CURRICULUM VITAE

Dr. Intan Syafinaz Mohamed Amin Tawakkal
Department of Process and Food Engineering,
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Education

1. PhD (Food Packaging), 2016, Victoria University, Melbourne, Australia
2. M.Sc (Packaging Engineering), 2011, Universiti Putra Malaysia
3. B. Eng (Hons) Process and Food Engineering, 2008, Universiti Putra Malaysia

Areas of Interest

Food Packaging | Biopolymer and Biocomposite Materials | Lignocellulosic Materials (Natural Fiber) | Active and Smart Packaging | Edible Films and Coatings | Food Shelf Life

Professional Qualification/ Membership/ Affiliation

1. Board of Engineers Malaysia (BEM) – Graduate Member
2. Institute Engineers of Malaysia (IEM) – Graduate Member
3. Malaysia Society of Agricultural Engineers (MSAE) – Member
4. The Malaysian Plastics Manufacturers Association (MPMA) – Member
5. Persatuan Pembangunan dan Industri Enau Malaysia (PPIEM) – Corporate Member
6. Global Harmonization Initiative – Member
7. International Association of Packaging Research Institutes (IAPRI) – Graduate Member

Appointments

Position	Duration
1. Postgraduate Coordinator, Department of Process and Food Engineering, Faculty of Engineering, UPM	2019 to date
2. Interim Researcher, Institut Penyelidikan Produk Halal (IPPH), Halal Institute, UPM	2018 – 2022
3. Final Year Project Coordinator, Department of Process and Food Engineering, Faculty of Engineering, UPM	2017 – 2021
4. Treasurer, Kelab Kesejahteraan Jabatan Kejuruteraan Proses dan Makanan, Department of Process and Food Engineering, Faculty of Engineering, UPM	2018 – to date
5. Head of Laboratory, Packaging and Preservation Laboratory, Department of Process and Food Engineering, Faculty of Engineering, UPM	2018 – 2019
6. Head of Laboratory, Bio-Material Engineering Properties and Nutraceutical Laboratory, Department of Process and Food Engineering, Faculty of Engineering, UPM	2019 – 2019
7. Senior Lecturer, Department of Process and Food Engineering, Faculty of Engineering, UPM 2021 to date	11 October 2016 to date
8. Tutor, Department of Process and Food Engineering, Faculty of Engineering, UPM	2009 – 2016
9. Malaysian Industrial Development Finance Consultancy & Corporate Services Sdn Bhd (MIDFCCS)	April 2005 – June 2005

Teaching Course

1. Packaging Engineering (EPF3701)
2. Thermodynamic 1 (EMM3213)
3. Statistical Engineering (ECC3004)
4. Statistical Engineering (ECC3014)
5. Food and Process Engineering Laboratory I (EPF3104)
6. Food and Process Engineering Laboratory II (EPF3105)
7. Food and Process Engineering Laboratory III (EPF3106)
8. Final Year Project I (EPF4999A)
9. Final Year Project II (EPF4999B)
10. Bachelor's Project (EPF4949A)
11. Bachelor's Project (EPF4949B)

Publications

Journals (h-index=13, Citations=721)

2022

1. Zabidi, N. A., Nazri, F., **Tawakkal, I. S. M. A.*,** Basri, M. S. M., Basha, R. K., & Othman, S. H. (2022). Characterization of active and pH-sensitive poly (lactic acid)(PLA)/nanofibrillated cellulose (NFC) films containing essential oils and anthocyanin for food packaging application. International Journal of Biological Macromolecules, 212, (220-231). **(10%)**
2. Nazrin, A., Sapuan, S. M., Zuhri, M. Y. M., **Tawakkal, I. S. M. A.,** & Ilyas, R. A. (2022). Flammability and physical stability of sugar palm crystalline nanocellulose reinforced thermoplastic sugar palm starch/poly (lactic acid) blend bionanocomposites. Nanotechnology Reviews, 11(1), 86-95. **Scopus**
3. Mohamad, N., Mazlan, M. M., **Tawakkal, I. S. M. A.*,** Talib, R. A., Kian, L. K., & Jawaid, M. (2022). Characterization of Active Polybutylene Succinate Films Filled Essential Oils for Food Packaging Application. Journal of Polymers and the Environment, 30(2), 585-596. **Q2**

