CURRICULUM VITAE

A. BUTIR-BUTIR PERIBADI *(Personal Details)*			
Nama Penuh *(Full Name)*	Mohd Rafein Zakaria		Gelaran *(Title)*: *Assoc. Prof. Dr.*
No. MyKad / No. Pasport *(Mykad No. / Passport No.)*	Warganegara *(Citizenship)* *Malaysia*	Bangsa *(Race)* *Malay*	Jantina *(Gender)* *Male*
Jawatan *(Designation)*	Associate Professor	Tarikh Lahir *(Date of Birth)*	Feb 1981

Alamat Semasa *(Current Address)*	**Jabatan/Fakulti *(Department/Faculty)***	**E-mel dan URL *(E-mail Address and URL)***
Kota Seriemas 71800 Nilai Negeri Sembilan Tel:	Department Bioprocess Technology Faculty of Biotechnology and Biomolecular Sciences, 43400 UPM Serdang Selangor Tel: 03-9769-4137 Fax:	**E-mail:** mohdrafein@upm.edu.my URL: http://profile.upm.edu.my/mohdrafein/profile.html No. of publications: 60 *h*- Index SCOPUS (Citations): **26 (1711)** *h*- Index Google (Citations): **29 (2357)** **Area of expertise:** Biomass hydrothermal treatment and utilization, wastewater treatment for biogas generation, polyhydroxyalkanoates, biosurfactants.

B. KELAYAKAN AKADEMIK *(Academic Qualification)*			
Nama Sijil / Kelayakan *(Certificate / Qualification obtained)*	**Nama Sekolah Institusi *(Name of School / Institution)***	**Tahun *(Year obtained)***	**Bidang pengkhususan *(Area of Specialization)***
PhD	UPM	2012	Environmental Biotechnology
MSc	UPM	2008	Environmental Biotechnology
Bachelor	UPM	2003	Biotechnology

C. PENGALAMAN SAINTIFIK DAN PENGKHUSUSAN *(Scientific experience and Specialisation)*				
Organization	***Position***	***Start Date***	***End Date***	***Expertise***
****** Assoc. Prof. Dr. Mohd Rafein has reviewed more than 100 international manuscripts since 2010.***				
Elsevier	Reviewer for Renewable and Sustainable Energy Reviews	*2021*	-	Biomass, Enzymolysis, Biofuels, Biogas, Biohydrogen, Biochemicals, Polyhydroxyalkanoates
Elsevier	Reviewer for Journal of Cleaner Production	2020	-	Wastewater treatment, biohydrogen, biomethane, fermentation
Springer	Reviewer for Cellulose	2019		Biomass, Enzymolysis, Cellulose, Xylan
Elsevier	Reviewer for Chemical Engineering Science	2017	2017	Wastewater treatment, biohydrogen, biomethane, fermentation
Elsevier	Reviewer for Journal of Environmental Management	2017	2017	Applied Microbiology, Biological Conversion, Environmental Management
ScholarOne (American Chemical Society)	Reviewer for Industrial & Engineering Chemistry Research	2017	2017	Biomass Pretreatment, Saccharification, Fermentation, Green Chemistry
Elsevier	Reviewer for Industrial Crops and Products	2016	-	Biomass, Hydrothermal process, Enzymolysis, Ball Milling, Disk Milling, Biochemicals
Taylor & Francis	Reviewer for Critical Reviews in Food Science and Nutrition	2016	2016	Biomass, Hydrothermal process, Enzymolysis, Ball Milling, Disk Milling, Biochemicals
Elsevier	Reviewer for International Journal of Hydrogen Energy	2016	-	Biomass, Enzymolysis, Biofuels, Biogas, Biohydrogen, Biochemicals
Springer	Reviewer for Applied Biochemistry and Biotechnology	2015	-	Biomass, Enzymolysis, Biofuels, Biogas, Biohydrogen, Biochemicals
Elsevier	Reviewer for Bioresource Technology	2015	-	Biomass, Hydrothermal process, Enzymolysis, Biofuels, Biochemicals
BioMed Central	Reviewer for Biotechnology for Biofuels	2015	-	Biomass, Hydrothermal process, Enzymolysis, Biofuels
Elsevier	Reviewer for Energy		2015	Biomass, Hydrothermal

	Conversion and Management	2015		process, Ball Milling

D. APPOINTMENTS/ RECOGNITION				
i) INTERNATIONAL				
Employer/ Organization	***Designation***	***Department***	***Start Date***	***Date Ended***
Biocatalysis and Agricultural Biotechnology Journal	Lead Guest Editor	Elsevier	Jan 2024	Dec 2024
Badan Riset Inovasi Nasional (BRIN) Serpong, Indonesia	Invited speaker (Plenary)	10th International Symposium of Innovative Bioproduction Indonesia on Biotechnology and Bioengineering (ISIBio), Bogor.	27 Nov 2023.	29 Nov 2023.
Badan Riset dan Inovasi Nasional (BRIN) Serpong, Indonesia	Visiting Researcher	Enzyme for Bioenergy Research Group, Applied Microbiology Research Center	1 Aug 2023	30 Sep 2023
2nd International Conference on Plantation Technology 2023 (ICPTech 2023)	Chairman	Institute of Plantation Studies, UPM.	1 Jan 2023	31st Dec 2023
Journal of Rubber Research. Special Issue for International Conference on Plantation Technol. 2021	Guest Editor	Springer Nature	Oct 2021	Jul 2022
International Symposium on Applied Engineering and Sciences (SAES2021)	Judge (Poster)	Universiti Putra Malaysia-KYUTECH	5 Dec 2021	8 Dec 2021
1st International Conference on Plantation Technology 2021 (ICPTech 2021)	Vice Chairman	Institute of Plantation Studies, UPM.	23 Nov 2021	24 Nov 2021
1st International Conference on Plantation Technology 2021 (ICPTech 2021)	Chairperson-parallel session	Institute of Plantation Studies, UPM.	23 Nov 2021	24 Nov 2021
International Conference on Industry-Academia Initiatives in Biotechnology and Chemistry	Scientific reviewer	Fac. Industrial Sciences and Technology, Universiti Malaysia Pahang.	June 2021	Dec 2021
International Congress of the Malaysian Society for Microbiology 2021	Judge (Oral Presenter)	Malaysian Society for Microbiology	29 Sep 2021	30 Sep 2021
National Institute of	Post-Doctoral	Biomass Refinery	17-07-2013	30 June

