



CURRICULUM VITAE

TS. DR. MUHAMMAD HAZWAN BIN HAMZAH

Department of Biological and Agricultural Engineering. Faculty of Engineering. Universiti Putra Malaysia. 43400 Serdang. Selangor.



Tel. : +603-97696422
E-mail : hazwanhamzah@upm.edu.my
ORCID : [ORCID Muhammad Hazwan Hamzah](#)
Google Scholar : [Google Scholar Muhammad Hazwan Hamzah](#)
ResearchGate : [ResearchGate Muhammad Hazwan Hamzah](#)
Scopus : [Scopus Muhammad Hazwan Hamzah](#)

Education

- Ph.D. Chemical Engineering, 2018, University of Birmingham, Edgbaston, Birmingham, United Kingdom
- M.Sc. Agricultural Waste Engineering, 2013, Universiti Putra Malaysia, Serdang, Selangor, Malaysia
- B. E. Agricultural and Biosystems Engineering, 2010, Universiti Putra Malaysia, Serdang, Selangor, Malaysia

Research Interests

- Agricultural process engineering
- Green energy and technology
- Postharvest engineering
- Bio-environmental engineering
- Agricultural waste management

Professional Membership & Learned Society

- American Society of Biological and Agricultural Engineers (ASABE)
- International Association of Engineers (IAENG)
- Board of Engineers Malaysia (BEM)
- Malaysian Board of Technologist (MBOT)
- Institute of Engineers Malaysia (IEM)
- Malaysian Society of Agricultural and Food Engineers (MSAE)

Appointments

- Head of Industrial Training and Mobility Unit, Faculty of Engineering, UPM 2024 – to date
- Senior Lecturer, Dept. of Biological and Agricultural Engineering, UPM 2018 – to date
- Principal Researcher, Smart Farming Technology Research Centre, UPM 2023 – to date
- Young Researcher Associate, Smart Farming Technology Research Centre, UPM 2021 – 2023
- Tutor, Dept. of Biological and Agricultural Engineering, UPM 2010 – 2018

Publications

- AFA Hamzah, **MH Hamzah**, K Nurulhuda, HC Man, MH Ismail, PL Show. Formation of soluble organics and sugar degradation byproduct during hot compressed water pre-treatment of empty fruit bunch for biogas production. *Biomass and Bioenergy*. 2025. 199, 1-12 (**IF 5.8**)
- AFA Hamzah, **MH Hamzah**, K Nurulhuda (2025). An Overview - Potential Use of Palm Oil Wastes, Policies and Sustainability. In NH Hashim & AP Ghulam Kadir (Eds.), *Smart Technology for Oil Palm Plantation: The Malaysian Experience* (pp. 209-238). UPM Press.
- NNSM Nasir, R Shamsudin, SB Anoraga, **MH Hamzah**, MSM Basri. Optimization and Characterization of Subcritical Water Pectin Extraction from Durian (*Durio zibethinus*) Seeds. *Food Analytical Methods*. 2025. 18, 1575-1591 (**IF 2.6**)
- **MH Hamzah**, NH Aminudin, AFA Hamzah, R Ashari, AHM Ali, M Gavahian, HC Man, GS Ying, WAW Razali, ZT Al-Sharif. Towards Higher Yield and Quality of Essential Oils Extracted from Lemon Myrtle (*Backhousia citriodora*) Leaves via Ohmic Heated Extraction. *Journal of Food Measurement and Characterization*. 2025. 19, 3301-3318 (**IF 2.9**)
- **MH Hamzah**, OJD Lalo, AFA Hamzah, H Che Man, MSM Basri, R Shamsudin, AHM Ali, IFA Aziz & SG Abdulloh. Optimization of Ohmic Heated Extraction using Response Surface Methodology and Quality Attributes of Dabai (*Canarium odontophyllum*) Pulp Oil. *Food Analytical Methods*. 2025. 18, 1019-1038 (**IF 2.6**)
- J Suleiman, R Shamsudin, **MH Hamzah**, MSM Basri, KA Jimoh. Extraction Optimization and Characterization of Durian (*Durio zibethinus*) Rind Pectin Extracted by Subcritical Water. *Food Chemistry*. 2025. 474, 1-11 (**IF 8.5**)
- SB Anoraga, R Shamsudin, **MH Hamzah**, S Sharif, AW Saputro, MSM Basri. Optimizing Pretreatment Blanching Process of Browning, Total Phenol, and DPPH Scavenging Capacity in Cocoa Pod Husk. *Biomass Conversion and Biorefinery*. 2025. 1-15 (**IF 3.5**)
- R Shamsudin, J Muchlisyyah, P Sathongpan, J Varith, **MH Hamzah**. Unveiling the Distinctive Qualities of Malaysian and Thai Rice. *Journal of Engineering and Sustainable Development*. 2025. 29(2), 164-169 (**Scopus**)
- NHM Azib, MSM Basri, MZM Nor, SH Othman, MA P Mohammed, N Mazlan, SH Kamarudin, **MH Hamzah**. Effect of Hydrogen Peroxide and Sodium Alcohol Ether Sulphate on the Properties of Porous Rice Husk Ash-based Geopolymer Foam. *PERTANIKA Journal of Science and Technology*. 2025. 33, 65-81 (**IF 0.6**)
- AFA Hamzah, **MH Hamzah**, K Nurulhuda, HC Man, MH Ismail, PL Show. Utilization of Subcritical Water for Improving Methane Production from Oil Palm Empty Fruit Bunch by Anaerobic Co-digestion: Process Optimization, Compositional, Chemical, and Morphological Analysis. *Renewable Energy*. 2024. 231, 1-11 (**IF 9.0**)
- SB Anoraga, R Shamsudin, **MH Hamzah**, S Sharif, AW Saputro, Cocoa By-products: A Comprehensive Review on Potential Uses, Waste Management, and Emerging Green Technologies for cocoa pod husk utilization. *Heliyon*, 2024. 10(16), 1-13 (**IF 3.4**)
- SB Anoraga, R Shamsudin, **MH Hamzah**, S Sharif, AW Saputro, MSM Basri. Optimization of Subcritical Water Extraction for Pectin Extraction from Cocoa Pod Husks using the Response Surface Methodology. *Food Chemistry*. 2024. 459, 1-10 (**IF 8.5**)
- **MH Hamzah**, N Zulkefli, AFA Hamzah, R Shamsudin, HC Man, AHM Ali, MM Ali, B Maringgal, MH Wondi. Optimization of Process Parameters using Response Surface Methodology for Essential Oil Extraction from *Canarium odontophyllum* Kernels by Subcritical Water Treatment. *Food Analytical Methods*. 2024. 17. 910-929. (**IF 2.9**)