2021

4. Nordin, N., Romzi, N. A. S., Manaf, Y. N., **Tawakkal, I. S. M. A***., Ariffin, S. H., Othman, S. H., & Yusof, Y. A. (2021). Characterization of active sweet potato-based films containing thymol at different varieties: VitAto and Anggun. Food Packaging and Shelf Life, 30, 100750. **Q1**
5. Sohany, M., **Tawakkal, I. S. M. A**.*, Ariffin, S. H., Shah, N. N. A. K., & Yusof, Y. A. (2021). Characterization of Anthocyanin Associated Purple Sweet Potato Starch and Peel-Based pH Indicator Films. *Foods*, *10*(9), 2005. **Q1**
6. Rafiqah, S. Ayu, Abdan Khalina, Ahmad Saffian Harmaen, **Intan Amin Tawakkal**, Khairul Zaman, M. Asim, M. N. Nurrazi, and Ching Hao Lee. "A review on properties and application of bio-based poly (butylene succinate)." Polymers 13, no. 9 (2021): 1436. **Q1**
7. Nazrin, A., Sapuan, S. M., Zuhri, M. Y. M., **Tawakkal, I. S. M. A**., & Ilyas, R. A. (2021). Water barrier and mechanical properties of sugar palm crystalline nanocellulose reinforced thermoplastic sugar palm starch (TPS)/poly (lactic acid)(PLA) blend bionanocomposites. Nanotechnology Reviews, 10(1), 431-442. **Q1**
8. Maringgal, B., Hashim, N., **Mohamed Amin Tawakkal, I. S.,** Mohamed, M. T. M., Hamzah, M. H., & Mohd Ali, M. (2021). Effect of Kelulut honey nanoparticles coating on the changes of respiration rate, ascorbic acid, and total phenolic content of papaya (Carica papaya L.) during cold storage. Foods, 10(2), 432. **Q1**
9. Basri, M. S. M., Nor, M. Z. M., Shamsudin, R., **Tawakkal, I. S. M. A**., Ghani, N. H. A., Kamarudin, K. M., & Mustafah, A. M. (2021). Effects of different fluting medium geometries on von-Mises stress and deformation in single fluted board: A three-dimensional finite element analysis. Advances in Agricultural and Food Research Journal, 2(1). **(Others)**
10. Othman, S. H., Nordin, N., Azman, N. A. A., **Tawakkal, I. S. M. A.,** & Basha, R. K. (2021). Effects of nanocellulose fiber and thymol on mechanical, thermal, and barrier properties of corn starch films. International Journal of Biological Macromolecules, 183, 1352-1361. **(10%)**
11. Shapawi, Z. I. A., Ariffin, S. H., Shamsudin, R., **Tawakkal, I. S. M. A**., & Gkatzionis, K. (2021). Modeling respiration rate of fresh-cut sweet potato (Anggun) stored in different packaging films. Food Packaging and Shelf Life, 28, 100657. **Q1**
12. Maringgal, B., Hashim, N., Tawakkal, I. S. M. A., Mohamed, M. T. M., Hamzah, M. H., & Shukor, N. I. A. (2019). The causal agent of anthracnose in papaya fruit and control by three different Malaysian stingless bee honeys, and the chemical profile. Scientia Horticulturae,

257, 108590. **Scopus**

13. Mohd Basri, Mohd Salahuddin, Nor Nadiah Abdul Karim Shah, Alifdalino Sulaiman, **Intan Syafinaz Mohamed Amin Tawakkal**, Mohd Zuhair Mohd Nor, Siti Hajar Ariffin, Nur Hamizah Abdul Ghani, and Faiqa Shazeaa Mohd Salleh. "Progress in the Valorization of Fruit and Vegetable Wastes: Active Packaging, Biocomposites, By-Products, and Innovative Technologies Used for Bioactive Compound Extraction." Polymers 13, no. 20 (2021): 3503. **Q1**
14. Mohd Basri, M. S., Yek, T. H., A Talib, R., **Mohamed Amin Tawakkal, I. S**., Kamarudin, S. H., Mazlan, N., & Ab Rahman, M. H. (2021). Rice Husk Ash/Silicone Rubber-Based Binary Blended Geopolymer Coating Composite: Fire Retardant, Moisture Absorption, Optimize Composition, and Microstructural Analysis. Polymers, 13(6), 985. **Q1**

2020

15. Marzuki, M. N. A., **Tawakkal, I. S. M. A.*,** Basri, M. S. M., Othman, S. H., Kamarudin, S. H., Lee, C. H., & Khalina, A. (2020). The Effect of Jackfruit Skin Powder and Fiber Bleaching Treatment in PLA Composites with Incorporation of Thymol. Polymers, 12(11), 2622. **Q1**
16. Mohamad, N., Mazlan, M. M., Tawakkal, I. S. M. A., Talib, R. A., Kian, L. K., Fouad, H., & Jawaid, M. (2020). Development of active agents filled polylactic acid films for food packaging application. International Journal of Biological Macromolecules, 163, 1451-1457. **(10%)**
17. Ayu, R. S., Khalina, A., Harmaen, A. S., Zaman, K., Nurrazi, N. M., **I.S.M.A., Tawakkal**, & Lee, C. H. (2020). Characterization Study of Empty Fruit Bunch (EFB) Fibers Reinforcement in Poly(Butylene) Succinate (PBS)/Starch/Glycerol Composite Sheet. Polymers, 12(7), 1571. **Q1**
18. Maringgal, B., Hashim, N., **Tawakkal, I. S. M. A**., Mohamed, M. T. M., Hamzah, M. H., Ali, M. M., & Abd Razak, M. F. H. (2020). Recent advance in edible coating and its effect on fresh/fresh-cut fruits quality. Trends in Food Science & Technology, 96, 253-267. **(10%)**
19. Maringgal, B., Hashim, N., **Tawakkal, I. S. M. A**., Mohamed, M. T. M., Hamzah, M. H., Ali, M. M., & Abd Razak, M. F. H. (2020). Biosynthesis of CaO nanoparticles using Trigona sp. Honey: Physicochemical characterization, antifungal activity, and cytotoxicity properties. Journal of Materials Research and Technology, 9(5), 11756-11768. **Q1**
20. Othman, S. H., Tarmiti, N. A. N., Shapi'i, R. A., Zahiruddin, S. M. M., **Tawakkal, I. S. M. A**., & Basha, R. K. (2020). Starch/Banana Pseudostem Biocomposite Films for Potential Food Packaging Applications. BioResources, 15(2), 3984-3998. **Q2**
21. Maringgal, B., Hashim, N., **Tawakkal, I. S. M. A**., Mohamed, M. T. M., Hamzah, M. H., Ali, M. M., & Abd Razak, M. F. H. (2020). Kinetics of quality changes in papayas (Carica papaya L.) coated with Malaysian stingless bee honey. Scientia Horticulturae, 267, 109321.**Q1**
22. Ayu, R. S., Khalina, A., Harmaen, A. S., Zaman, K., Nurrazi, N. M**., I.S.M.A., Tawakkal**, & Lee, C. H. (2020). Effect of Empty Fruit Brunch reinforcement in PolyButylene-Succinate/Modified Tapioca Starch blend for Agricultural Mulch Films. Scientific Reports, 10(1), 1-7. **Q1**
23. Mohd Salahuddin M.B., Noor Emilia Adila N.A., **Intan Syafinaz M.A.T**. (2020). Investigation on Oil Absorption and Microstructural Properties of Polyethylene Composites Reinforced with Post-agricultural Waste Fillers. In: Awang M., Emamian S., Yusof F. (eds) Advances in Material Sciences and Engineering. Lecture Notes in Mechanical Engineering, 343-352. **Scopus**

