rotary Evaporation, Freeze Drying, Spray Drying & Encapsulation Application” – Buchi Malaysia Sdn Bhd – 29 th March 2018	2018
→	Participant – Ultra Performance Liquid Chromatography – Waters Acuity Workshop Training*	2018

→	Integrative Omics via Mass Spectrometry: A workshop on Integrated Biology – Monash University, Malaysia – 5 th & 6 th December 2018	2018
→	Guest – Merdeka Talk Series 2019 –Kiku Hall Petronas Twin Towers – 15 August 2019*	2019
→	Poster presenter – ASEAN Emerging Researcher Conference (ASEAN ERC 2019) – Sunway University, Malaysia – 9 th & 10 th December 2019	2019
→	Judge panel – Poster presentation of Scientific Communication Course (STKM 3322) – Universiti Kebangsaan Malaysia – 16 th December 2019	2019
→	Participant – Workshop on Intellectual property and hands-on experience in filling eIPR system– Universiti Kebangsaan Malaysia – 19 th August 2020*	2020
→	Session chairperson & oral presenter – International Symposium on Food Science 2020 –Universiti Kebangsaan Malaysia, Malaysia – GIFU University, Japan – 22 nd & 23 rd September 2020	2020
→	Participant – Workshop on Journal Publication – Department of Food Sciences, Universiti Kebangsaan Malaysia – 1 st & 2 nd October 2020*	2020
→	Participant – International Joint Webinar (IJW) – Recent Advances in Translational Research in Food Science and Technology – World Food Day 2020 – 16 th October 2020	2020
→	Participant – Find solutions for every phase of your HPLC workflow! By Rashaki and Merck KGaA Darmstadt, Germany – 17 th November 2020	2020
→	Participant – Methods to Determine Antioxidant Capacity in Food Samples – By Faculty of Applied Sciences, Universiti Teknologi MARA (UiTM), Malaysia – 12 th December 2020	2020
→	Poster presenter – YSN-ASM International Scientific Virtual Conference (ISVC) 2021 – 29 th March – 1 st April 2021 – Zoom	2021
→	Participant – Workshop on Research Excellence Consortium (KKP 2020) – Universiti Teknologi Malaysia – 28 th – 29 th March 2021	2021
→	Participant – Chromatography Masterclass II : Consumables and Sample Loading – Webinar organized by Buchi Labortechnik AG – 26 th May 2021	2021
→	Judge and oral presenter – 4 th International Conference on Molecular Biology & Biotechnology (ICMBB2021) hosted from Kuala Lumpur, Malaysia – 1st – 3rd June 2021	2021
→	Participant – A new era of chromatography: Improve your accuracy, sensitivity and precision with redefined HPLC/UHPLC system technologies – SelectScience Ltd. – 16 th June 2021	2021
→	Oral Presenter – New Invention and Innovation Category – ASEAN Categories – The Crown Prince CIPTA Award 2021 – Creative, Innovative Product and Technological Advancement (CIPTA) – University Technology Brunei – 1st – 3 rd June 2021	2021

→	Participant – MPOC-UKM Palm Oil Educational Outreach Webinar – Organised by Science, Environment & Sustainability Division, Malaysian Palm Oil Council and Department of Food Sciences, Universiti Kebangsaan Malaysia – 17 th June 2021	2021
→	Participant – Course on Introduction and Transition of MS ISO/IEC 17025:2017 – Organised by Persatuan Makmal Akreditasi Malaysia – 23 rd – 24 th June 2021	2021
→	Participant – Webinar on “What It Takes to Achieve a Good Chromatography – Selecting the Right Column Chemistries and Mobile Phase” – Organised by Separation Science – 14 th July 2021	2021
→	Participant – Webinar on “ASEAN Education Program: Protein Purification from A to Z” – Organised by Chemopharm Education – 21 st July 2021	2021
→	Participant – Webinar on “Experiences of using natural resources for drug discovery” – Organised by Buchi – 21 st July 2021	2021
→	Participant – 1 st Postgraduate Seminar on Agriculture and Forestry: Enhancing Knowledge through Research (PSAF 2021) – 6 th October 2021	2021
→	Judge, Emcee, Chairperson and oral presenter – International Symposium of Science and Technology UKM-PSU 2022 (ISSTUP2022) – Organised by Universiti Kebangsaan Malaysia and Prince of Songkla University – 16 th – 17 th March 2022	2022
→	Invited speaker – Online 9th Asian Network of Natural & Unnatural Materials Conference (ANNUM) - Department of Chemistry, University of Delhi – 8 th April 2022	2022
	Topic: Bioconversion of Industrial Waste into Functional Ingredient	
→	Emcee, participant - SDGs	2022
→	Emcee, participant - ICMBB	2022
→	Food handler training	2022
→	Participant – BNP business conference	2022
→	Speaker, trainer – HPLC	2022
→	Secretary - AFC	2023
→	Chairperson – Applied Sciences Week	2023
→	Publicity Committee – ICMBB2023	2023
→	Programme Committee – ISPFVF2023	2023
→	Invited Speaker – 8TV Living Delight	2023
→	Invited Speaker – Sin Chew	2023
→	Exhibitor – Food & Drinks Malaysia by SIAL 4-6 July 2023 MITEC Kuala Lumpur	2023