Advanced Industrial Science and Technology, Japan	Researcher	Research Center (Separation Team)		2015
AFOB Asian Congress of Biotechnology 2015, Istana Hotel	Organising Committee	Department of Bioprocess Technology	2014	2014
ii) NATIONAL				
MyGrants FRGS Panel Grant Evaluator	Panel	Ministry of Higher Education (MOHE), Malaysia	2019	Present
Ministry of Human Resource (MOHR) – Handling of biohazard and medical	Panel	Development of National Occupational Skills Standard (NOSS) document for the Department of Skills Development (DSD)	2016	2016
Seminar on Bioreactor Operation and Fermentation Data Analyses	Committee	Department of Bioprocess Technology	2016	2016
SIRIM Berhad	Research Associate	Industrial Biotechnology	Oct 2011	Jan 2012
Vivantis Technologies Sdn Bhd	Project Manager	Life Sciences/ Wastewater treatment	Feb 2006	Feb 2007
iii) UNIVERSITY/FACULTY/DEPARTMENT				
Ahli Jawatankuasa Kecil Akademik Pengajian Siswazah (JKKAPS)			Nov 2024	Nov 2027
Postgraduate Program without Thesis	Member	Department of Bioprocess Technology, Faculty of Biotechnology and Biomolecular Sciences	2021	Present
IKP Community and Industrial Network	Member	Institute of Plantation Studies, UPM.	Aug 2021	Jun 2023
Panel- Grant Evaluator	Committee	Institute of Plantation Studies, UPM.	18 Jun 2021	Present
Postgraduate seminar / proposal and final report evaluator	Examiner	Institute of Plantation Studies, UPM.	2020	Present
Universiti Putra Malaysia	Head	Laboratory Processing & Product Development, Institute of Plantation Studies, UPM.	1 Jul 2020	Present
Universiti Putra Malaysia	Research Associate	Institute of Plantation Studies, UPM.	1 Jul 2020	30 Jun 2022
Universiti Putra Malaysia	Committee, Grant Evaluation and Monitoring	Faculty of Biotechnology and Biomolecular Sciences	1 Mar 2019	31 Dec 2021
Universiti Putra	Associate	Department of	2 Jan 2019	Present

Malaysia	Professor	Bioprocess Technology, Faculty of Biotechnology and Biomolecular Sciences		
Universiti Putra Malaysia	Committee	Research and Postgraduate studies Faculty of Biotechnology and Biomolecular Sciences	2 Jan	31 Dec 2020
Institute of Tropical Forestry and Forest Products (INTROP), UPM	Head of Program	Biopolymer and Derivatives	1 Dec 2018	30 Jun 2020
Universiti Putra Malaysia	Senior Lecturer	Department of Bioprocess Technology	2 April 2012	31 Dec 2018
International Symposium on Applied Engineering and Sciences, 2017 UPM	Poster judge	Department of Bioprocess Technology	2017	2017
International Biotechnology Competition & Exhibition (IBCEx) 2017	Poster judge	UTM, Skudai Johor	2017	2017
Wood and Biofiber International Conference	Committee	INTROP, UPM	2017	2017
3U1i Program with Indah Water Konsortium	Committee	Department of Bioprocess Technology	2017	2018
Malaysian Society for Microbiology	Poster judge	Environmental Microbiology Poster Session	2016	2016
Industrial Linkages and Community	Committee	Department of Bioprocess Technology	2016	Present
Internship Program-Undergraduate students	Committee	Department of Bioprocess Technology	2016	2021
AFOB Asian Congress of Biotechnology 2015 Istana Hotel	Committee	Department of Bioprocess Technology	2015	2015
Institute of Tropical Forestry and Forest Products (INTROP), UPM	Research Associate	Biopolymer and Derivatives	2015	Present
Academic Program Evaluation for Bachelor of Microbiology	Committee	Department of Bioprocess Technology	2012	2014
Biomagnetic Day	Chairman	Department of Bioprocess Technology	2015	2015

Faculty Research Book	Committee	Department of Bioprocess Technology	2013	2014
Faculty Promotion and Publicity	Committee	Department of Bioprocess Technology	2013	2014
Department Examination Test	Examiner	Department of Bioprocess Technology	2012	Present
Biomagnetic Day	Committee	Department of Bioprocess Technology	2012	Present
Undergraduate seminar / proposal and final report evaluator	Member	Department of Bioprocess	2012	Present
Postgraduate seminar / proposal and final report evaluator	Member	Department of Bioprocess	2012	Present
Universiti Putra Malaysia	Research Assistant	Department of Bioprocess Technology	Mar 2007	Sep 2011
Universiti Putra Malaysia	Research Assistant	Department of Bioprocess Technology	2003	2006

E. ANUGERAH DAN HADIAH/ PENGIKTIRAFAN *(Honours and Awards/ Recognition)*

Name of awards	***Title***	***Award Authority***	***Award Type***	***Year***
Awards of Merit	Hyper Interdisciplinary Conference `Production of PASELIS Biofungicide from Palm Oil Industrial Waste`	Leave a Nest Malaysia, HIVE 5, MRANTI Park	Gold Medal and Certificate	2023
Awards of Merit	Premier Innovatif Award. Fostering A Circular Bioeconomy in A Palm Oil Industry-Biomass Management & Utilization. Pahang Commodities Exhibition of Innovation and Technology.	Yayasan Pahang	Silver Medal and Certificate	2022
Awards of Merit	Premier Innovatif Award. Production of Biofungicides PASELIS™ Derived from Oil Palm Wastes. Pahang Commodities Exhibition of Innovation and Technology.	Yayasan Pahang	Gold Medal and Certificate	2022
Non-Academic Awards	Outstanding Contribution in Reviewing Energy Conversion and Management-	Elsevier	Certificate	2018

	International			
Non-Academic Awards	Award for High Impact Project- Industrial and Community Linkages	CiRNeT-UPM	Certificate	2018
Non-Academic Awards	Excellent Service Award 2017	UPM	Certificate	2018
Non-Academic Awards	Outstanding Contribution in Reviewing Bioresource Technology Journal-International	Elsevier	Certificate	2017
Non-Academic Awards	Outstanding Contribution in Reviewing Chemical Engineering Science Journal-International	Elsevier	Certificate	2017
Non-Academic Awards	Outstanding Contribution in Reviewing Industrial Crops and Products Journal-International	Elsevier	Certificate	2017
Non-Academic Awards	Incentive Journal Publication 2016	RMC-UPM Research Appreciation Ceremony	RMC-UPM	2017
Non-Academic Awards	Excellent Service Award 2015	UPM	UPM	2016
Non-Academic Awards	University Research Award - –ategory: Publishing Journal 2015	Pameran reka cipta, penyelidikan dan inovasi (PRPI) 2016, UPM	UPM	2016
Non-Academic Awards	ITEX 2011-International	Malaysian Invention and Design Society (MINDS)	Gold Medal	2011
Non-Academic Awards	Pameran reka cipta, penyelidikan dan inovasi (PRPI) 2009	UPM	Gold medal	2010
Non-Academic Awards	PECIPTA 2009	PECIPTA, KLCC, Malaysia	Silver Medal	2009
Non-Academic Awards	PRPI, UPM	UPM	Gold Medal	2009
Academic Awards	Scholarship (MOHE)	Ministry of Higher Education, Malaysia	Funding	2009-2012
Non-Academic Awards	Seminar on Biomass for Biofuels and Value-Added By-Products. The Saujana, Kuala Lumpur-International	University Malaysia Pahang	Silver Medal and Certificate	2009

F. SENARAI PENERBITAN (Sila masukan nama pengarang, tajuk, nama jurnal, jilid, muka surat dan tahun diterbitkan) *(List of publications – author (s), title, journal, volume, page and year published)*