2019

24. Mohd Nazri, M. S., **Tawakkal, I. S. M. A**.*, Khairuddin, N., Talib, R. A., Othman, S. H. and Kadir Basha, R (2019). Characterization of Jackfruit Straw-Based Films: Effect of Starch and Plasticizer Contents. Journal of Science and Technology, Pertanika, 27(S1), 1-14. **Scopus**
25. Maringgal, B., Hashim, N., **Tawakkal, I. S. M. A.,** Mohamed, M. T. M., Hamzah, M. H., & Shukor, N. I. A. (2019). The Causal Agent of Anthracnose in Papaya Fruit and Control By Three Different Malaysian Stingless Bee Honeys, and The Chemical Profile. *Scientia Horticulturae*, *257*, 108590. **Q1**
26. Manzoor, Sama, Yusof, Yus Aniza, Chin, Nyuk Ling, **Tawakkal, Intan S. M. A.**, Fikry, Mohamed, Chang, Lee Sin. (2019). Thin-layer Drying Characteristics of Papaya (Carica papaya) Peel using Convection Oven and Microwave Drying. Journal of Science and Technology, Pertanika 27(3), 1207-1226. **Scopus**
27. Bernard Maringgal, Norhashila Hashim, **Intan Syafinaz Mohamed Amin Tawakkal**, T.M.M. Mahmud (2019). Phytochemical compositions and antioxidant activities of Malaysian stingless bee honey. Journal of Science and Technology, Pertanika, 27(S1),15-28. **Scopus**
28. Siti Hajar Othman, Nurul Rashidah Awang Kechik, Ruzanna Ahmad Shapii, Rosnita A Talib and **Intan Syafinaz Mohamed Amin Tawakkal** (2019). Water Sorption and Mechanical Properties of Starch/CNP Films for Food Packaging Application. Journal of Nanomaterials, Vol 2019, 1-12. **Q2**

29. Othman, S. H., Majid, N. A., **Tawakkal, I. S. M. A**., Kadir Basha, R., Nordin, N., Shapi'i, R. A (2019). Tapioca Starch Films Reinforced with Microcrystalline Cellulose for Potential Food Packaging Application. Food Science and Technology (AHEAD). **Scopus**
30. Zahiruddin, S. M. M., Othman, S. H., **Tawakkal, I. S. M. A.,** & Talib, R. A. (2019). Mechanical and thermal properties of tapioca starch films plasticized with glycerol and sorbitol. *Food Res*, *3*(2), 157-163. **Scopus**
31. Manzoor, S., Yusof, Y. A., Chin, N. L., Tawakkal, A., Mohamed, I. S., Fikry, M., & Chang, L. S. (2019). Quality Characteristics and Sensory Profile of Stirred Yogurt Enriched with Papaya Peel Powder. Pertanika Journal of Tropical Agricultural Science, 42(2). **Scopus**

2014-2018

32. **Tawakkal, I. S. M. A.,** Cran, M. J. and Bigger, S. W. (2018). The Influence of Chemically Treated Natural Fibers Containing Thymol in Poly(Lactic Acid)-Based Antimicrobial Composites for Packaging. Polymer Composites, 39(4), 1261-1272.**Q1**
33. **Tawakkal, I. S. M. A.,** Cran, M. J. and Bigger, S. W. (2017). Effect of Poly(Lactic Acid)/Kenaf Composites Incorporated with Thymol on the Antimicrobial Activity of Processed Meat. Journal of Food Processing and Preservation, 41(5), e13145.**Q1**
34. **Tawakkal, I. S. M. A.,** Cran, M. J. and Bigger, S. W. (2016). Interaction and Quantification of Thymol in Active PLA-Based Materials Containing Natural Fibers. Journal of Applied Polymer Science, 133 (2), 42160 (1 of 11). **Q2**
35. **Tawakkal, I. S. M. A.,** Cran, M. J. and Bigger, S. W. (2016). Release of Thymol from PLA-Based Antimicrobial Films Containing Kenaf Fibres as Natural Filler. LWT-Food Science and Technology, 66, 629-637. **Q1**
36. Bigger, S. W., Cran, M. J. and **Tawakkal, I. S. M. A.** (2015). Two Novel Algorithms for the Thermogravimetric Assessment of Polymer Degradation under Non-Isothermal Conditions. Polymer Testing, 43, 139-146. **Q2**
37. **Tawakkal, I. S. M. A.,** Cran, M. J., Miltz, J. and Bigger, S. W. (2014). A Review of Poly(Lactic Acid)-Based Materials for Antimicrobial Packaging. Journal of Food Science, 79(8), 1477-1490. **Q1**
38. **Tawakkal, I. S. M. A.,** Cran, M. J. and Bigger, S. W. (2014). Effect of Kenaf Fibre Loading and Thymol Concentration on the Mechanical and Thermal Properties of PLA/Kenaf/Thymol Composites. Industrial Crops and Products, 61, 74-83. **Q1**