→	Emcee - UCSI SHINE@ Berjaya Times Square 2023	2023
	Sustainable Health Interventional Nutrition Education	
→	Invited Speaker – Nutrition Talk	2023
→	Participant - Outcome-Based Education	2023
→	Invited Speaker – National Science Challenge	2023
→	MIFT	2023
→	Organising committee + Oral presenter ISPFVF	2023
→	Participant – IKA open day	2023
→	Participant - Buchi	2023
→	Vice Chairperson – Animal Shelter	2023
→	Judge – The 33d Intervarsity Biochemistry Seminar (IBS) – 9 th December 2023, Universiti Kebangsaan Malaysia	2023
→	Participant - High Impact workshop	2023
→	Participant - Food Labelling Training	2023
→	Organising chairperson – Faculty Night	2023
→	Invited Speaker – Sin Chew Daily	2024
→	Helper – MoU Hainan Tropical Ocean University (HTOU) – UCSI University	2024
→	Publicity Leader - The 7th International Conference on Molecular Biology and Biotechnology 2024 (ICMBB 2024) in conjunction with the 6th USIM International Health Conference (IHeC) 2024	2024
→	Invited Speaker – IChemE Advancing Chemical Engineering Worldwide	2024
	Topic: From Nest to Nourishment: The Delicate Essence of Edible Bird's Nest	
→	Guest lecturer – Indonesia International Institute for Life Sciences (I3L)	2024
→	Participant – 2u2i	2024
→	Organiser – Learning & Teaching – Stress management	2024
→	Organiser – Outcome-Based Education	2024
→	Advisor – the 8 th Applied Sciences Week, UCSI University	2024

*Join by invitation and registration, certificate is not available

J. SCIENTIFIC EXPERIENCE AND SKILL

→ Teaching/demonstrator experience:

- Food Analysis
- Food Chemistry Laboratory

- Food Analysis Laboratory

→ **Involved and assisted in several collaboration projects with industrial partners**

- Edible bird's nest - Mobile Harvester Sdn. Bhd., Yan Ming Sdn. Bhd., Penta Harvester Sdn. Bhd.
- Development of protein hydrolysate - Nabelin Co., Ltd
- Development of frozen fish fileir - Southern Frozen Food Industry Sdn. Bhd.,
- Development of marine hydrolysate - Harmony Marine Products Sdn. Bhd.,
- Development of powder - Agridon Technologies Sdn. Bhd.
- Development of meat product - Wing Heong Food Industries Sdn. Bhd.

→ **Reviewed manuscript and working paper for peer-reviewed journal**

- LWT-Food Science and Technology (Q1)
- Food and Bioprocess Technology (Q1)
- Food Chemistry (Q1)
- Journal of the Science of Food and Agriculture (Q1)
- Journal of Food Science and Technology – Mysore (Q3)
- Journal of Food Measurement & Characterization (Q3)
- Pertanika – Journal of Science and Technology (Q4)

→ **Assist in proposals writing and concept paper for grant application**

- Konsortium Kecemerlangan Penyelidikan versi 2/2020 – Kementerian Pengajian Tinggi
- International Collaboration Fund (ICF) – Ministry of Energy, Science, Technology, Environment and Climate Change, Malaysia
- Science & Technology Research Grant – Malaysia Toray Science Foundation
- Globalseaweedstar Research and Innovation Fund – UK Research and Innovation
- Toshiba International Foundation FY2021
- Dana Penerbitan Buku (DPB) – Universiti Kebangsaan Malaysia
- Dana Modal Insan 2020 (DMI) – Universiti Kebangsaan Malaysia
- Dana Modal Insan 2019 (DMI) – Universiti Kebangsaan Malaysia
- Geran Putra – Inisiatif Putra Siswazah (IPS) – Universiti Putra Malaysia
- Geran Putra – Inisiatif Putra Berkumpulan (IPB) – Universiti Putra Malaysia

→ **File **seventeen (17) intellectual property** (1 patent and 16 copyright)**

- Title: Patent - Recovery of high purity and high value sialic acid from edible bird's nest by-products
Filing no.: UKM.IKB.800-4/1/3234
- Title: Teaching Kit (Video for Reducing Sugar Content Analysis (Somogyi Method))
Filing no.: UKM.IKB.800-4/1/3058
- Title: Teaching Kit (Video for Free Fatty Acid analysis)
Filing no.: UKM.IKB.800-4/1/3055
- Title: Teaching Kit (Module Antioxidant Assay: 2,2'-Azinobis-(3-Ethylbenzthiazolin-6-sulfonic acid) (ABTS) Assay)
Filing no.: UKM.IKB.800-4/1/3389