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- AFA Hamzah, **MH Hamzah**, K Nurulhuda, HC Man, MH Ismail, PL Show. Evaluating the Effect of Low and High Temperature Mode of Subcritical Water Pre-treated Empty Fruit Bunches on Co-digestion Performance and Kinetic Study for Methane Production. *Journal of Oil Palm Research*. 2024. (IF 1.3)
 - NZ Zakaria, MZM Nor, R Shamsudin, N Hashim, MSM Basri, **MH Hamzah**, M Nur, S Ahmad. Physiochemical Assessment of Powdered and Pelletized Sweet Potato (*Ipomoea batatas*) Plant Parts for Potential Animal Feed Applications. *Advances in Agricultural and Food Research Journal*. 5(2). 1-25 (MyCite)
 - SH Kamarudin, AR Ridzuan, F Abu, S Osman, MSM Basri, **MH Hamzah**, NI Zarin, SKM Hatta, NNM Yusof, UH Abdullah (2024). Environmental and economic for animal-based composites. In SM Sapuan, CH Azhari & NM Nurazzi (Eds.), *Polymer Composites Derived from Animal Sources* (pp. 379-413). Woodhead Publishing.
 - IFA Aziz, HC Man, A Dermici, **MH Hamzah**, R Omar, NS Jamali, KK Katibi, A Mohammed. Lignocellulosic Biomass-Derived Biogas: A Review on Sustainable Energy in Malaysia. *Journal of Oil Palm Research*. 2024. (IF 1.3)
 - AFA Hamzah, **MH Hamzah**, HC Man, NS Jamali, SI Siajam. The Influence of Subcritical Water Pre-treatment Temperature on the Biogas Efficiency from Pineapple Waste: An Experimental and Kinetic Study. *Journal of Engineering and Sustainable Development*. 2024. 28(2). 143-159 (Scopus)
 - V Palanisamy, AHM Ali, P Tamunaidu, MB Rosly, NM Huzir, ANR Amin, **MH Hamzah**. Biocomposite Material using Sugarcane Bagasse and Modified Starch for Potential Packaging in Agroindustry. *Malaysian Journal of Catalysts*. 2024. 8. 14-18
 - BS Salsabila, AHM Ali, MB Rosly, NM Huzir, P Tamunaidu, ANR Amin, **MH Hamzah**, AH Azhari, S Shamsulbahrin, MAA Rahim. Biosorption of Caffeine from Contaminated Water onto Sugarcane Bagasse Biomass. *Semarak International Journal of Chemical Process Engineering*. 2024. 1(1). 1-11
 - AFA Hamzah, **MH Hamzah**, HC Man, NS Jamali, SI Siajam, MH Ismail. Effect of Organic Loading on Anaerobic Digestion of Cow Dung: Methane Production and Kinetic Study. *Heliyon*. 2023. 9(6). 1-9. (IF 4.1)
 - IFA Aziz, HC Man, **MH Hamzah**, NS Jamali, R Omar. Novel Pre-Treatment for Lignocellulosic Biomass Delignification using Alkaline Assisted Ohmic Heating. *Journal of Science and Technology*. 2023. 31(6). 3039-3057. (IF 0.6)
 - **MH Hamzah**, SK Ibrahim, MZM Nor, AFA Hamzah, R Shamsudin, AHM Ali. Optimization of Electrochemical Pre-treatment for Essential Oil Extraction from Lemon Myrtle (*B. citriodora*) Leaves by Response Surface Methodology. *Journal of Food Measurement and Characterization*. 2023. 17. 3732-3744. (IF 3.4)
 - AFA Hamzah, **MH Hamzah**, HC Man, NS Jamali, SI Siajam, PL Show. Subcritical Water Pretreatment for Anaerobic Digestion Enhancement: A Review. *Journal of Science and Technology*. 2023. 31(2). 1011-1034. (IF 0.6)
 - **MH Hamzah**, AS Amran, AFA Hamzah, MZM Nor, R Shamsudin, HC Man, WAW Razali. Durian Waste Husks as an Adsorbent in Improving Soaking Water during the Retting Process of *Piper nigrum* L. (Pepper Berries). *Separations*. 2023. 10(2). 1-15. (IF 2.6)
 - **MH Hamzah**, MSM Basri, B Maringgal, MM Ali, MH Wondi, HC Man, SG Abdulloh, Exploring Dabai (*Canarium odontophyllum*), Indigenous Fruit of Borneo: A Review of Nutritional Values, Potential
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Uses, Emerging Application in Essential Oil Processing and Health Benefits. *Plants*. 2023. 11. 1-17. (IF 4.5)