Journals

**** Corresponding author***

66. Siti Syazwani Mahamad, Shobanah Menon Baskaran, Adieya Atyrrah Adnan, Mohd Shamzi Mohamed, Mohd Nazren Radzuan, James B. Winterburn, Halimatun Saadiah Hafid, Mohd Rafein

Zakaria*. Unlocking rhamnolipid potential: Advancements in production and upscaling strategies for the agriculture industry. Submitted to Biotechnology Advance. Mar **2024.** Q1 (IF 16.0)

65. Mohd Idham Hakimi, Bawser Mohsen Ahmed Mohammed, Vikneswaran Mani, Mohd Zulkhairi Mohd Yusoff, Mohd Rafein Zakaria, Mohammed Abdillah Ahmad Farid, Mohd Huzairi Mohd Zainudin, Shirai Yoshihito, Mohd Ali Hassan. Bamboo-derived activated carbon's potential for bio-adsorption: Integrating technical evaluation with industry insights in Malaysia. Submitted to International Journal of Environmental Research. Mar **2024.** Q3 (IF 3.229)

64. Amara Rafi, Syazwan Afif Mohd Zobir, Mohd Aswad Abdul Wahab, Mohd Rafein Zakaria, Abdulaziz Bashir Kutawa, Khairulmazmi Ahmad. Current Update and Management Strategies of Bacterial Diseases of Plants using Conventional and Novel Molecular Approaches. Submitted to Journal of Herbal Medicine. Feb **2024.** Q3 (IF 2.3)

63. Ika Rahmatul Layly, Putri Novitas ari Parmadi, Hanif Fikri, Yohana Caroline Sihombing, Mohd Rafein Zakaria. Biosynthesis and characterization of lipase produced by Bacillus subtilis DB104 and its potential in biodiesel production. Submitted to Biocatalysis and Biotransformation. Oct **2024** Q2 (IF 1.4)

62. Siti Syazwani Mahamad, Mohd Nazren Radzuan, Mohd Shamzi Mohameda, James Winterburn, Mohd Rafein Zakaria*. Enhancing recovery of rhamnolipid biosurfactant via foam fractionation from the fermentation of waste glycerol by *Pseudomonas aeruginosa* RS6. Submitted to Journal of Surfactant and Detergents. Oct **2024.** Q3 (IF 1.6)

61. Siti Syazwani Mahamad, Mohd Nazren Radzuan, Mohd Shamzi Mohamed, James Winterburn, Mohd Rafein Zakaria. Enhance rhamnolipids production by *Pseudomonas aeruginosa* RS6 in a bioreactor system. Submitted to Environmental Technology. Q1 (IF 2.2)

60. Adieya Atyrrah Adnan, Muhammad Afiq Ashari, Shobanah Menon Baskaran, Siti Syazwani Mahamad, Nolila Mohd Nawi, Mohd Rafein Zakaria. **2024.** Farmer`s Awareness and Acceptance of Biopesticides Application for Pest and Disease Management. Agrotech–Food Science, Technology and Environment. Non CIJ

59. Adieya Atyrrah Adnan, Khairulmazmi Ahmad, Mohd Sabri Pak Dek, Mohd Rafein Zakaria. **2024.** Harnessing Rhamnolipids from Waste Glycerol for Effective Biocontrol of Fungal Pathogens in Cucumber and Melon Plants. Agrotech–Food Science, Technology and Environment. Non CIJ

58. Adieya Atyrrah Adnan, Khairulmazmi Ahmad, Mohd Sabri Pak Dek, Mohd Rafein Zakaria. **2024.** Efficacy of Rhamnolipids in Mitigating Postharvest Fungal Infections and Preserving Quality of Tomatoes, Cucumbers, and Mangoes. Agrotech–Food Science, Technology and Environment**.** Non CIJ

57. Liana Noor Megashah, Hidayah Ariffin, Mohd Rafein Zakaria, Yoshito Ando, Mohd Ali Hassan, Tengku Arisyah Tengku Yasim-Anuar. **2024.** Energy-efficient and improved productivity of cellulose nanofibril processing in wet disc mill by regulating the cellulose degree of polymerization. Industrial Crops and Products. Q1 (IF 5.6) Top 10%

56. Mohd Rafein Zakaria*, Mohammed Abdillah Ahmad Farid, Yoshito Andou, Mohd Ali Hassan, Halimatun Saadiah Hafid. **2024.** Practical role of oil palm fronds in Malaysia's sustainable palm oil industry. Industrial Crops and Products. Q1 (IF 5.6) Top 10%

55. Mohd Hafif Samsudin, Mohd Zulkhairi Mohd Yusof, Mohd Ali Hassan, Mohd Rafein Zakaria, Ahmad Muhaimin Roslan, Siti Suliza Salamat, Muhamad Yusuf Hasan,
Mohd Huzairi Mohd Zainudin, Mohammed Abdillah Ahmad Farid, Yoshihito Shirai. **2024**.

Assessment of pilotscale sewage sludge pelletization for nonfood crop fertilization: nutrient content, pathogenicity, and growth performance. Environmental Monitoring and Assessment. Q3 (IF 2.9)

54. Mohd Idham Hakimi, Mohd Rafein Zakaria, Mohd Nor Faiz Norrrahim, Yoshihito Shirai, Mohd Ali Hassan, Mohd Zulkhairi Mohd Yusorff. **2024**. The versatility of lignocellulosic composition in oil palm trunks influences the adsorption capacity of derived biochar. Biomass Convers. Biorefinery. Q2 (IF 3.5)

53. Ain Arisya Azami, Irmawati Ramli, Shera Farisya Mohamad Rasid, Muhammad Shamirul Khairul Lail, Mohd Rafein Zakaria, And Sarwat Iqbal. **2024**. Glycerol acetylation into acetins over SNO_2-based bimetallic oxide catalyst. Malaysian Journal of Analytical Sciences. (CIJ)

52. Ali Abdulkareem Al-Qassab, Mohd Rafein Zakaria, Robiah Yunus, Mohamad Amran Mohd Salleh, Mohd Noriznan Mokhtar. **2024.** Investigating process parameters to enhance (hemi)cellulolytic enzymes activity produced by *Trichoderma reesei* RUT-C30 using deoiled oil palm mesocarp fiber in solid-state fermentation. Int. J. Biol. Macromol. Q1 (IF 7.7)

51. Nur Aina Natasha Mohd Asmadi, Zee Kar Mun, Shobanah Menon Baskaran, Hidayah Ariffin, Helmi Wasoh, Toshinari Maeda, Mohd Ali Hassan, Mohd Rafein Zakaria*. **2024**. Rhamnolipids production by *Pseudomonas aeruginosa* RW9 using palm oil mill effluent sludge oil as a carbon source. Biocat. Agr. Biotechnol. Q2 (IF 4.0)

50. Mohd Ali Hassan, Mohammed Abdillah Ahmad Farid, Mohd Rafein Zakaria, Hidayah Ariffin, Yoshihito Shirai. **2024**. Palm oil expansion in Malaysia and its countermeasures through policy window and biorefinery approach. Env. Sci. Policy. Q1 (IF 6.0)