2010-2012

39. **Tawakkal I. S. M. A.,** Talib R. A., Abdan K, Chin N. L. (2012). Mechanical and Physical Properties of Kenaf Derived Cellulose (KDC)-Filled Polylactic Acid (PLA) Composites. BioResources 7(2), 1643-55.
40. Rosnita A. Talib, **Intan Syafinaz Mohamed Amin Tawakkal,** Khalina Abdan (2011). The Influence of Mercerised Kenaf Fibres Reinforced Polylactic Acid Composites on Dynamic Mechanical Analysis. Key Engineering Materials 471, 815-820
41. **I.S.M.A. Tawakkal,** R.A. Talib, K. Abdan, N.L. Chin and M.N. Ibrahim (2010). Optimisation of Processing Variables of Kenaf Derived Cellulose Reinforced Polylactic Acid. Asian Journal of Chemistry, 22(9), 6652-6662.

Conference Attended as Presenter

1. Intan Syafinaz Mohamed Amin Tawakkal. (Invited Speaker) Development of PLA Filled Natural Fibers Composites with Thymol as Active Food Packaging, Asia Packaging Network (APN) International Packaging Symposium 2021, 22-23 September 2021, Malaysia.
2. Norhazirah Nordin, Nur Alia Syafiqah Romzi, Yanty Noorzianna Manaf, Intan Syafinaz Mohamed Amin Tawakkal*, Siti Hajar Ariffin, Siti Hajar Othman and Yus Aniza Yusof Active sweet potato-based films containing thymol at different varieties: Vitato and Anggun. Poster presented at 5th International Conference on Agricultural and Food Engineering (CAFEi 2020) 3-4 February 2021, Malaysia.
3. Intan Syafinaz Mohamed Amin Tawakkal*, Siti Hajar Ariffin. Bioplastic form jackfruit waste. Poster presented at the 6th Southeast Asian Agricultural Engineering Student Chapter Annual Regional Convention (ARC 2020), 23 July- 25 August 2020, Brawijaya University, Indonesia.
4. Intan Syafinaz Mohamed Amin Tawakkal*, Siti Hajar Ariffin Utilization of Sweet Potato Waste for the Production of Biodegradable Films. Poster presented at the Agricultural Product and Food Innovation Competition and Exhibition, in conjunction with 5th Southeast Asian Agricultural Engineering Student Chapter Annual Regional Convention (ARC 2019) 22-25

September 2019, Politeknik Kota Baharu, Kelantan, Malaysia.

