

DZUN NORAINI BINTI JIMAT



- KULLIYAH OF ENGINEERING
- IIUM Gombak Campus
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ACADEMIC QUALIFICATION

- Doctor of Philosophy in Chemical Engineering and Advanced Materials
- Master of Science in Biochemical Engineering
- Bachelor of Engineering (Chemical Engineering)

TEACHING RESPONSIBILITIES

ADVANCED BIOSEPARATION PROCESSES	2016/2017
ADVANCED BIOSEPERATION PROCESSES	2016/2017 2017/2018 2018/2019 2019/2020
BIOCHEMICAL ENGINEERING FUNDAMENTALS	2011/2012 2012/2013 2013/2014 2014/2015 2015/2016 2016/2017
BIOCHEMICAL PROCESSES	2005/2006 2011/2012 2012/2013 2013/2014
BIOLOGICAL REACTOR DESIGN AND ANALYSIS	2010/2011
BIOTECHNOLOGY ENGINEERING LAB IV	2012/2013
FINAL YEAR PROJECT II	2018/2019
FOOD PROCESS ENGINEERING	2006/2007
INTEGRATED DESIGN PROJECT	2018/2019
PROCESS PLANT DESIGN & SAFETY	2017/2018
PROJECT I	2012/2013 2019/2020
PROJECT II	2013/2014 2014/2015 2015/2016 2018/2019
SEMINAR I	2011/2012
SEPARATION PROCESSES FOR BIOCHEMICAL PRODUCTS	2004/2005 2005/2006 2006/2007 2010/2011
SEPARATION PROCESSES II	2014/2015 2016/2017 2017/2018 2018/2019 2019/2020 2020/2021
THERMODYNAMICS	2004/2005 2011/2012

RESEARCH PROJECTS

In Progress

- 2020 - Present** Research Management Centre Edible Garden Makeover
- 2019 - Present** Investigating the immobilization of silver nanoparticle (AgNP) catalyst on activated carbon (AC) derived from durian's skin.
- 2019 - Present** Development of nanocomposite hydrogel reinforced with nanocellulose of empty fruit bunch (EFB) incorporated with natural antimicrobial agent potential for wound healing dressing
- 2018 - Present** Extraction Mechanism of Virgin Coconut oil from Solid Coconut Waste using Microwave-Assisted Extraction
- 2018 - Present** A novel technique of orienting chitin nanofiber using directed growth of fungi for enhanced bionanocomposite mechanical performance.
- 2018 - Present** A novel technique of orienting chitin nanofiber using directed growth of fungi for enhanced bionanocomposite mechanical performance.
- 2016 - Present** Development of bionanocomposite reinforced with sugarcane bagasse nanocellulose and incorporated with natural antimicrobial agent for food packaging applications
- 2016 - Present** Renewable Chitin-based Nanomaterials from Mushroom Waste: Investigating the Effect of Decoloration on Resulting Chitin Thin Film
- 2016 - Present** Lysozyme Loaded Core Shell CuZnO Nanospheres as Superior Antimicrobial Agent
- 2006 - Present** Bio-Process and Molecular Engineering Research Unit (BPMERU)
- Unknown - Present** ESTABLISHING NURSERY AND SOCIAL ENTERPRISE FOR MALAYSIA RARE FRUIT TREES SEEDLING TO EMPOWER THE INDIGENOUS PEOPLE OF KAMPUNG SUNGAI DUA OLAK, PAHANG
- Unknown - Present** Development of Sustainable Adsorbent for Water Treatment from agricultural residues
- Unknown - Present** Preparation of multifunctional porous carbon fiber aerogel from sugarcane bagasse and waste engine oil by pyrolysis for water treatment
- Unknown - Present** The Investigation of A New Rapid Screening Approach of Nanocellulose Via Infrared and Chemometrics

Completed

- 2016 - 2020** Development of bionanocomposite reinforced with sugarcane bagasse nanocellulose and incorporated with natural antimicrobial agent for food packaging applications
- 2016 - 2020** Development of bionanocomposite reinforced with sugarcane bagasse nanocellulose and incorporated with natural antimicrobial agent for food packaging applications