49. Amara Rafi, Mahesh Tiran Gunasen, Syazwan Afif Mohd Zobir, Abdulaziz Bashir Kutawa, Mohd Aswad Abdul Wahab, Mohd Rafein Zakaria, and Khairulmazmi Ahmad. **2023**. Profiling Phytochemical compounds, antibacterial activity and mechanisms of action of ginger essential oils-nanobactericides against *Erwinia chrysanthemi* causing heart rot disease of pineapple. *J. Plant Pathology.* Q2 (IF 2.2)

48. Mohd Rafein Zakaria*, Mohammad Abdillah Ahmad Farid, Yoshito Andou, Irmawati Ramli, and Mohd Ali Hassan. **2023**. Production of biochar and activated carbon from oil palm biomass: Current status, prospects, and challenges. Industrial Crops and Products. Q1 (IF 6.449) Top 10%

47. Siti Jamilah Hanim Mohd Yusof, Ahmad Muhaimin Roslan, Shinji Fujimoto, Mohd Rafein Zakaria, Mohd Ali Hassan, Yoshihito Shirai. **2022**. Production of glucose by carbon dioxide-assisted hydrothermal pretreatment of oil palm frond. AIP Conference Proceedings, 2022

46. Siti Jamilah Hanim Mohd Yusof, Ahmad Muhaimin Roslan, Mohd Rafein Zakaria, Mohd Ali Hassan, Yoshihito Shirai. **2022**. Kinetics of xylan autohydrolysis during subcritical hydrothermal pretreatment of oil palm frond pressed fiber. BioEnergy Research. Q3 (IF 3.852)

45. Lawal, A., Hassan, M., Aviara, A., Dzivama, A., Zakaria, M.R., & Shirai, Y. **2021**. Pyrolysis Characteristics And Kinetics Of Oil Palm Biomass: A Pathway To Producing Engineered Biochar. *J. Agr. Eng. Technol. 26*(2), 75-93. (CIJ)

44. Abubakar Abdullahi Lawal, Mohd Ali Hassan, Mohd Rafein Zakaria, Mohd Zulkhairi Mohd Yusoff, Mohd Nor Faiz Norrrahim, Mohd Noriznan Mokhtar, Yoshihito Shirai. 2021. Effect of oil palm biomass cellulosic content on nanopore structure and adsorption capacity of biochar. *Bioresour. Technol*. In-press. Q1, Top 10% (IF 11.889)

43. Yuya Hashiguchi, Mohd Rafein Zakaria*, Toshinari Maeda, Mohd Zulkhairi Mohd Yusoff, Yoshihito Shirai, Mohd Ali Hassan. **2021**. Ecotoxicological assessment of palm oil mill effluent final discharge by zebrafish (*Danio rerio*) embryonic assay. *Environ. Poll*. Q1 (IF 9.988)

42. Shobanah Menon Baskaran, Mohd Rafein Zakaria*, Mohd Shamzi Mohamed, Helmi Wasoh, Toshinari Maeda, Mohd Ali Hassan, Ibrahim M. Banat. **2021**. Valorization of biodiesel side stream waste glycerol for rhamnolipids production by *Pseudomonas aeruginosa* RS6. *Environ. Poll.* Q1 (IF 9.988)

41. Abubakar Abdullahi Lawal, Mohd Ali Hassan, Mohamed Abdillah Ahmad Farid, Tengku Arisyah Tengku Yasim-Anuar, Mohd Hafif Samsudin, Mohd Zulkhairi Mohd Yusoff, Mohd Rafein Zakaria, Mohd Noriznan Mokhtar, Yoshihito Shirai. **2021**. Adsorption mechanism and effectiveness of phenol and tannic acid removal by biochar produced from oil palm frond using steam pyrolysis. *Environ. Poll*. Q1 (IF 9.988)

40. Liana Noor Megashah, Hidayah Ariffin, Mohd Rafein Zakaria, Mohd Ali Hassan. **2020**. Modification of Cellulose Degree of Polymerization by Superheated Steam Treatment for Versatile Properties of Cellulose Nanofibril Film. *Cellulose*. 1-13. Q1 Top 1% (6.123)

39. Fatin Sakinah Rosman, Mohd Zulkhairi Mohd Yusoff, Mohd Rafein Zakaria, Toshinari Maeda, Mohd Ali Hassan. **2020**. Dark Fermentative Biohydrogen Production from Palm oil Mill Effluent: Operation Factors and Future Progress of Biohydrogen Energy. *Pertanika J. Sci. & Technol*. 28 (S2): 243 – 258. (CIJ)

38. Abubakar Abdullahi Lawal, Mohd Ali Hassan, Mohamed Abdillah Ahmad Farid, Tengku Arisyah Tengku Yasim-Anuar, Mohd Zulkhairi Mohd Yusoff, Mohd Rafein Zakaria, Ahmad Muhaimin Roslan, Mohd Noriznan Mokhtar, YoshihitoShirai. **2020**. Production of biochar from oil palm frond by steam pyrolysis for removal of residual contaminants in palm oil mill effluent final discharge. *J. Clean. Prod.* 265,121643 Q1 (IF 11.072)

37. Abubakar Lawal, Mohd Ali Hassan, Mohamed Abdillah Ahmad Farid, Tengku Arisyah Tengku Yasim-Anuar, Mohd Zulkhairi Mohd Yusoff, Mohd Rafein Zakaria, Ahmad Muhaimin Roslan, Mohd Noriznan Mokhtar, Yoshihito Shirai. **2020**. One-step steam pyrolysis for the production of mesoporous biochar from oil palm frond to effectively remove phenol in facultatively treated palm oil mill effluent. *Environ. Technol. Inno*. Q1 (IF 7.758)

36. Yuya Hashiguchi, Mohd Rafein Zakaria*, Toshinari Maeda, Mohd Zulkhairi Mohd Yusoff, Mohd Ali Hassan, Yoshihito Shirai. **2020**. Toxicity identification and evaluation of palm oil mill effluent and its effects on the planktonic crustacean *Daphnia magna*. *Sci. Total Environ*. 710, 136277. Q1 (IF 10.753)

35. Siti Jamilah Hanim Mohd Yusof, Ahmad Muhaimin Roslan, Khairul Nadiah Ibrahim, Sharifah Soplah Syed Abdullah, Mohd Rafein Zakaria, Mohd Ali Hassan, Yoshihito Shirai. **2019**. Life Cycle Assessment for Bioethanol Production from Oil Palm Frond Juice in an Oil Palm Based Biorefinery. *Sustainability*. 11, 6928 Q2 (IF 2.592)

34. Aiman Zulkifli, Mohd Zulkhairi Mohd Yusoff, Latifah Abd Manaf, Mohd Rafein Zakaria, Ahmad Muhaimin Roslan, Hidayah Ariffin, Yoshihito Shirai, Mohd Ali Hassan. **2019**. Green Energy Potential from the Organic Fraction of Municipal Solid Waste in Malaysia Ahmad. *Sustainability*. 11 (14), 3909. Q2 (IF 2.592)