- Title: Teaching Kit (Module Antioxidant Assay: DPPH (2,2-diphenyl-1-picryl-hydrazyl-hydrate) Free Radical Scavenging Method)
Filing no.: UKM.IKB.800-4/1/3390
- Title: Teaching Kit (Module Antioxidant Assay: Ferric Reducing Antioxidant Power (FRAP) Method)
Filing no.: UKM.IKB.800-4/1/3391
- Title: Teaching Kit (Video for Preparation of Acid Solution)
Filing no.: UKM.IKB.800-4/1/3527
- Title: Teaching Kit (Video for Preparation of Base Solution)
Filing no.: UKM.IKB.800-4/1/3528
- Title: Teaching Kit (Video for Dilution of Solutions using Pearson Square Method)
Filing no.: UKM.IKB.800-4/1/3530
- Title: Teaching Kit (Video for Fat Content Determination – Mojonnier Method)
Filing no.: UKM.IKB.800-4/1/3541
- Title: Teaching Kit (Video for Fat Content Determination – Soxhlet Method)
Filing no.: UKM.IKB.800-4/1/3542
- Title: Teaching Kit (Video for Moisture Content Determination – Oven Method)
Filing no.: UKM.IKB.800-4/1/3543
- Title: Teaching Kit (Video for Moisture Content Determination – Infrared Method)
Filing no.: UKM.IKB.800-4/1/3545
- Title: Teaching Kit (Video for Moisture Content Determination – Reflex Bidwell-Sterling Method)
Filing no.: UKM.IKB.800-4/1/3546
- Title: Teaching Kit (Video for Total Ash Content Determination)
Filing no.: UKM.IKB.800-4/1/3547
- Title: Teaching Kit (Video for Soluble and Insoluble Ash Content Determination)
Filing no.: UKM.IKB.800-4/1/3548
- Title: Teaching Kit (Video for Crude Fibre Content Determination)
Filing no.: UKM.IKB.800-4/1/3549

→ **Mentor, supervise, and guide postgraduate students** (PhD & MSc), final year project students, internship students in their research project

→ **Assist in non-graduating program** (Research attachment) at Universiti Putra Malaysia – Nurbek Aralbayev, Almaty Technological University, Kazakhstan

→ **Laboratory analysis:**

- Enzyme analysis
- Edible Bird's Nest analysis: Amino acid profiling etc
- Fruit analysis: Sugar profiling, Organic acid profiling etc
- Oil analysis: Triacylglycerol (TAG) profiling, thermal profiling etc
- Powder analysis: Thermal profile etc
- Protein analysis: Amino acid profiling etc
- Aroma profiling
- Antioxidant analysis

- and other laboratory analysis
- **Operational skill:**
 - High-Performance Liquid Chromatography (HPLC)
 - Ultra-Performance Liquid Chromatography (UPLC)
 - Flash Chromatography (FC)
 - Fourier Transform Infra-Red (FTIR)
 - Gas Chromatography (GC)
 - zNose (electronic nose)
 - Scanning Electron Microscopy (SEM)
 - Differential Scanning Calorimetry (DSC)
 - Rheology behaviour
 - Processing equipment: Spray Dryer, Freeze Dryer, Fluidized Bed Dryer
 - Sensory evaluation, and
 - other laboratory analytical skills: titration, spectrophotometry, colorimetry
- **Statistical skill**
 - Principal Component Analysis (PCA)
 - Response Surface Methodology (RSM)
- **Software**
 - Standard Microsoft office software
 - Minitab (v17.0)
 - Empower 3
 - Pyris Manager
- Planned and performed research according to projects requirement
- Prepared research article and submit to high impact factor journal
- Strong communication skills, able to present data clearly and confidently in public
- Good interpersonal skills, able to collaborate with other researchers, actively asking and seeking opinion in discussion, willingness to listen and interpret suggestion wisely, able to solve problem effectively, able to make decision after proper consideration, able to work independently and committed as a team, full of sense of responsibility, good punctuality

K. STUDENTS

	As Supervisor	As Co-supervisor
MSc by research	• Gan Mei Qi	• Calvin Chuo
MSc by coursework	• Ho Mei Yee • Leong Wai Fong • Tan Yee Leng	

PhD

- Gan Jing Ning

- Zhao TianHui
- Kan MingMing

L. REFEREES

1. **Lim Seng Joe (Assoc. Prof. Ts. Dr.)**
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2. **Yus Aniza Yusof (Prof. Dr. Ir.)**
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Department of Process and Food Engineering,
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University Putra Malaysia, 43400 Serdang, Selangor, Malaysia
Tel: +603-89464425
Email: yus.aniza@upm.edu.my
3. **Mamoru Koketsu (Prof. Dr.)**
Professor
Chemistry and Biomolecular Science
Faculty of Engineering and Graduate School of Engineering
Gifu University, Japan
Tel: +81582932619
Email: koketsu.mamoru.e0@f.gifu-u.ac.jp