- 2016 - 2020** Renewable Chitin-based Nanomaterials from Mushroom Waste: Investigating the Effect of Decoloration on Resulting Chitin Thin Film
- 2016 - 2020** Lysozyme Loaded Core Shell CuZnO Nanospheres as Superior Antimicrobial Agent
- 2013 - 2016** Isolation and Characterization of Microfibrillated Cellulose (MFC) Obtained from Cocoa Pod Husks Treated via Fungal Pretreatment Combined with Homogenization
- 2013 - 2017** Novel Modelling Of A Bio-Analysis Platform (Biochip) With The Integrated Dielectrophoresis (Dep) And Magnetophoresis (Map) Forces For Particles Manipulations.
- 2013 - 2016** Isolation, Purification and Characterization of Anti-Microbial Peptides of Low Molecular Weight from Non- and Immunized Super Meal Worm (*Zophobas morio Fabricus*)
- 2012 - 2015** Isolation and Characterization of Bacterial Strain Producing L-Asparaginase from Local Hot Spring
- 2012 - 2013** Isolation of thermophilic cyanobacteria from local hot spring water or sea beach for poly-hydroxybutyrate(PHB)Production
- 2012 - 2016** Production of CLEA-Hydrolases and COMBI-CLEA-Hydrolases from the skim latex of *Hevea brasiliensis*
- 2012 - 2014** Isolation of Fungi Producing Cellulases from Cocoa Pod Husk.
- 2012 - 2016** Identification, Purification and Characterization of Tetrathionate Hydrolase from *Thiobacillus Ferrooxidans*, an Enzyme Responsible for Enzymatic Devulcanization of Waste Rubber Products
- 2011 - 2013** RU 2011: Identification and Extraction of Malaysian plants for Antifungal Activity Compounds
- 2011 - 2014** Enhancement of Co₂ Mitigation of Cyanobacteria Potential for Biofuel Production
- 2005 - 2009** Purification of Monoclonal Antibody (Mouse IgG): Designing Optimization of Yield Using Chromatographic Techniques

PUBLICATIONS

Article

- 2021** [Characterisation and production of Poly \(Lactic/Acid\)/poly \(Ethylene Glycol\) microfiber via melt drawn spinning process.](#) IIUM Engineering Journal , 22 (1) pp.201-212
- 2020** [Statistical analysis of growth conditions of newly isolate bacillus sp producing L- asparaginase.](#) IIUM Engineering Journal , 21 (2) pp.67-79
- 2020** [Statistical analysis of growth conditions of newly isolate bacillus sp. producing L- Asparaginase.](#) IIUM Engineering Journal , 21 (2) pp.67-79

- 2020** [Effect of \$\gamma\$ -methacryloxypropyltrimethoxysilane \(MPS\) and tetraethoxysilane \(TEOS\) towards preparation of oil absorbent foams from polyvinyl alcohol \(PVA\) reinforced with microfibrillated cellulose \(MFC\).](#) Journal of Renewable Materials , 8 (7) pp.739-757
- 2020** [Preliminary study on formulation of pva-based face mask incorporated with sugarcane bagasse microfibrillated cellulose.](#) Biological And Natural Resources Engineering Journal , 3 (1) pp.7-13
- 2019** [Physicochemical characteristics of bionanocomposites, polycaprolactone/starch/cocoa pod husk microfibrillated cellulose.](#) Journal of Advanced Research in Fluid Mechanics and Thermal Sciences , 55 (2) pp.199-208
- 2018** [Screening of parameters for solid-state fermentation of *Aspergillus niger* producing cellulose using sugarcane bagasse as substrate.](#) Biological and Natural Resources Engineering Journal , 1 (1) pp.26-35
- 2018** [Optimization of high-pressure processing in extraction of astaxanthin from *Penaeus monodon* carapace using response surface methodology.](#) Journal of Food Process Engineering , 41 (8)
- 2018** [Comparison between high-pressure processing and chemical extraction: Astaxanthin yield from six species of shrimp carapace.](#) Journal Of Dietary Supplements , 15 (6) pp.805-813
- 2018** [Isolation and identification of bacteria-producing cellulose from tropical fruit for Halal capsule application.](#) International Journal on Advanced Science, Engineering and Information Technology , 8 (4-2) pp.1591-1596
- 2017** [Influence of operating variables on the in-situ transesterification using \$\text{CaO}/\text{Al}_2\(\text{SO}_4\)_3\$ derived from waste.](#) Journal of Advanced Research in Fluid Mechanics and Thermal Sciences , 40 (1) pp.1-6
- 2017** [Statistical optimization of gelatin immobilization on modified surface PCL microcarrier to improve PCL microcarrier compatibility.](#) Jurnal Teknologi , 79 (6) pp.167-175
- 2017** [Statistical optimization of gelatin immobilisation on modified surface of PCL microcarrier to improve its compatibility.](#) Jurnal Teknologi , 79 (6) pp.167-175
- 2017** [Purification and partial characterization of L-asparaginase enzyme produced by newly isolated *Bacillus* sp.](#) IIUM Engineering Journal , 18 (2)
- 2017** [Characterization of biodegradable composite based on polycaprolactone/starch reinforced with sugarcane bagasse microfibrillated cellulose.](#) Journal of Advanced Research in Materials Science , 39 (1) pp.32-39
- 2017** [Protease purification from *Bacillus amyloliquefaciens* B7 using Aqueous Two-Phase System \(ATPS\).](#) International Food Research Journal (IFRJ) , 24 (Suppl.) pp.S292-S297
- 2017** [Antioxidant and antimicrobial activities of astaxanthin from *Penaeus monodon* in comparison between chemical extraction and High Pressure Processing \(HPP\).](#) International Food Research Journal (IFRJ) , 24 pp.508-513
- 2017** [Optimization of ultraviolet ozone treatment process for improvement of polycaprolactone \(PCL\) microcarrier performance.](#) Cytotechnology , 69 (4) pp.601-616