33. Mohammed Abdillah Ahmad Farid, Mohd Rafein Zakaria*, Mohd Ali Hassan, Izzudin Ibrahim, Mohd Hafif Samsudin, Mohd Ridzuan Othman, Ahmad Amiruddin Mohd Ali, Yoshihito Shirai. **2019**. A holistic approach for palm oil mill effluent treatment by incorporating anaerobic-aerobic-

wetland sequential system and convective sludge dryer via rotary drum. *Chem. Eng. J*. 369, 195-204 Q1 (IF 8.235)

32. Liana Noor Megashah, Hidayah Ariffin, Mohd Rafein Zakaria and Mohd Ali Hassan. **2018**. Multi-step pretreatment as an eco-efficient pretreatment method for the production of cellulose nanofiber from oil palm empty fruit bunch. *AsPac J. Mol. Biol. Biotechnol*. 26 (2): 1-8 (Scopus)

31. Nurhajirah Mohamed Biran, Mohd Zulkhairi Mohd Yusoff, Toshinari Maeda, Mohd Rafein Zakaria, Lian-Ngit Yee, Mohd Ali Hassan. **2018**. Triple knockout of frdC gltA and pta genes enhanced PHA production in *Escherichia coli. AsPac J. Mol. Biol. Biotechnol*. 26 (1): 11-18 (Scopus)

30. Muhammad Azman Zakaria, Mohd Zulkhairi Mohd Yusoff, Mohd Rafein Zakaria, Mohd Ali Hassan, Thomas K. Wood, Toshinari Maeda. 2018. Pseudogene product YqiG is important for pflB expression and biohydrogen production in *Escherichia coli* BW25113. 3 Biotech, 8:435 Q2 (IF 1.497)

29. Liana Noor Megashah, Hidayah Ariffin, Mohd Rafein Zakaria, Mohd Ali Hassan. **2018**. Properties of Cellulose Extract from Different Types of Oil Palm Biomass. *IOP Conf. Ser.: Mater. Sci. Eng.* 368 012049 (Scopus)

28. Liana Noor Megashah, Hidayah Ariffin, Mohd Rafein Zakaria, Yoshito Ando **2018**. Characteristics of cellulose from oil palm mesocarp fibres extracted by multi-step pretreatment methods. *IOP Conf. Ser.: Mater. Sci. Eng.* 368 012001 (Scopus)

27. Siti Jamilah Hanim Mohd Yusof, Ahmad Muhaimin Roslan, K N Ibrahim, Syarifah Soplah Syed Abdullah, Mohd Rafein Zakaria, Mohd Ali Hassan and Yoshihito Shirai. **2018**. Environmental performance of bioethanol production from oil palm frond petiole sugars in an integrated palm biomass biorefinery. I*OP Conf. Ser.: Mater. Sci. Eng.* 368 012004 (Scopus)

26. Pretreatment of Oil Palm Biomass for Fermentable Sugars Production. **2018**. Nur Fatin Athirah Ahmad Rizal, Mohamad Faizal Ibrahim, Mohd Rafein Zakaria, Suraini Abd-Aziz, Lai Yee Phang, Mohd Ali Hassan. *Molecules*, *23*, 1310. (IF 2.861)

25. Norlailiza Ahmad, Mohd Rafein Zakaria*, Mohd Zulkhairi Mohd Yusoff, Shinji Fujimoto, Hiroyuki Inoue, Hidayah Ariffin, Mohd Ali Hassan **2018**. Subcritical H_2O-CO_2 pretreatment of oil palm mesocarp fiber for xylooligosaccharide and glucose production. *Molecules* , *23*, 1310. Q2 (IF 2.861)

24. Nur Fatin Athirah Ahmad Rizal, Mohamad Faizal Ibrahim, Mohd Rafein Zakaria, Ezyana Kamal Bahrin, Suraini Abd-Aziz, Mohd Ali Hassan. **2018**. Combination of superheated steam with laccase pretreatment together with size reduction to enhance enzymatic hydrolysis of oil palm biomass. *Molecules*. 23 (4),811 Q2 (IF 2.861)

23. Mohammed Abdillah Ahmad Farid, Mohd Ali Hassan, Yun Hin Taufiq-Yap, Yoshihito Shirai, Mohd Rafein Zakaria*. **2017**. Utilization of biomass-derived bioadsorbent in purification of biodiesel produced from waste cooking oil. *J. Clean. Product.* 165,262-272. Q1 (IF 5.715)

22. Azam Fikri Taifor, Mohd Rafein Zakaria*, Mohd Zulkhairi Mohd Yusoff, Toshinari Maeda, Mohd Ali Hassan, Yoshihito Shirai. **2017**. Elucidating substrate utilization in biohydrogen production from palm oil mill effluent by *Escherichia coli. Int. J. Hydr. Energy.* 42, 5812-5819 Q1 (IF 3.205)

21. Zulnaim Dzulkurnain, Mohd Ali Hassan, Mohd Rafein Zakaria, Puteri Edaroyati Megat Wahab, Muhamad Yusuf Hassan, Yoshihito Shirai. **2017**. Co-composting of municipal sewage sludge and landscaping waste: pilot scale study. *Waste Biomass Valorization*. 8, 695-705. Q2 (IF 0.915)

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10. Member- COPYRIGHT: Manual biochar production using brick reactor system. **Filed 4 March 2023. LY2024W04753**

H. PROJEK PENYELIDIKAN TERKINI dan TERDAHULU *(Current and Past Research Project)*					
Consultation					
Project No.	***Project Title***	***Role***	***Year***	***Source of fund***	***Status***
UPMCS-	Kajian Keberkesanan Program Pembangunan Komuniti Pekebun Kecil	Member (RM 600,000)	Dec 2022-Feb 2024	***National-*** RISDA, Malaysia	Completed
UPMCS-	Selangor Biotechnology Action Plan 2020 – 2030	Member (RM 300,000)	Dec 2019-May 2020	***National-*** Invest Selangor Sdn. Bhd	Completed
UPMCS-	One-step self-sustained low-temperature carbonization of woodchips to produce a biochar-derived bioadsorbent	Member (RM 111,000)	May 2019 – Nov 2019	**National-** Worldwide Landfill Sdn. Bhd	Completed
	Total Grant (RM)	1,011,000			
UPMCS-	Research on the future of renewable energy and	Member (RM 140,000)	Jun 2018-	**International-** Mitsubishi	Completed

	palm oil industry in Malaysia		Mar 2019	Heavy Industries Asia Pasific	
UPMCS-	Collaborative research on the use of hydrothermal carbonization technology for treatment of oil palm biomass to be used in composting: part 1 - –preliminary study	Member (RM 140,000)	Nov 2018- Mar 2019	**International-** Mitsubishi Heavy Industries Asia Pasific	Completed
UPMCS-802	Research study on BRIS soil for maize plantation	**Leader** (RM 17,400)	Jan- Apr 2018	**National-** SB Sinergi Sdn Bhd	Completed
	Research Study on the Acceleration of Composting Process from Spent Rice Husk with Chicken Manure	Member	Feb 2018	**National-** Novozymes Malaysia Sdn Bhd	Completed
	Nanocellulose from tropical biomass	Member (RM 300,000)	Jan 2017- Dec 2019	**National-**	Completed
UPMCS	Survey on municipal solid waste composition, utilization and management in selected cities in Malaysia".	Member (RM 152,000)	Sept 2017- Mar 2018	**International-** Mitsubishi Heavy Industries Asia Pasific	Completed
UPMCS-757	Start-up and batch operations of co-composting of treated palm oil mill effluent sludge and empty fruit bunch at semi-commercial plant	**Leader** (RM 190,000)	Sep 2017- Mar 2018	**National-** TDM Plantations Sdn. Bhd	Completed
UPMCS	Torrefaction of oil palm biomass for alternative fuel	**Leader** (RM 152,000)	2017- April 2018	**National-** (Mitsubishi Heavy Industries Asia Pasific)	Completed
UPMCS	Research Study on Biofertilizer Pellets for Landscape Plants to support CJ Bio Malaysia's application to the Department of Environment for Special Management of Scheduled Waste (SW204 & SW411).	Member (RM 250,000)	2016 (6 months)	**National-** CJ Bio Malaysia Sdn. Bhd	Completed