5. Shukor, U. A. A., Tawakkal, I. S. M. A., Talib, R. A., Othman, S. H., Basha, R. K., Basri, M. S. M., Ariffin, S. H. Characterization and Antimicrobial Activity of Jackfruit Peel-Based Films Incorporated with Thymol, **poster presented** at 2nd International Food Research Conference IFRC2 019, The Everly Putrajaya, Malaysia, 28-29 August 2019.
6. Mohd Nazri, M. S., Tawakkal, I. S. M. A., Khairuddin, N., Talib, R. A., Othman, S. H. and Kadir Basha, R. Characterization of Jackfruit Straw-Based Films: Effect of Starch and Plasticizer Contents, **paper presented** at 4th International Conference on Agricultural and Food Engineering 2018, The Everly Putrajaya, Putrajaya, Malaysia 7-9 November 2018.
7. Mohd Nazri, M. S., Tawakkal, I. S. M. A., Talib, R. A., Othman, S. H. and Kadir Basha, R. Characterization of Jackfruit Waste/Starch Materials as Potential Edible Films and Coatings **poster presented** at 1st International on Safe Biodegradable Packaging Technology 2018, Malaysian Industry-Government Group for High Technology (MIGHT), Cyberjaya, Malaysia, 24-26 July 2018.
8. Bernard Maringgal, Norhashila Hashim, Mahmud Tengku Muda Mohamed, Intan Syafinaz Mohamed Amin Tawakkal. Phytochemical Composition and Antioxidant Activity of Malaysian Stingless Bee Honey (Kelulut Honey), **paper presented** at MSAE Conference 2018 Universiti Putra Malaysia, Serdang Selangor, Malaysia, 7-8 February 2018.
9. M.S.M. Nazri, I.S.M.A Tawakkal, R.A. Talib, S.H. Othman and R.K. Basha, Preparation and Properties of Starch Based Films Containing Jackfruit Straw Powder, **paper presented** at MSAE Conference 2018, Universiti Putra Malaysia, Serdang Selangor, Malaysia, 7-8 February 2018.
10. Bernard Maringgal, Norhashila Hashim, Mahmud Tengku Muda Mohamed, Intan Syafinaz Mohamed Amin Tawakkal. Effect of Kelulut (Trigona spp.) honey coatings on the physicochemical characteristics of *Carica papaya L.* **paper presented** *at* FRUTIC 2018, Berlin, Germany, 6-8 February 2018.
11. Nur Farhah Mahmood, Intan S. M. A. Tawakkal, Rosnita A. Talib, Siti Hajar Othman and Roseliza Kadir Basha, Effect of PLA/Jackfruit Skin Powder Composites Containing a Natural Agent on the Mechanical and Thermal Properties, **poster presented** at Wood and Biofibre International Conference, Hotel Bangi-Putrajaya Selangor Malaysia, 21-23 November 2017.
12. Intan S. M. A. Tawakkal, Marlene J. Cran and Stephen W. Bigger, Development of Active Poly(Lactic Acid) Composites Reinforced with Natural Fibres, **paper presented** at the Malaysian Postgraduate Colloquium, Melbourne, Australia, 19-20 December 2015.
13. Intan S. M. A. Tawakkal, Marlene J. Cran and Stephen W. Bigger, Development of Active Poly(Lactic Acid) Composites Reinforced with Natural Fibres, **poster presented** at the 27th IAPRI Symposium on Packaging, Valencia, Spain, 8-11 June 2015.
14. Intan S. M. A. Tawakkal, Marlene J. Cran, and Stephen W. Bigger, Antimicrobial Activity of Poly(Lactic Acid)/Kenaf Composites Containing a Natural Agent, **poster presented** at the 5th AIFST Food Science Summer School, Melbourne, Australia, 28-30 January 2015.
15. Intan S. M. A. Tawakkal, Marlene J. Cran, and Stephen W. Bigger, Characteristics of Active Natural Fibre Reinforced Poly(Lactic Acid) Composites, **paper presented** at the 19th IAPRI World Conference on Packaging, Melbourne, Australia, 15-19 June 2014.
16. Stephen W. Bigger, Marlene J. Cran and Intan S. M. A. Tawakkal, Developments in Antimicrobial Food Packaging Research, **paper presented** at the 19th IAPRI World Conference on Packaging, Melbourne, Australia, 15-19 June 2014.
17. Stephen W. Bigger, Marlene J. Cran and Intan S. M. A. Tawakkal, Thermal Measurements in Assessing the Performance of Poly(lactic acid)/Natural Fibre Composites for Food Packaging Applications, **paper presented** at the 248th ACS National Meeting & Exposition, California, USA, 10-14 August 2014.
18. Rosnita A. Talib, Intan Syafinaz Mohamed Amin Tawakkal, Khalina Abdan. The influence of mercerised kenaf fibres reinforced polylactic acid composites on dynamic mechanical analysis, **paper presented** at the 8th International Conference of Composite and Technology (ICCST), Novotel Hotel, Kuala Lumpur, 22-24 March 2011.
19. I.S.M.A. Tawakkal, R.A. Talib, K. Abdan, N.L. Chin and M.N. Ibrahim. Optimization of processing variables of kenaf derived cellulose (KDC) reinforced polylactic acid (PLA), **paper presented** at the International Conference of Kenaf and Allied Fibers (ICKAF), Legend Hotel, Kuala Lumpur, 1-3 December 2009.
20. N. Kadir, I. S. M. A. Tawakkal, R. A. Talib, C. T. Ratnam, M. Khalid, T. G. Chuah, Y. A. Yusof, and Chin, N. L., (2008). Effect of e-beam irradiation on mechanical and physical properties of OPEFB derived cellulose-LDPE biocomposite as packaging material, **paper presented** at the

15th Regional Symposium on Chemical Engineering (RSCE) in conjunction with the 22nd Symposium of Malaysian Chemical Engineers (SOMChe), Impiana KLCC Hotel & Spa, Kuala Lumpur, 2-3 December 2008.

Other publications

Chapter in Book

1. Shukor, U. A. A., Nordin, N., Tawakkal, I. S. M. A.*, Talib, R. A., & Othman, S. H. (2021). Utilization of jackfruit peel waste for the production of biodegradable and active antimicrobial packaging films. In Biopolymers and Biocomposites from Agro-Waste for Packaging Applications (pp. 171-192). Woodhead Publishing.
2. M. H. Johari, Z. M. Nopiah, H. M. Affandi, N. Razali, H. Othman, N. A. Zanuri, M. H. Osman (Eds.) (2019). National Innovation Invention in Engineering and Built Environment. Mohd Zuhair Bin Mohd Nor, Intan Syafinaz Binti Mohamed Amin Tawakkal, Mohd Salahuddin Bin Mohd Basri, Noor Zafira Binti Noor Hasnan and Nur 'Aliaa Binti Abd Rahman. LAB Work Video (LWV): A Tool for Course Assessment and Teaching Aid in Undergraduate Program, page 30-34.

Proceeding Paper

3. Bigger, S., Cran, M., & **Tawakkal, I.** (2017, April). Advanced thermal analysis modelling for the characterization of active poly (lactic acid)/natural fibre food-packaging composite materials. In ABSTRACTS OF PAPERS OF THE AMERICAN CHEMICAL SOCIETY (Vol. 253). 1155 16TH ST, NW, WASHINGTON, DC 20036 USA: AMER CHEMICAL SOC.
4. Bigger, S. W., **Tawakkal, I. S**., & Cran, M. J. (2014, August). Thermal measurements in assessing the performance of poly (lactic acid)/natural fibre composites for food packaging applications. In ABSTRACTS OF PAPERS OF THE AMERICAN CHEMICAL SOCIETY (Vol. 248). 1155 16TH ST, NW, WASHINGTON, DC 20036 USA: AMER CHEMICAL SOC.
5. Tawakkal, I, Cran, Marlene and Bigger, Stephen (2014) Characteristics of active natural fibre reinforced poly(lactic acid) composites. In: 19th IAPRI World Conference on Packaging, 15 June 2014-18 June 2014, Melbourne, Victoria.
6. Bigger, Stephen W, Cran, Marlene and **Tawakkal, ISMA** (2014) Developments in Antimicrobial food packaging research. In: 19th IAPRI World Conference on Packaging, 15 June 2014-18 June 2014, Melbourne, Australia.