- AAM Shukri, D Jamaludin, MSM Kassim, **MH Hamzah**. Development of Decision Support System (DSS) for Greenhouse Ventilation and Cooling Control. *Advances in Agricultural and Food Research Journal*. 2023. 4(2). 1-13. (MyCite)
 - AFA Hamzah, **MH Hamzah**, NI Mazlan, HC Man, NS Jamali, SI Sijam, PL Show. Optimization of Subcritical Water Pre-treatment for Biogas Enhancement on Co-Digestion of Pineapple Waste and Cow Dung using the Response Surface Methodology. *Waste Management*. 2022. 150. 98-109. (IF 8.1)
 - **MH Hamzah**, AZM Rahim, B Maringgal, MSM Basri, S Ibrahim. Optimization of Silk Fibroin Coating during Storage using Response Surface Methodology and its Effect on the Physicochemical Properties of *Solanum ferox* (*S. ferox*). *Journal of Food Measurement and Characterization*. 2022. 16. 3385-3401. (IF 3.4)
 - AFA Hamzah, **MH Hamzah**, HC Man, NS Jamali, SI Sijam, PL Show. Biogas Production through Mono- and Co-digestion of Pineapple Waste and Cow Dung at Different Substrate Ratios. *BioEnergy Research*. 2022. 1-12. (IF 3.6)
 - H Zaid, Z Al-sharif, **MH Hamzah**, S Rushdi. Optimization of Different Chemical Processes using Response Surface Methodology – A Review. *Journal of Engineering and Sustainable Development*. 2022. 26(6). 1-12. (Scopus)
 - **MH Hamzah**, S Bowra, P Cox. Organosolv Lignin Aggregation Behaviour of Soluble Lignin Extract from *Miscanthus x giganteus* at Different Ethanol Concentration and Its Influence on the Lignin Esterification. *Chemical and Biological Technologies in Agriculture*. 2021. 8(65). 1-13 (IF 6.6)
 - AFA Hamzah, **MH Hamzah**, HC Man, NS Jamali, SI Sijam, MH Ismail. Recent Updates on the Conversion of Pineapple Waste (*Ananas comosus*) to Value-Added Products, Future Perspective and Challenges. *Agronomy*. 2021. 11(11). 1-27. (IF 3.7)
 - NZM Sopi, **MH Hamzah**, HC Man, MZM Nor, MN Radzuan. Process Optimization of Ultrasonic-Assisted-Soxhlet Extraction of Essential Oil from *Citrus hystrix* using Response Surface Methodology. *Agricultural Mechanisation in Asia, Africa and Latin America*. 2021. 35(3). 1-19. (Non-scopus)
 - SNM Razali, **MH Hamzah**, HC Man, MZM Nor (2021). Converting Durian-Based Traditional Dessert into Ready-To-Eat Durian Stick through Sausage Technology Application. *Advances in Agricultural and Food Research Journal*. 2021. 2(1). 1-16. (MyCite)
 - TH Ong, **MH Hamzah**, HC Man (2021). Optimization of Palm Oil Extraction from Decanter Cake using Soxhlet Extraction and Effects of Microwaves Pre-treatment on Extraction Yield and Physicochemical Properties of Palm Oil. *Food Research*. 2021. 5(1). 25-32. (Scopus)
 - B Maringgal, N Hashim, ISMA Tawakkal, MTM Mohamed, **MH Hamzah**, MM Ali. 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*. 2021. 10(432). 1-16. (IF 5.2)
 - MU Abba, HC Man, RS Azis, Al Idris, **MH Hamzah**, KFM Yunus, KK Katibi (2021). Novel PVDF-PVP Hollow Fiber Membrane Augmented with TiO₂ Nanoparticles: Preparation, Characterization and Application for Copper Removal from Leachate. *Nanomaterials*. 11(399). 1-17. (IF 5.3)
 - B Maringgal, N Hashim, ISMA Tawakkal, MTM Mohamed, **MH Hamzah**. Phytochemical Content, Antioxidant Activity and Mineral Elements of Honey Produced by Four Different Species of Malaysian Stingless Bees. *Food Research*. 2021. 5(1). 39-46. (Scopus)
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- MU Abba, HC Man, RS Azis, Al Idris, **MH Hamzah**, M Abdulsalam. Synthesis of Nano-Magnetite from Industrial Mill Chips for the Application of Boron Removal: Characterization and Adsorption Efficacy. *International Journal of Environmental Research and Public Health*. 2021. 18(4).1-18. **(IF 4.614)**
 - HC Man, NK Anuar, **MH Hamzah**, S Idrus, NNN Daud. The Potential Use of Decanter Cake Waste as Co-substrate for Methane Production under Mesophilic Condition. *Journal of Engineering Science and Technology*. 2021. 16(3). 2356-2367. **(IF 0.6)**
 - B Maringgal, N Hashim, ISMA Tawakkal, MTM Mohamed, **MH Hamzah**, MM Ali, MFHA Razak Kinetics of Quality Changes in Papayas (*Carica papaya* L.) coated with Malaysian Stingless Bee Honey. *Scientia Horticulturae*. 2020. 267. 1-11. **(IF 4.3)**
 - HC Man, MU Abba, M Abdulsalam, RS Azis, Al Idris, **MH Hamzah**. Utilization of Nano-TiO₂ as an Influential Additive for Complementing Separation Performance of a Hybrid PVDF-PVP Hollow Fiber: Boron Removal from Leachate. *Polymers*. 2020. 12 (11). 1-19. **(IF 5.0)**
 - AFA Hamzah, **MH Hamzah**, FNA Mazlan, HC Man, NS Jamali, SI Siajam (2020). Anaerobic Co-digestion of Pineapple Wastes with Cow Dung: Effect of Different Total Solid Content on Biomethane Yield. *Advances in Agricultural and Food Research Journal*. 2020. 1(1). 1-12. **(MyCite)**
 - B Maringgal, N Hashim, ISMA Tawakkal, **MH Hamzah**, MTM Mohamed. Biosynthesis of CaO Nanoparticles using *Trigona* sp. Honey: Physicochemical Characterization, Antifungal Activity, and Cytotoxicity Properties. *Journal of Materials Research and Technology*. 2020. 9(5). 11756-11768. **(IF 6.4)**
 - **MH Hamzah**, S Bowra, Philip Cox. Effects of Ethanol Concentration on Organosolv Lignin Precipitation and Aggregation from *Miscanthus x giganteus*. *Processes*. 2020. 8(7). 1-17. **(IF 3.5)**
 - M Abdulsalam, HC Man, KFM Yunos, ZZ Abidin, Al Idris, **MH Hamzah**. Augmented Yeast-Extract and Dairy-Waste for Enhancing Bio-Decolourization of Palm Oil Mill Effluent using Activated Sludge. *Journal of Water Process Engineering*. 2020. 36. 1-4. **(IF 7.0)**
 - MH Ismail, TIM Ghazi, **MH Hamzah**, LA Manaf, RM Tahir, AM Nasir, AE Omar. Impact of Movement Control Order (MCO) due to coronavirus disease (COVID-19) on food waste generation: A case study in Klang Valley, Malaysia. *Sustainability*. 2020. 12 (21). 1-17. **(IF 3.9)**
 - HC Man, CY Xie, KFM Yunos, A Mohammed, **MH Hamzah**. Optimizing Hydrogen Production from the Landfill Leachate by Electro-coagulation Technique. *Journal of Agricultural and Food Engineering*. 2020. 1(3). 1-7. **(Non-scopus)**
 - **MH Hamzah**, S Bowra, Philip Cox. Purity and Structural Composition of Lignin Isolated from *Miscanthus x giganteus* by Sub-critical Water Extraction with Associated Modifiers. *Journal of Agricultural and Food Engineering*. 2020. 1(1). 1-12. **(Non-scopus)**
 - **MH Hamzah**, N Khairudin, AM Mustafah, M Jahari, D Jamaludin. STEM Enculturation in Agricultural Engineering: The Needs for Government, Academia, Industry and Community Collaborations. *Advances in Agricultural and Food Research Journal*. 2020. 1(1). 1-4. **(MyCite)**
 - **MH Hamzah**, MFA Asri, HC Man, A Mohammed. Prospective Application of Palm Oil Mill Boiler Ash as a Biosorbent: Effect of Microwave Irradiation and Palm Oil Mill Effluent Decolorization by Adsorption. *International Journal of Environmental Research and Public Health*. 2019. 16(18). 1-18. **(IF 4.614)**
 - B Maringgal, N Hashim, ISMA Tawakkal, MTM Mohamed, **MH Hamzah**, NIA Shukor. The Causal Agent of Anthracnose in Papaya Fruit and Control by Three Different Malaysian Stingless Bee Honeys, and The Chemical Profile. *Scientia Horticulturae*. 2019. 257. 1-9. **(IF 4.3)**
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- HC Man, MN Ebrahim, MAM Zawawi, **MH Hamzah**. Prediction of Groundwater Contaminants from Cattle Farm using Visual MODFLOW. *Journal of Science and Technology*. 2019. 27(4). 2265-2279. (IF 0.6)