UPMCS	Research study on the effectiveness of biofertilizer pellets for landscape plants	Member (RM 200,000)	2015 (2 years)	**National-** Indah Water Konsortium	Completed
UPMCS	Co-composting of landscaping wastes and domestic sewage sludge in pilot scale windrow and 10 m^3 bioreactor systems.	Member (RM 120,000)	2012 (2 years)	**National-** Indah Water Konsortium	Completed
Grants					
Project No.	***Project Title***	***Role***	***Year***	***Source of fund***	***Status***
	EVALUATION OF DROPLET DEPOSITION AND DRIFT ON PADDY FIELD USING A UNMANNED AERIAL VEHICLES (UAVS) SPRAYERS	Member (RM 50,000)	2024-2026	GP-IN PUTRA	In-progress
	Production and characterization of sophorolipids by *Candida* sp. using palm oil mill effluent sludge oil	**Leader** (RM 20,000)	2024-2026	GP-IPS	In-progress
	Streptomyces bioformulation for sustainable banana wilt disease management	Member (RM 30,000)	2022	GP-IPM	In-progress
	Cellulose composite as an eco-friendly and efficient coating materials for slow-release nitrogen-potassium (NPK) fertilizer	Member (RM 30,000)	2022	GERAN PUTRA BERFOKUS (GP-F)	In-progress
	Sustainable control of major rice diseases using formulated Streptomyces in rice field	Member (RM 138,000)	Sep 2020-Aug 2023	PRGS-MOHE	In-progress
	Prospects of phenolic compound(s) on altering the chemical composition, cell wall structure and inducing resistance in oil palm seedlings: An alternative basal stem rot management	Member (RM 131,800)			Completed
	Catalytic conversion of palm oil and its biomass	**Leader** (RM 349,698)	Dec 2020-	Private (Matching	Completed

	into green chemicals		Dec 2022	Funds)	
	Projek naik taraf fasiliti dan bangunan biokompos di TPU	**Leader** (RM 226,00/500,000)	2020-2022	Top-down (UPM)	Completed
IF1019E1159	Rhamnolipids biosurfactant production from waste glycerine and its potential application in agricultural industries	**Leader** (RM 257,000)	Mar 2020-August 2022	ICF-MOSTI	Completed
InnoHUB-UPM 9003273	Rhamnolipids as potential biofungicide in biological control of zoosporic plant pathogens	**Leader** (RM 70,000)	Oct 2019-Oct 2022	UPM	Completed
	Adsorptive removal of heavy metal ions from leachate final discharge using activated biochar-derived adsorbent from oil palm biomass	Member (RM 113,650)	Sep 2019-Dec 2021	FRGS-KPT	In-progress
	Utilization of Municipal Solid Waste for Bioenergy Production in Universiti Putra Malaysia Bintulu Campus	Member	Jan 2019-Dec 2020	GP-IPB	Completed
	Total grant (RM) as leader since 2019	**922,698.00**			
	Nanocellulose from tropical biomass	Member	Jan 2017-Dec 2019	HICoE	Completed
	Utilization of municipal solid waste for green energy in Universiti Putra Malaysia	Member	Nov 2017-Oct 2020	SWCorp	Completed
GP	Characterization of Biosugars Produced from Saccharification of Napier Grass Supplied with POME Final Discharge for the Production of Biochemical	Member (RM 46,000)	Nov 2017-Nov 2019	Geran Putra, UPM	Completed
9602100	Feasibility of oil palm empty fruit bunch-pressed oil and plam oil mill effluent sludge oil as cheaper carbon sources	**Leader** (RM 25,000)	Feb 2018-Feb 2019 (1 year)	Geran Putra IPS, UPM	Completed

	for biosurfactant production.				
9553700	Valorization of waste cooking oil and biodiesel side streams glycerine for sustainable production of biosurfactants by *Pseudomonas aeruginosa* strains	**Leader** (RM 94,000)	Sep 2017-Feb 2020	Geran Putra Berimpak	Completed
9502300	Elucidating xylooligosachharides formation from oil palm mesocarp fiber by hydrothermal pretreatment	**Leader** (RM 20,000)	2016-2017	Geran Putra IPS, UPM	Completed
9487800	Unravel biohydrogen production from palm oil mill effluent (POME) via anaerobic fermentation by E. coli BW25113	**Leader** (RM 20,000)	2016-2017	Geran Putra IPS, UPM	Completed
SATREPS	Promotion of green economy with palm oil industry for biodiversity conservation in Malaysia	Member (RM 2,980,000)	Sep 2014-Sep 2018	KYUTECH, JSPS, JICA, AIST, KPT	Completed
9385700	Isolation and characterization of a transposon mutant of *Comamonas* sp. EB172 enhancing the production of polyhydroxyalkanoic acid	**Leader** (RM 30,000)	2012 (1 year)	RUGS-UPM	Completed
	Total grant (RM)				

I. ID PUBLISHING *(Publishing ID)*		
	Author ID	***Name***
Scopus	55346979800	Zakaria, Mohd Rafein
ORC ID	http://orcid.org/oooo-0002-2698-615X	Zakaria, Mohd Rafein

J. RANGKAIAN SOSIAL *(Social Networking)*	
LinkedIn	https://www.linkedin.com/nhome/?trk=
Researchgate	https://www.researchgate.net/profile/Mohd_Rafein_Zakaria2
Google Scholar	https://scholar.google.com.my/citations?user=GkwQf5UAAAAJ&hl=en
Website url	http://profile.upm.edu.my/mohdrafein