Online Article

Tawakkal, Intan SMA, Marlene J. Cran, and Stephen W. Bigger. "Biodegradable biocomposites with antimicrobial properties for food packaging." 24 Jun 2016 article published in online website Society of Plastics Engineers (SPE)

Intellectual Property

Mohd Salahuddin Mohd Basri, Mohd Zuhair Mohd Nor, **Intan Syafinaz Mohamed Amin Tawakkal**, Noor Zafira Noor Hasnan, Khairul Manami Kamarudin, Biodegradable Fruit Waste-Based Polycraprolactone (PCL) Plastic Composite", app. Np. LYP2019001670, notification no. CRLY00017559

Research Grants

No	Project Title	Amount (RM)	Year	Source of Fund
1	Development of Active Food Packaging Composites from the Utilisation of Tropical Fruit Waste (Main Researcher)	60,000	2017-2020	Grant Putra IPM (completed)
2	Preparation and Properties Evaluation of Edible Nanocellulose/Starch Bio-nanocomposite Films (Co-Researcher)	20,000	2017-2020	Grant Putra IPS (completed)
3	Development of Value-Added Products from Sweet Potatoes (Co-Researcher)	101,000	2018-2021	Grant Putra IPB (on-going)
4	Profiling the Release Kinetic of Anthocyanin Incorporated in Active and Smart Packaging System (Co-Researcher)	108,000	2018-2021	FRGS (on- going)
5	Release kinetics profile and shelf life mechanism of active biopolymer-based films containing essential oil nanoparticles for food packaging (Main Researcher)	105,400	2020-2024	FRGS (on- going
6	Evaluating Properties and Modelling of Water-Soluble Pectin-Puree-Based Edible Films and Shelf Life of Packed Fruit Puree (Co-Researcher)	99,200	2020-2023	FRGS (on- going
7	Effects Of Edible Coatings on Quality And Shelf Life of Carambola ('Bintang Mas') Stored at different Storage and Packaging Treatments	47,500	2020-2023	Grant Putra IPM (on-going)

Awards/Recognition					
No	**Name of Awards**	**Title**	**Award Authority**	**Award Type**	**Year**
1	Journal Publication Incentive 2021		Universiti Putra Malaysia (UPM)	National	2022
2	BEST PAPER: International Session – Graduate Track in Engineering for Food Safety Theme	Effect of Boric Acid Cross-linking on Physicochemical and Mechanical Properties of Purple Sweet Potato Starch and Peel Based pH indicator Films	Food Engineering Network of Thailand (FENETT)	International	2022
3	BEST PAPER: International Session - Undergraduate Track in Food Process Engineering Theme	The Production of The Sweet Potato Snack Pellet Through Microwave Heating Process	Food Engineering Network of Thailand (FENETT)	International	2022
4	GOLD MEDAL: International Session - Graduate Track in Engineering for Food Safety Theme	Starch based pH indicator films associated with purple sweet potato anthocyanin	Food Engineering Network of Thailand (FENETT)	International	2022
5	GOLD MEDAL: International Session - Undergraduate Track in Food Process Engineering Theme	The production of the sweet potato snack pellet through microwave heating process	Food Engineering Network of Thailand (FENETT)	International	2022
6	SILVER MEDAL: International Session - Graduate Track in Food Process Engineering Theme	Effect of different loadings of PBS on the properties of PLA/PBS blend films	Food Engineering Network of Thailand (FENETT)	International	2022
7	SILVER MEDAL: International Session - Graduate Track in Food Process Engineering Theme	Influence of pineapple puree on pectin-based film's properties for quick-dissolve edible food packaging application	Food Engineering Network of Thailand (FENETT)	International	2022
8	GOLD AWARD Asia Packaging Network (APN) International Packaging Symposium 2021	Antimicrobial Effect of Poly-Lactic Acid (PLA) Films Incorporated with Patchouli Essential Oil (PEO) against Pathogenic Microorganisms	Asia Packaging Network (APN)	International	2021
9	GOLD AWARD Asia Packaging Network (APN) International Packaging Symposium 2021	Migration and Release Kinetics of Anthocyanin as pH Indicator Incorporated Sweet Potato Starch-Based Films	Asia Packaging Network (APN)	International	2021
10	GOLD AWARD Asia Packaging Network (APN) International Packaging Symposium 2021	Development of Polycaprolactone (PCL) Polymer Composite by Means of Valorisation of Fruit Processing Waste: Tensile Strength and Modulus, Oil Absorption, and Microstructure	Asia Packaging Network (APN)	International	2021
11	BRONZE AWARD Asia Packaging Network (APN) International Packaging Symposium 2021	Characterization of Anthocyanin Associated Purple Sweet Potato Starch and Peel-Based pH Indicator Films	Asia Packaging Network (APN)	International	2021