Conference Proceedings/Academic Talks

- **MH Hamzah**, Recent Advances in Essential Oil Technology: Enhancing Quantity and Quality through Circular Economy Approaches. *Sustainable Agroindustry: Adding Values to Local Commodities in Rural Areas*. IPB University, Indonesia, 14 July 2025.
- **MH Hamzah**, Foundation to Future Ready Capstone Project for Real World Solutions, Faculty Development Programme. SIMATS Engineering, Chennai, 20 June 2025.
- **MH Hamzah**, Technologies and Innovations in the Food and Agricultural Processing: Enhancing “Q and Q”. 74th Annual National Convention of the Philippine Society of Agricultural and Biosystems Engineers. Iloilo, Philippine, 20-25 April 2025.
- **MH Hamzah**. Production of Novel Dabai Pulp-based Marker Ink: Process Optimization, Physico-chemical and Morphology Analysis. 3rd GREENERING International Conference. Abu Dhabi, United Arab Emirates. 12-14 February 2025.
- **MH Hamzah**. Optimization of Subcritical Water Pre-Treatment for Oil Extraction from Dabai (*Canarium odontophyllum*) Kernel using Response Surface Methodology. The Congress on Sustainable Agriculture and Food Security (COSAFS2024). Bintulu, Sarawak, Malaysia. 10 July-13 July 2024.
- **MH Hamzah**. Program Pemindahan Ilmu Putra – Penghasilan Kompos Kulit Durian. SULAM Innovate Showcase and Symposium. Kelantan, Malaysia. 1-2 July 2024
- **MH Hamzah**. Formation of methane precursor and lignocellulose-derived furan byproducts during delignification of subcritical water pre-treated empty fruit bunch. National Agricultural and Food Engineering Convention 2024. Perlis, Malaysia. 15-16 May 2024
- **MH Hamzah**. Future-Proof of Agricultural Engineering and Technology Graduates through Digital Transformation. International Joint Workshop on DX Research and Education to Realize Sustainable Food Production. Kyushu, Japan. 13 March 2023.
- **MH Hamzah**. Dabai (*Canarium odontophyllum*): Nutritional Values, Health Benefits, Potential Food and Essential Oil Products, Future Perspective and Challenges. 8th International Conference on Food and Environmental Sciences. Hanoi, Vietnam. 24 – 26 February 2023.
- AFA Hamzah, **MH Hamzah**, HC Man, N Khairudin, MH Ismail, PL Show. Evaluating The Effect of Low and High Temperature Mode of Subcritical Water Pre-Treated Empty Fruit Bunches on Co-Digestion Performance and Kinetic Study for Methane Production. 6th International Conference on Agricultural and Food Engineering (CAFEi2023). Kuala Lumpur, Malaysia. 16-17 August 2023.
- AFA Hamzah, **MH Hamzah**, HC Man, K Nurulhuda, MH Ismail. Influence of Subcritical Water Pre-Treatment Parameters on Methane Production from Empty Fruit Bunches: Process Optimization. National Agricultural and Food Engineering Convention 2023. Negeri Sembilan, Malaysia. 8-9 March 2023.
- **MH Hamzah**, Optimization of Ohmic Heated Oil Extraction from Dabai (*Canarium odontophyllum*) Pulp using Response Surface Methodology. The 7th International Conference on Green Agro-industry and Bioeconomy. Brawijaya, Indonesia. 24 October 2023.
- **MH Hamzah**. Optimization of Process Parameters for Methane Production from Anaerobic Co-Digestion of Palm Oil Mill Effluent and Subcritical Water Pre-Treated Empty Fruit Bunches. International Conference on Research in Engineering, Technology and Science. Budapest, Hungary. 6-9 July 2023.
- **MH Hamzah**. Extraction and Modification of Lignin to Support Enhanced Utilisation Using Critical Fluids. The 2nd International Conference on Engineering and Advanced Technology (ICEAT 2022). Istanbul, Turkey. 28-29 March 2022.
- AFA Hamzah, **MH Hamzah**, HC Man, NS Jamali, SI Siajam. Optimization of Subcritical Water Pre-Treatment for Biogas Enhancement on Co-Digestion of Pineapple Waste and Cow Dung Using the