K. SUPERVISION OF STUDENTS

PHD			
Name	*Role*	*Project Title*	*Status*
1-Yuya Hashiguchi	**Chairman**	Toxicity identification evaluation of palm oil mill effluent final discharge and its effect on aquatic organisms	Completed -2020
2-Siti Jamilah Hanim Mohd Yusof	Member	Development of biorefinery process to produce bioethanol from oil palm frond.	Completed -2020
3-Liana Nor Megashah	Member	Non-chlorinated cellulose nanofiber production from oil palm biomass.	Completed -2021
4- Abubakar Abdullahi Lawal	Member	Evaluation of adsorption properties of oil palm fronds derived bioadsorbent for removal of organic pollutants	Completed -2021
5- Mohd Idham Hakimi Razali	Member	Development of nano-porous biochar from oil palm trunk as bio-adsorbents	Ongoing
6- Syazwani Mahamad	**Chairman**	Scale up of Production of Rhamnolipids by *Pseudomonas aeruginosa* RS6 using Biodiesel Side Stream Glycerol	Ongoing
7- Al Qassab Ali Abdulkareem Ridha	Member	Study of heterogeneous nanobiocatalysts for biodiesel production from waste cooking oil	Ongoing
8- Zee Kar Mun	**Chairman**	Scale up of Production of Rhamnolipids by *Pseudomonas aeruginosa* RW9 using used cooking oil	Ongoing
9- Manemegalai Suria Gandi	**Chairman**	Rhamnolipid and essential oil loaded nanoemulsion and its synergistic effect on antifungal activities against *Ganoderma boninense* and *Rigidoporus microporous*	Ongoing
10- Al Azzawi Abdulqader Ghaleb Naser	Member	Design and manufacture a system to monitor the composting process in realtime by using IoT and artificial intelligence, and testing its efficiency in the field	Ongoing
11- Rafi Amara	Member	Development of ginger essential oil-loaded nanoemulsions bactericide for effective control of bacterial heart rot disease of pineapple	Ongoing
12- Aliyu Awal	**Chairman**	Assessing the effectiveness of phytoremediation potential of *Parthenium* sp. using *Pseudomonas aeruginosa* as a bio-fertilizer on soil contaminated with petroleum hydrocarbon in coastal regions of Nigeria	Ongoing
13- Chin Sze Jie	**Chairman**	Production and characterization of sophorolipids by *Candida* sp. using palm oil mill effluent sludge oil	Ongoing
14-			
MSc			
1- Nordiayana Nordin.	Member	Characterization and production of biosurfactant by isolated *P. aeruginosa* RS6.	Completed - 2015

2- Nur Haziqah Aniyah Salihan	Member	Performance of B-glucosidase produced by *Ganoderma lucidum* using waste substrate as a carbon source.	Completed - 2015
3- Zulnaim Dzulkurnain	Member	Co-composting of municipal sewage sludge and landscaping waste by pilot scale system and the application of compost to an ornamental plant.	Completed - 2017
4- Nurhajirah Mohamed Biran	Member	Construction of knock-outs mutants of *Escherichia coli* BW25113 for improved polyhydroxyalkanoates production.	Completed - 2018
5- Muhammad Azman Zakaria	Member	Pseudogene product YqiG is important for pflB expression and biohydrogen production in *E. coli* BW25113.	Completed - 2018
6- Azam Fikri Taifor	**Chairman**	Application of metabolic-engineered Escherichia coli strains to enhance biohydrogen production from palm oil mill effluent	Completed -2018
7-Norlailiza Ahmad	**Chairman**	Subcritical H_2O-CO_2 pretreatment of oil palm mesocarp fiber for xylooligosaccharide and biosugars production.	Completed -2018
8- Khairiatul Nabilah Jansar-	Member	Production of glucose from oil palm biomass using hydrothermal pretreatment.	Completed - 2018.
9- Nur Fatin Athirah Ahmad Rizal	Member	Effect of physic-chemical and biological pretreatment of oil palm biomass for fermentable sugars production.	Completed - 2018
10- Nur Aina Natasha	**Chairman**	Production and characterization of a biosurfactant produced by *P. aeruginosa* from sludge oil and pressed empty fruit bunch.	Ongoing
11- Shobanah Menon Baskaran	**Chairman**	Production and characterization of a biosurfactant produced by *P. aeruginosa* from biodiesel side stream glycerine.	Completed - 2020
12- Qurratu Ain Shafizam	**Chairman**	Perspective of academic researchers oncollaboration with industries to increase commercialization rate of biotechnology In Malaysia	Completed - 2022
13- Ahmad Aiman Zulkifli	Member	Utilization of MSW for green energy in UPM	Ongoing
14. Adieya Atyrrah Adnan	**Chairman**	Rhamnolipid biosurfactant as potential antifungal agent against plant pathogenic fungi	Ongoing
15. Siti Ashida Asri	Member	Aloe vera gel infused Saba banana starch-based polylactic acid to enhance the biodegradability and biocompatibility of medical grade plastic	Ongoing
Undergraduate			

1- Nur Idayu Zahari	Chairman	Isolation and characterization of lipase-producing bacteria.	Completed - 2013
2-Fairuzana Jaafar	Chairman	Screening, isolation, and characterization of protease-producing microorganisms.	Completed - 2013
3-Khyruz Tasyriq Abu Samah	Chairman	Extraction, production, and optimization of rhamnose from Pomelo peel.	Completed - 2013
4-Nor Salwa Alhana Ahmad Fozi	Chairman	Isolation and screening of hemicellulose degrading bacteria.	Completed - 2016
5-Nurul Hidayah Jamaluddin	Chairman	Isolation and screening of cellulose-degrading bacteria.	Completed - 2016
6-Pang Lih Min	Chairman	Optimization of rhamnolipid production by Pseudomonas aeruginosa RW9 using waste frying oil.	Completed - 2017
7-Abdullah Hadi Ahmad Suhairun	Chairman	Identification of cellulase and he26tewartia26oseroducing bacteria	Completed - 2017
8-Nur Farzana Izzati Mohd Jaslina	Chairman	Optimization of biosurfactant production from waste glycerine by *Pseudomonas aeruginosa* RS6.	Completed - 2017
9-Diah Erninda Idris	Chairman	Biosurfactant production by *Pseudomonas aeruginosa* RS6 using waste glycerol as a substrate.	Completed - 2018
10-Nur Alya Syafinaz Mohd Nasir.	Chairman	Antibacterial properties of biosurfactant produced by *Pseudomonas aeruginosa* RW9 against *Pantoa ananatis*.	Completed -2019
11-Ahmad Syafiq Mukhlis Ahmad Sabri.	Chairman	Antimicrobial potential of rhamnolipids produced by *Pseudomonas aeruginosa* RS6 against *Pantoa st26tewartia*	Completed -2019
12- Muhammad Haikal Iman Ab Halim	Chairman	Isolation and screening of biosurfactant producing bacteria from oil-contaminated soil	Completed -2020
13- Nurfariesya Farhana Shaharfuddin	Chairman	Characterization of locally isolated biosurfactant producing bacteria by phenotypic approach	Completed -2020
14- Yew Jing Lam	Chairman	Isolation and screening of biosurfactant producing bacteria from petroleum refinery wastewater	Completed -2020
15- Muhammad Afiq Asha'ri	Chairman	Farmers' perception and awareness regarding biopesticide usage in Malaysia	Completed - 2021
16- Izzah Nurfarahiyah Md Isa	Chairman	The efficiency of rhamnolipid produced by *P. aeruginosa* RS6 as a biopesticide in controlling fungal pathogens on cucumber plants	Completed - 2021
17- Muhammad Imran Hussin	Chairman	The efficiency of rhamnolipid produced by *Pseudomonas*	Completed - 2022