12	BRONZE AWARD Asia Packaging Network (APN) International Packaging Symposium 2021	Development of Active PLA and PLA/NFC Films with Anthocyanin as pH Indicator	Asia Packaging Network (APN)	International	2021
13	GOLD AWARD Asia Packaging Network (APN) International Packaging Symposium 2021	Modeling Respiration Rate of Fresh-Cut Anggun Stored at Different Storage Treatments	Asia Packaging Network (APN)	International	2021
14	SILVER AWARD Asia Packaging Network (APN) International Packaging Symposium 2021	Effect of Different Glycerin Concentrations on Physical, Barrier, and Surface Topography of Pectin-Pineapple Puree Based Edible Films	Asia Packaging Network (APN)	International	2021
15	Journal Publication Incentive 2020		Universiti Putra Malaysia (UPM)	National	2021
16	Silver Award (Teaching and Learning PICTL 2021)	International Putra InnoCreative Carnival in Teaching and Learning PICTL 2021 Universiti Putra Malaysia	Universiti Putra Malaysia (UPM)	International	2021
17	Projek Jaringan Industri dan Komuniti Berimpak Tinggi	Khidmat nasihat bidang kepakaran bagi projek penyelidikan pelajar smjk chan wa seremban	Universiti Putra Malaysia (UPM)	National	2021
18	2nd Prize Best Paper Award (Special Jury) 5th International Conference on Agricultural and Food Engineering (CAFEi 2020)	Characterization of active sweet potato- based films containing thymol at different varieties: VitAto and Anggun.	Universiti Putra Malaysia (UPM)	International	2021
19	2nd Prize Best Poster Award 5th International Conference on Agricultural and Food Engineering (CAFEi2020)	Effect of different glycerin percentages on mechanical properties and seal strength of pectin film.	Universiti Putra Malaysia (UPM)	International	2021
20	Gold Award 6th Southeast Asian Agricultural Engineering Student Chapter Annual Regional Convention (ARC2020)	Bioplastic from Jackfruit Waste.	Malaysian Society of Agricultural and Food Engineers	International	2020
21	Best Poster and Best Video Award 6th Southeast Asian Agricultural Engineering Student Chapter Annual Regional Convention (ARC 2020)	Bioplastic from Jackfruit Waste.	Malaysian Society of Agricultural and Food Engineers	International	2020
22	Silver Award Agricultural Product and Food Innovation Competition and Exhibition 2019	Utilization of Sweet Potato Waste for the Production of Biodegradable Films	Malaysian Society of Agricultural and Food Engineers	International	2019

23	Bronze Award Penang International Invention Innovation and Design	Biodegradable Fruit Waste-Based Polycraprolactone (PCL) Plastic Composite	Universiti Teknologi MARA (UiTM)	International	2019
24	Gold Award Innovation Technology Expo 2019	Control of Papaya anthracnose disease caused by Colletotrichum brevisporum by antifungal properties of Malaysian stingless bee honey	Universiti Malaysia Sarawak (UMS)	National	2019
25	Third Prize Poster Presentation (2nd International Food Research Conference 2019)	Characterization and Antimicrobial Activity of Jackfruit Peel-Based Films Incorporated with Thymol	Faculty of Food Science and Technology, Universiti Putra Malaysia (UPM)	International	2019
26	Gold Award Pertandingan Reka Cipta Inovasi Nasional-Kejuruteraan dan Alam Bina (PRIN-KAB)	Lab Work Video (LWV)- Tool for Course Assessment and Teaching Aid in Undergraduate Program	Fakulti Kejuruteraan dan Alam Bina, Universiti Kebangsaan Malaysia (UKM)	National	2019
27	Gold Award Project Pelajar MRSM Terendak	Plantable Food Tray	Persatuan Guru STEM Malaysia	National	2018
28	Projek Pelajar MRSM Terendak Terbaik Kategori Kejuruteraan & Inovasi	New Innovation of Biodegradable Food Wrapper- Edible Films from Pamelo Fruit Waste (khidmat nasihat bidang kepakaran)	Pertandingan Tunas Saintis MRSM Se-Malaysia 2018	National	2018
29	Sijil Perkhidmatan Cermerlang	-	Universiti Putra Malaysia	University	2017-2021
30	Anugerah Kecemerlangan Dalam Pengajaran	Program Inovasi dan Apresiasi (PIA)	Faculty of Engineering, UPM	University	2016 - 2018
31	Best Presenter	Malaysian Postgraduate Colloquium 2015	Victorian Malaysian Postgraduate Association (VMPGA), Australia	International	2015
32	2nd Runner Up	Victoria University Three Minutes Thesis Competition (3MT)	Victoria University, Melbourne Australia	International	2013
33	Best Poster Award	Optimization of processing variables of kenaf derived cellulose (KDC) reinforced polylactic acid (PLA)	International Conference of Kenaf and Allied Fibers 2009 (ICKAF)	International	2009
34	Best Final Year Student Project	Final Year Student Project Process and Food Engineering 2007/2008	Faculty of Engineering, UPM	University	2008

35	Anugerah Puteri Intelek Kolej	Malam Lestari Kasih Kolej Sebelas UPM 2007/2008	Kolej Kediaman Kesebelas, UPM	University	2008

Student Supervision

PhD with thesis (Co-Supervisor)

No.	Name	Title	Status
1	Bernard Maringgal	A Novel approach for Quality Preservation and Shelf Life Extension of Papaya of *Carica Papaya L.* Using Kelulut Honey with Nanochitosan as Edible Coating	Graduated
2	Ayu Rafiqah	Effect of Polybutylene Succinate/Tapioca Starch and EFB Fibre on Mechanical, Thermal and Morphological Properties of Biopolymer Material for Food Packaging Material	Graduated
3	Ruzanna Ahmad Shapi'i	Development of Bionanocomposite with Antimicrobial Properties for Food Packaging Application	On-going
4	Nazrin Nurarief Mardi Bin Asmawi	Development and Characterization of Poly (lactic) Acid (PLA) Blend with Sugar Palm Fibre Reinforced Sugar Palm Starch Bionanocomposites	Graduated
5	Mouluda Sohany **(Main Supervisor)**	Anthocyanin Immobilized In Active Sweet Potato Starch Films for Intelligent pH Indicator	On-going
6	Farhana Azmira Asmadi **(Main Supervisor)**	Characterization of Active Bio-Polymer Composite Films Incorporated With Essential Oils Nanoparticles for Food Packaging	On-going
7	Azri Shahir Rozman	Synthesis of Stingless Bee Honey Nanomaterial as Active Agent-Filled Packaging Film for Food Quality Preservation	On-going