Response Surface Methodology. Food Engineering Network of Thailand 2022 Online International & National Conference. Chiang Mai, Thailand. 4 April 2022.

- H Zaid, ZT Al-Sharify, **MH Hamzah**, S Rushdi, H Onyeaka. 2nd International Conference on Engineering and Advanced Technology. Istanbul, Turkey. 28-29 March 2022.
 - H Zaid, ZT Al-Sharify, **MH Hamzah**, S Rushdi. The 5th Scientific Engineering Conference and 2nd in Sustainable Engineering. Mustansiriyah, Iraq. 1-2 June 2022.
 - NI Mazlan, **MH Hamzah**, AFA Hamzah, HC Man, NS Jamali, SI Siajam, SP Loke, Preliminary Study on the Application of Subcritical Water Pre-treatment prior to Anaerobic Co-digestion of Pineapple Waste and Cow Dung for Biogas Production. National Agricultural and Food Engineering Convention (NAFEC 2022). Kedah, Malaysia. 20-22 March 2022.
 - TH Ong, **MH Hamzah**, HC Man. Optimization of Palm Oil Extraction from Decanter Cake using Soxhlet Extraction and Effects of Microwaves Pre-Treatment on Extraction Yield and Physicochemical Properties of Palm Oil. 5th International Conference on Agricultural and Food Engineering. Kuala Lumpur, Malaysia. 3-4 February 2021.
 - **MH Hamzah**, Strategic Approaches on Traditional Foods Innovation: The Concept and Principles. Terengganu, Malaysia. 2-3 March 2021.
 - SNM Razali, HC Man, MZM Nor, **MH Hamzah**. Converting Durian-Based Traditional Dessert into Ready-To-Eat Food by Adopting the Sausage Technology. National Agricultural and Food Engineering Convention. Selangor, Malaysia. 23-24 March 2021.
 - **MH Hamzah**, The Vertical Farming Model: A Sustainable Putra Green Community Outreach Project. 7th Southeast Asian Agricultural Engineering Student Chapter Annual Regional Convention 2021. Bintulu, Malaysia. 8 July – 10 August 2021.
 - M Faires, MR Gunarayu, OH Ling, MH Ismail, **MH Hamzah**. Organic filtration system. The 6th Southeast Asian Agricultural Engineering Student Chapter Annual Regional Convention 2020. Brawijaya, Indonesia. 23 July-25 August 2020.
 - AFA Hamzah, **MH Hamzah**, FNA Mazlan, HC Man, NS Jamali, SI Siajam. Anaerobic Co-digestion of Pineapple Wastes with Cow Dung: Effect of Different Total Solid on Bio-methane Yield. Konferen Webinar MSAE 2020. Selangor, Malaysia. 29 June 2020.
 - AM Mustafah, D Jamaludin, M Jahari, **MH Hamzah**, N Khairudin. Urban AgriSchool: Urban Agriculture Education through the Greenhouse Module. National Innovation Invention in Engineering and Built Environment. Selangor, Malaysia. 24-26. 26 August 2019.
 - **MH Hamzah**, S Bowra, PW Cox, MJH Simmons. The Influence of Chemical Properties of Organosolv Lignin Aggregates at Different Lignin Concentration on the Efficacy of Lignin Esterification. 14th International UMT Annual Symposium. Terengganu. Malaysia. 1-11. 23-25 July 2019.
 - NK Anuar, HC Man, **MH Hamzah**, S Idrus, NNN Daud, WAWAK Ghani. Methane Production from Anaerobic Co-digestion of Sewage Sludge and Decanter Cake. National Convention of Agricultural and Food Engineering 2019. Putrajaya, Malaysia. 49-53, 21 March 2019.
 - HC Man, C Baing, MRM Yusof, **MH Hamzah**. The Potential Use of Palm Oil Fuel Ash (POFA) As Properties of Lightweight Concrete. National Convention of Agricultural and Food Engineering 2019. Putrajaya, Malaysia. 44-48, 21 March 2019.
 - N Muzaiyin, **MH Hamzah**, HC Man. Ultrasonic Pretreatment Prior to Soxhlet Extraction for Essential Oil from Basil Leaves (*Ocimum Basilicum* L.). National Convention of Agricultural and Food Engineering 2019. Putrajaya, Malaysia. 156-160, 21 March 2019.
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Intellectual Property