		aeruginosa RS6 as a biopesticide in controlling fungal pathogens on cash crop plants	
18- Zulhilmi Zuhairie Muhammad	Chairman	The willingness of farmers on the application of biobased pesticides for agricultural crops.	Completed - 2022
19- Chin Sze Jie	Chairman	Effects of pH, temperature, ionic strength and storage on rhamnolipids as emulsifying agents for neem oil formulations	Completed -2023
20- Ashwini Navalan	Chairman	Rhamnolipids as emulsifying agent for neem oil formulation.	Completed -2023
21- Nurul Syazwani Noor Zelan	Chairman	Antifungal properties of rhamnolipids biofungicides against plant pathogens	Completed -2023
22- Siti Nurhafiza Mustapa	Chairman	Biocontrol of *Fusarium* wilt in tomato: disease suppression by *Pseudomonas aeruginosa* RS6 and its impact on postharvest quality	Completed 2024
23- Aisyah Mohammad	Chairman	Isolation and screening of sophorolipids-producing yeast from contaminated soils	Completed 2024
24- Liew Jin Ying	Chairman	Optimisation of rhamnolipids production by *Pseudomonas aeruginosa* RW9 by using different nitrogen sources	Ongoing
25- Khairunnisa Atiqah Abdullah	Chairman	Isolation and screening of sophorolipids-producing yeast from bee hives	Ongoing
26- Nur Shahirah Shamsudidn	Chairman	Isolation and screening sophorolipids producing yeast from flowers	Ongoing
Supervision of Intern			
1-**Nalahyini Kumar**. BSc (Biotechnology) (Hons.) Manipal International University (MIU), No 1, MIU Boulevard, 71800, Putra Nilai, Negeri Sembilan Darul Khusus. **13th February 2017** till **21st April 2017** (10 weeks).			
2-Anuja Selvadurai. BSc (Biotechnology) (Hons.) Manipal International University (MIU), No 1, MIU Boulevard, 71800, Putra Nilai, Negeri Sembilan Darul Khusus. **29th January 2018** till **6th April 2018** (10 weeks).			
3-Divieya Nadrraja BSc (Biotechnology) (Hons.) Manipal International University (MIU), No 1, MIU Boulevard, 71800, Putra Nilai, Negeri Sembilan. **29th January 2018** till **6th April 2018** (10 weeks).			
4-			

L. ***PhD/MSc/ Thesis and VIVA Examiner***	
	Chairman
1.	***MSc-*** Size separation of silver nanoparticles using density gradient centrifugation and agarose gel electrophoresis. Universiti Putra Malaysia. ***Chairman, May 2021***
2.	***MSc-*** Planting media and fertilizer supplemented with biochar for promoting the growth and development of oil palm seedlings. Universiti Putra Malaysia. ***Chairman, Jul 2024.***
3.	***MSc-*** Unveiling potential greenhouse gas reduction through municipal solid waste

	management and anaerobic digestion system. Universiti Putra Malaysia. ***Chairman, Jul 2024.***
	Examiner (Internal/ External)
1.	***PhD***- Biosynthesis of carbohydrate and lipid in *Chlorella vulgaris* for biofuel feedstock production. Universiti Perguruan Sultan Idris. **External examiner. Dec 2019.**
2.	***MSc*** – Biomethane production from acidified palm oil mill effluent in thermophilic anaerobic sequential batch reactor. Universiti Kebangsaan Malaysia. **External examiner. Mar 2020.**
3.	***MSc*** – Biodegradation and decolorization of metanil yellow dye by free and immobilized bacterial cells. Universiti Putra Malaysia. **Internal examiner. Mar 2021.**
4.	***PhD***- Adsorption of Evans blue dye (direct blue-53) using durian husk as a low-cost biosorbent: an alternative approach for textile dye effluent treatment. Universiti Putra Malaysia. **Internal examiner. Nov 2021.**
5.	***MSc- P***henolic compounds enhance the physical barrier and suppress the growth of *Ganoderma boninense*. Universiti Putra Malaysia. **Internal examiner. Apr 2022.**
6.	***MSc***- Acute toxicity study of zinc (Zn) to the juvenile red tilapia. Universiti Putra Malaysia. **Internal examiner. Jan 2023.**
7.	***PhD-*** Integration of thickening-agglomeration, adsorption and phytoremediation processes for the treatment of coffee processing industry effluents and the acquisition of value-added products. Universiti Kebangsaan Malaysia. **External examiner. Sep 2023.**
8.	***PhD –*** Biosynthesis and optimization of P(3HB-*co*-3HV-*co*-4HB) terpolymer using glycerin residue as single carbon source. Universiti Sains Malaysia. **External examiner. Oct 2023.**
9.	***MSc-*** Equilibrium, kinetic, and thermodynamic studies of the biosorption of malachite green on coconut shell activated carbon in seawater. Universiti Putra Malaysia. **Internal examiner. Sep 2024.**
10.	***PhD-*** Proses fitoremediasi-mikoremediasi hidrokarbon petroleum dan potensi penghasilan produk sekunder daridapa tumbuhan perawat. Universiti Kebangsaan Malaysia. **External examiner. Sep 2024.**

C. Professional Societies	
	Author ID
1.	*Member*- Malaysia Society for Microbiology- **National**. Since 2014-
2.	*Member*- Asian Federation of Biotechnology- **International**. Since 2014-
3.	Member Persatuan Pegawai Akademik Universiti Putra Malaysia. **National**. Since 2015
4	Member- High-Value Biorenewable (HVB)-Network, **International.** University of York, UK. Since 2019.
5.	Member- Environmental Biotechnology-Network, **International.** UK. Since 2019.
6.	Member- BioVale, **International.** UK. Since 2021.
7.	Member- Biomass Biorefinery Network (BBNet), **International.** UK. Since 2021.
8.	Member- Japanese Society for Tropical Agriculture, **International.** Japan. Since 2023.

Courses Taught from 2015-now

Undergraduate Course

No.	Course	Sem/ Year	Number of Students	Teaching Performance/Student Education of Teaching Rating
1.	Waste Management and Utilization	2-2016/2017	47	4.86/5
		1-2017/2018	59	4.65/5
		2-2017/2018	48	4.68/5
2.	Biotechnology in Bioeconomy	1-2019/2020	30	4.52/5
		2-2021/2022	9	4.7/5
3.	Solid Waste Treatment Technology	2-2015/2016	26	4.82
		1-2017/2018	7	4.69/5
		2-2017/2018	18	4.72/5
		1-2018/2019	9	4.89/5
		1-2019/2020	20	4.85/5
		1-2020/2021	8	4.56/5
		1-2022/2023	7	4.68/5
4.	Wastewater Treatment Technology	1-2016/2017	24	4.77/5
		1-2017/2018	26	4.79/5
		2-2022/2023	33	4.6/5
		2-2022/2023	19	

Postgraduate Course

No.	Course	Sem/ Year	Number of Students	Teaching Performance/Student Education of Teaching Rating
1.	Hazardous Waste Management	1-2022/2023	16	4.63/5
2.	Environmental Biotechnology & Sustainability	2-2022/2023	16	4.63/5
3.	Scientific Writing in Biotechnology	2-2022/2023	24	45.4/5