MS with thesis (Co-Supervisor)

No.	Name	Title	Status
1	Siti Mariam Mohd Zahiruddin	Preparation and Properties Evaluation of Edible Nanocellulose/Starch Bio-nanocomposite Films	On-going
2	Sama Manzoor	Utilization of Waste *Carica Papaya L.* Peels as a Potential Source of Dietary Fiber in Stirred Yogurt	Graduated
3	Nurul Afifah **(Main Supervisor)**	Shelf-Life Mechanism of Active Biopolymer-Based Films Containing Essential Oil Nanoparticles for Food Packaging	On-going
4	Nurzia Mohamed	Melt Edible Composite Films Made from Fruit Puree and Pectin	On-going

Professional Services			
No	**Title**	**Organization/Program**	**Year**
1	Director	Award Winning, 6th International Conference on Agricultural and Food Engineering CAFEi2023	2022-2023
2	Judge	Presentation Session - International Symposium on Polymeric Materials 2022, 14-15 June 2022	2022
3	Speaker/Trainer (National)	*Kursus Pembungkusan Makanan dan Pelabelan Untuk Usahawan di Bawah Bimbingan Jabatan Pertanian Putrajaya 8-10 Jun 2022* *Topik: Pemilihan Bahan dalam Pembungkusan*	2022
4	Scientific Committee (International)	Food Engineering Network of Thailand 2022 (FENETT2022) Online International & National Conference Chiang Mai, Thailand, 4 April 2022	2022
5	Director	Registration, FoodPro Training 2022 Department of Process and Food Engineering, UPM	2022
6	Judge	Presentation Session - International Conference on Sugar Palm and Allied Fibre Polymer Composites 2021	2021
7	Invited Speaker	Asia Packaging Network International Symposium 2021 (APN2021)	2021
8	Director Scientific	Asia Packaging Network International Symposium 2021 (APN2021)	2021
9	Director	Registration, FoodPro Training 2021 Department of Process and Food Engineering UPM	2021
10	Deputy Director	Award Winning Secretariate, 5th International Conference on Agricultural and Food Engineering CAFEi2020	2021
11	Co-Chairman (Viva MSc)	Syahrul Anis Hazwani Mohd Baroyi: Conventional, Diffusion and Modern Moisture Removal Methods on Quality of Stingless Bee (Heterotrigona Itama) Honey (MSc UPM – 2021)	2021
12	Co-Chairman (Viva MSc)	Mazween Mohamad Mazlan: Characterization of Oyster Mushroom / Soy Protein-Based Meat Analog using Single Twin Screw Extruder with Extrusion Variables (MSc UPM – 2021)	2021
13	Mentor	3 Minutes Thesis Competition, Faculty of Engineering, UPM	2021
14	Director	Training Kit, FoodPro Training 2019 Siri 3, Department of Process and Food Engineering, UPM	2019
15	Director	Registration, FoodPro Training 2019 Siri 2, Department of Process and Food Engineering, UPM	2019
16	Director	Certificate and Evaluation, FoodPro Training 2019 Siri 1, Department of Process and Food Engineering, UPM	2019
17	Speaker/Mentor	Sharing session: 3 Minutes Thesis Competition, Faculty of Engineering, UPM	2019
18	Judge	Student's Mini Project Fabricated Food Course (EPF4702), Department of Process and Food Engineering, UPM	2018
19	Guest Editor	Pertanika Journal of Science and Technology: 4th International Conference on Agricultural and Food Engineering (CAFEi2018)	2018
20	Judge	Poster presentation, 4th International Conference on Agricultural and Food Engineering (CAFEi2018)	2018
21	Treasure	Process and Food Engineering Club, Department of Process and Food Engineering, Faculty of Engineering, UPM	2018-to date
22	Speaker	Academic writing & oral presentation workshop 'How to Write A Good Thesis, (Undergraduate Students), Department of Process and Food Engineering, UPM	2017
23	Speaker	Seminar: Tips for Publishing in Scientific Journal (Postgraduate Students), Department of Process and Food Engineering, UPM	2016
24	Director	Registration, 3rd International Conference on Agricultural and Food Engineering (CAFEi2023)	2016

Consultation Activities					
No	**Project**	**Role**	**Company/Community**	**Year**	**Status**
1	Recycled cardboard for an environment-friendly and biodegradable food packaging containers	Leader	A Level Student's research project Al Khor International School, Qatar	(2021-2022)	Completed
2	Development of Active PLA and PBS Films Filled Essential Oils for Food Packaging Application	Member	Safe Biopack Project - Newton-Ungku Omar Coordination Fund	(2018-2020)	Completed
3	Student's research project SMJK Chan Wa Seremban	Leader	Student's research project SMJK Chan Wa Seremban	(2018-2020)	Completed
4	Physical, mechanical, barrier and chemical resistance tests on material integrity -	Member	Company Aso Shoji Co. Ltd Japan	(2018-2020)	Completed
5	New Innovation of Biodegradable Food Wrapper- Edible Films from Pamelo Fruit Waste	Leader	Student's research project MRSM Terendak Melaka	(2018-2019)	Completed
6	Control release of NPK from starch based composite materials -	Leader	Lembaga Getah Malaysia (LGM)	(2018-2019)	Completed