- **MH Hamzah**, AM Mustafah, D Jamaludin, K Nurulhuda, M Jahari URBAN AGRISCHOOL. 2025. TM2025019958
- **MH Hamzah**, D Jamaludin, NM Ramli, N Hashim, MN Radzuan, K Abdan. Agricultural Process Engineering: A Manual. 2024. LY2024W01799
- **MH Hamzah**, HC Man, MSM Kassim, R Omar, MS Hassan, AHA Manaf, AH Suhaimi, MS Muhidinm SMM Yazid, CI Razali. 2024. Manual Book – Aquaponic and Water Treatment System. 2024. LY2024W01798
- **MH Hamzah**, AFA Hamzah, K Nurulhuda, HC Man, MH Ismail Subcritical Water Treatment System with Rocking Bed Mechanism. 2024. LY2024W06369
- **MH Hamzah**, D Jamaludin, K Nurulhuda, AH Suhaimi, YJ Xian, MS Muhidin, SMM Yazid, CI Razali, NJ Laobi. Aquaculture Sensor Technology Manual. 2024. LY2024W05253
- HC Man, **MH Hamzah**. Innovative Approach of Lignocellulosic Biomass Delignification Via Ohmic Heating: A Manual. 2023. LY2023W05105
- D Jamaludin, AM Mustafah, **MH Hamzah**, M Jahari, K Nurulhuda. Urban Agriculture Education Through the Concept of Green Walls -Student Module. 2021. LY2021E06094
- D Jamaludin, AM Mustafah, **MH Hamzah**, M Jahari, K Nurulhuda. Urban Agriculture Education Through the Concept of Green Walls -Instructor Module. 2021. LY2021E06096
- FFJ Abdullah, AMM Ghazali, AM Mustafah, B Yusuf, ELT Chung, EE Supeni, FZ Rohani, H Jalil, HC Man, H Alli, LT Chwen, LL Juen, MAM Lila, MK Ismail, MK Hassan, MS Dolah, **MH Hamzah**, NH Zainol Abidin, NNN Daud, NM Isa, NA Haron, OP Toung, RSM Rashid, RAAR Effendi, SH Ramli, S Idrus. Modern Pig Farming Model (MPF) UPM. 2020. AR2020003562
- AMM Mustafah, **MH Hamzah**, D Jamaludin, M Jahari, K Nurulhuda. Urban Agrischool: Greenhouse. 2019. LY2019006287
- MSM Basri, MZM Nor, ISMA Tawakkal, NZN Hasnan, SH Ariffin, MR Rosnon, **MH Hamzah**. Food Module – Exploring Science and Mathematics Through Food-Based Nature. 2019. LY2019005965

Research Grants

<ul style="list-style-type: none"> ● Advanced treatment of white pepper berries processing wastewater using electro-integrated membrane system (Leader) 	Kurita Water and Environment Foundation	2025-2026	¥ 400,000
<ul style="list-style-type: none"> ● Process configuration, physico-chemical characterization and techno-economic analysis of essential oil production (Leader) 	GP-GPB	2023 – 2026	RM120,000
<ul style="list-style-type: none"> ● Fostering kale (<i>Brassica Oleracea Var. Acephala</i>) as a source for valuable phytochemical for food and pharmaceutical applications through extraction and encapsulation (Member) 	GP-GPB	2024-2027	RM125,000
<ul style="list-style-type: none"> ● Maximising triacylglycerol biosynthesis of marine Malaysian microalgae strains for biofuel production (Member) 	Petronas Research Sdn Bhd	2024-2026	RM1,614,800
<ul style="list-style-type: none"> ● Assessment of maturation indicators (hydro-structural and biochemical properties) of constructed soils (Member) 	Embassy of France-GP-Matching Grant	2023 – 2026	RM50,000

<ul style="list-style-type: none"> • Study on subcritical water processing for the valorization of agricultural waste: System design, development, and optimization (Leader) 	GP-GPI	2023– 2026	RM14,000
<ul style="list-style-type: none"> • Effects of integrated blanching pretreatment and subcritical water extraction conditions on characteristics and drying kinetics of cocoa pod husk pectin (Member) 	GP-IPS	2023-2026	RM20,000
<ul style="list-style-type: none"> • Quality assessment of oil extracted from dabai (<i>Canarium odontophyllum</i>), the exotic fruit of Borneo through ohmic heated hydro distillation (Leader) 	SEARCA	2021 – 2024	USD5,000
<ul style="list-style-type: none"> • Elucidating the ammonia inhibition behaviour in biogas production through an experimental data driven and model-based approaches (Leader) 	FRGS	2021 – 2024	RM185,500
<ul style="list-style-type: none"> • Beyond silos: Enhancing transdisciplinary engagement among engineering students through first-year seminar (Member) 	GPPI	2020 – 2024	RM20,000
<ul style="list-style-type: none"> • Effects of ohmic heating pre-treatment on delignification kinetics for integrated biohydrogen production (Member) 	FRGS	2018 – 2023	RM138,600
<ul style="list-style-type: none"> • Co-digestion of pineapple waste for mesophilic bio-methane production (Leader) 	GP-IPM	2018-2021	RM60,000

Community or Industry Projects/Grants

<ul style="list-style-type: none"> • Organic compost production from waste of various fruit peels waste for local Melon community gardens, Precinct 9, Putrajaya (Member) 	Komuniti@ UniMADANI	2025-2026	RM50,000
<ul style="list-style-type: none"> • Sustainable agri-food waste anaerobic digestion towards integrative permaculture in Ekar Lui for the livelihood of Sungai Lui community (Member) 	Dana Inovasi Sosial & Kajian Sosial Kementerian Pendidikan Tinggi	2024-2025	RM121,000
<ul style="list-style-type: none"> • Integration of hybrid biofiltration layer and biocatalyst technology in community composting for sustainable agriculture (Member) 	KTGS@PTJ	2024-2025	RM5,000
<ul style="list-style-type: none"> • Meneroka Dunia Percetakan 3D Bersama Komuniti Sekolah SMK Tan Sri Abdul Kadir (Member) 	KTGS@PTJ	2024-2025	RM5,000
<ul style="list-style-type: none"> • Modification of water treatment system and integration of aquaponics for the sustainability of aquaculture green technology. Community of Kampung Parit Abdul Hadi, Batu Pahat, Johor. (Leader) 	KTGS@PTJ	2024-2025	RM5,000

- Production of organic compost fertilizer from local fruit waste to increase vegetable yields for use in community gardens of Suria Residen Pajam Resident Associations, Mantin, Negeri Sembilan. **(Member)** KTGS@PTJ 2024-2025 RM5,000
- Young agri hydroponic urban agriculture. TASKI ABIM Saidatina Fatimah Sri Serdang. **(Member)** KTGS@PTJ 2024-2025 RM5,000
- Composting Food Waste Aerated Static Piles. Sustainable Campus Pilot Project. **(Member)** Department of Environment 2022-2023 RM40,000
- Automated food waste composting by black soldier fly larvae using Internet of Things (IoT) for restructured bio-circular economy. Kampung Pulau Meranti, Puchong. **(Member)** KTGS 2022-2023 RM10,000
- Ex-situ land rehabilitation through aerobic composting for Kebun Komuniti Initiatives of B40 community in Seri Kembangan. **(Member)** CIMB Foundation 2022-2023 RM41,500
- Knowledge transfer of food waste treatment for lifelong income opportunity to the B40 community in Sri Serdang. Low-Cost Flat Taman Sri Serdang, Selangor. **(Member)** Knowledge Transfer Programme - KTP 2020-2022 RM49,303

Supervision

PhD

No.	Name	Title	Status
1	Adila Fazliyana Aili Hamzah	Assessment of Biogas Production and Inhibitors Formation from Co-Digestion of Subcritical Water Treated Empty Fruit Bunches and Palm Oil Mill Effluent	On-going 2022-Current (Main supervisor)
2	Nurul Faezawaty Jamaludin	Extraction, Microencapsulation, and Effects of Storage Conditions of Phytochemicals from Kale (<i>Brassica oleracea</i> var. <i>acephala</i>)	On-going 2024-Current (Co-supervisor)
3	Izzah Farhana Ab Aziz	Novel Ohmic Heating Pre-Treatment of Empty Fruit Bunch for Enhanced Biohydrogen Production via Co-Fermentation with Palm Oil Mill Effluent	On-going 2021-Current (Co-supervisor)
4	Satria Bhirawa Anoraga	Pectin Recovery from Blanched Cocoa Pod Husk using Subcritical Water Extraction, Drying Kinetics and Its Application in Jam Production	Ongoing 2022-Current (Co-supervisor)
5	Suleiman Jamilu	Effect of Extraction Conditions on The Yield, Physicochemical, Functional, and Rheological Properties of Pectin Extracted from Local Durian Rind	Ongoing 2022-Current (Co-supervisor)

6	Abba Mohammed Umar	Boron Removal from Scheduled Waste Leachate using Hybrid Adsorption-Membrane System Augmented with Tio ₂ Nanoparticles	Graduated 2018-2021 (Co-supervisor)
7	Bernard Anak Maringgal	Synthesis of Kelulut Honey Nanoparticles as Edible Coating on The Physicochemical Properties and Respiration Rate of Carica Papaya I.	Graduated 2017-2020 (Co-supervisor)

MSc

1	Goh Sin Ying	Process Configuration, Physico-Chemical Characterization and Techno-Economic Analysis of Lemon Myrtle Essential Oil Production by Ohmic Assisted Hydro Distillation	On-going 2024-Current (Main supervisor)
2	Muhammad Asyraf Salhi Sobri	Cost-effective Biogas Production from Chicken Manure using Optimization Modelling	On-going 2025-Current (Co-supervisor)
3	Muhammad Faizal Hafiz Shamsi	Evaluating New Formulation, Characteristics and Storage Conditions of Lemongrass Granule In Food Production Potential	On-going 2024-Current (Co-supervisor)
4	Hani Nur Haziqah Binti Harun Nurashid	Process Optimization of Pandan Powder Production using Subcritical Water Extraction	On-going 2024-Current (Co-supervisor)
5	Adila Fazliyana Aili Hamzah	Enhancement of Biogas Production in Anaerobic Co-Digestion of Subcritical Water Pre-Treated with Pineapple Waste and Cow Dung	Graduated 2019-2022 (Main supervisor)
6	Veknesh A/L Arumugam	Relationship of Food Waste Vermicomposting on Soil Fertility, Nutrient Dynamics, and Plant Growth of Capsicum Annuum L.	Graduated 2020-2022 (Co-supervisor)

Professional Services (Journal Reviewer, editorial works, etc.)

- **Editorial board member** 2025-2026
Current Nutrition & Food Science
- **Guest Editor** 2025
Pertanika Journal of Tropical Agricultural Science
- **Editorial board member** 2024-2025
Journal of Petroleum and Research Studies
- **Editorial board member** 2024 – 2026
Iraqi Journal of Chemical and Petroleum Engineering
- **Editorial board member** 2022 – 2028
Advances in Agricultural and Food Research Journal
- **Editorial board member** 2022 – 2025

Journal of Engineering and Sustainable Development	2019 - 2024
● Editorial board member	
Proceedings National Convention of Agricultural and Food Engineering	
● Journal reviewer	
Trends in Food Science and Technology	2025
International Journal of Biological Macromolecules	2025
Results in Chemistry	2025
Bioresource Technology	2025
Total Environment Engineering	2025
Renewable Energy	
Kuwait Journal of Science	2025
Food Chemistry	2025
LWT - Food Science & Technology	2025
Essential Chem	2025
Food Chemistry: X	2025
Journal of Cleaner Production	2025
Chemistry and Biodiversity	2025
Applied Food Research	2025
Energy Nexus	2025
Waste Management	2025
Aquacultural Engineering	2025
Industrial Crops & Products	2025
Journal of Agriculture and Food Research	2025
Scientific African	2025
Ultrasonics Sonochemistry	2025
Results in Chemistry	2025
Process Biochemistry	2025
Ciencia y Tecnología Agropecuaria Journal	2025
Chemical Engineering Journal	2025
Sustainable Energy Technologies and Assessments	2025
Catalysts	2025
Environmental Quality Management	2024
Biomass and Bioenergy	2024
Environmental Technology	
Journal of Applied Research on Medicinal and Aromatic Plants	2024
Case Studies in Chemical and Environmental Engineering	2024
The Mindanao Journal of Science and Technology	2024
	2024-2025

Data in Brief	2024-2025
Bioresource Technology Reports	2024
Food and Humanity	2024,2025
Next Materials	2024-2025
Cleaner and Circular Bioeconomy	2024
Industrial Crops and Products	2023 – 2024
Iraqi Journal of Chemical and Petroleum Engineering	2024
Journal of Environmental Chemical Engineering	2023
Cellulose	2023
Journal of Polymers and Environment Stresses	2023
Tikrit Journal of Engineering and Sciences	2022 – 2023
Journal of Advanced Research in Applied Sciences and Engineering Technology	2023
Journal of Tropical Agriculture and Food Science	2023
Journal of Food Process Engineering	2022
Cogent Food & Agriculture	2022
Sustainable Chemistry and Pharmacy	2022-2025
Heliyon	2022
Scientific Reports	2022
Applied Biosciences	2022
Applied Energy	2022
BioEnergy Research	
Borneo Journal of Resource Science and Technology	2022
Processes	2022, 2025
Advances in Agricultural and Food Research Journal	2022-2025
Environmental Science and Pollution Research	2021 – 2022
Journal of Food Measurement and Characterization	2021 – 2023
Egyptian Journal of Chemistry	2021 – 2022
Foods	2021, 2025
Polymer	2021 – 2023
Advances in Food Science, Sustainable Agriculture and Agroindustrial Engineering	2021
Iranian Journal of Chemistry and Chemical Engineering	2021, 2024-2025
Sustainability	2021
Agronomy	2020, 2022
	2020

Pollution	2020, 2023, 2025
International Food Research Journal	2020
Groundwater for Sustainable Development	2020
Pakistan Journal of Analytical and Environmental Chemistry	2019
Carbon Capture Science and Technology	2019
Biomass Conversion and Biorefinery	2019
Journal of Engineering and Technological Sciences	2019
Asian Journal of Environment and Ecology	2019
Basrah Journal of Agricultural Sciences	2019
American Journal of Agricultural and Biological Sciences	2019
Journal of Desalination and Water Purification	2019

- **Conference reviewer**

Agritech Research and Entrepreneurship
Innovation, 2024
11th Symposium of Applied Engineering and
Sciences, 2023
The 6th International Conference on
Agricultural and Food Engineering, 2023
The Second International Conference on
Scientific Research and Innovation, 2023
The 2nd International Conference on
Engineering and Advanced Technology, 2022
National Conference Malaysia TVET on
Research Via Exposition (MaTRiX'22), 2022
5th International Conference on Engineering
Technology, 2021
The 5th International Conference on
Agricultural and Food Engineering, 2020
Proceedings National Convention of
Agricultural and Food Engineering, 2019

- **Conference committee**

The 7th International Conference on
Agricultural and Food Engineering, 2025
11th Southeast Asian Agricultural and Food
Engineering Student Chapter Annual
Regional Convention, 2025
10th Southeast Asian Agricultural and Food
Engineering Student Chapter Annual
Regional Convention, 2024

8th International Conference on Food and Environmental Sciences, 2023
The 6th International Conference on Agricultural and Food Engineering, 2023
9th Southeast Asian Agricultural and Food Engineering Student Chapter Annual Regional Convention, 2023
The 5th International Conference on Materials Engineering and Science, 2022
National Agricultural and Food Engineering Convention, 2022
6th Postgraduate Colloquium in Environmental Research, 2022
The First International Business and Management Virtual Innovation and Invention of Idea, 2021
International Eureka Innovation Exhibition, 2021
The 4th International Conference on Materials Engineering and Science, 2021
7th Southeast Asian Agricultural Engineering Student Chapter Annual Regional Convention, 2021
The 5th International Conference on Agricultural and Food Engineering, 2021
Materials Lecture Competition, 2021
National Agricultural and Food Engineering Convention, 2021-2025
6th Southeast Asian Agricultural Engineering Student Chapter Annual Regional Convention, 2020
National Convention of Agricultural and Food Engineering, 2019
5th Southeast Asian Agricultural Engineering Student Chapter Annual Regional Convention, 2019
International Invention and Innovative Competition Series 2, 2019
14th UMT International Annual Symposium, 2019

Teaching Experience

- Biosystems Environment
 - Agricultural Process Engineering
 - Postharvest Engineering
 - Industrial Training
 - Visiting Professor, Global Lecture Series for Agricultural Engineering Graduate Students (Central Luzon State University, Philippines)
 - Summer Course on Sustainable Agroindustry: Adding Values to Local Commodities in Rural Areas (Guest Lecturer, IPB University, Indonesia)
 - Chief Guest-Visiting Lecturer, Tech Star Summit 2025 (SIMATS Engineering, Saveetha Institute of Medical and Technical Sciences, Chennai)
 - 3 in 1 Program in Waste Technology Course (Guest Lecturer, Brawijaya University, Indonesia)
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