- 2017** [Isolation and identification of halophilic bacteria producing halotolerant protease.](#) Galeri Warisan Sains , 1 (1) pp.07-09
- 2017** [Statistical optimization of gelatin immobilisation on modified surface PCL microcarrier to improve PCL microcarrier compatibility.](#) Jurnal Teknologi , 79 (6) pp.167-175
- 2017** [Panus tigrinus as a potential biomass source for reactive blue decolorization: isotherm and kinetic study.](#) Electronic Journal of Biotechnology , 24 (15) pp.7-11
- 2016** [Turbidity and suspended solids removal from highstrength wastewater using high surface area adsorbent: mechanistic pathway and statistical analysis.](#) Cogent Engineering , 3 (1) pp.1162384-1-1162384-18
- 2016** [Effect of fungal pretreatment by *Aspergillus niger* assisted by ultrasonication on microfibrillated cellulose obtained from cocoa pod husk .](#) Journal of Advanced Research in Material Sciences , 21 (1) pp.1-13
- 2016** [Extraction of microcrystalline cellulose \(MCC\) from cocoa pod husk via alkaline pretreatment combined with ultrasonication.](#) International Journal of Applied Engineering Research , 11 (19) pp.9876-9879
- 2016** [Co-production of lactic acid and ethanol using rhizopus sp. From hydrolyzed inedible cassava starch and leaves.](#) IJUM Engineering Journal , 17 (2) pp.1-10
- 2015** [A two-step optimization and statistical analysis of COD reduction from biotreated POME using empty fruit bunch-based activated carbon produced from pyrolysis.](#) Water Quality, Exposure and Health , 7 (4) pp.603-616
- 2015** [Isolation and characterization of thermophilic bacteria producing L-Asparaginase from Malaysia hot spring and enzyme activity using different carbon and nitrogen sources.](#) Journal of Applied Science and Agriculture , 10 (5(spe)) pp.69-77
- 2015** [Screening cellulolytic fungi isolated from Malaysia cocoa pod husk and its culture conditions for cellulases production.](#) Journal of Tropical Resources and Sustainable Science (JTRSS) , 3 pp.185-190
- 2015** [Determination of waste assimilative capacity \(WAC\) of rivers located within the Desaru Region, Johor.](#) Environment Protection Engineering , 41 (4) pp.49-60
- 2014** [Expression of segment a of infectious bursal disease virus in pichia pastoris.](#) Journal of Pure and Applied Microbiology , 8 spl pp.875-879
- 2014** [Morphological synthesis and environmental application of ZSM-5 zeolite crystals from combined low-water and fluoride syntheses routes.](#) Advances in Environmental Biology , 8 (3) pp.613-625
- 2014** [Optimization on cell disruption of *E. coli* BL21-AI expressing recombinant bromelain.](#) Journal of Pure and Applied Microbiology , 8 (s.ed 1) pp.797-802
- 2014** [Mutagenesis on cyanobacteria for high CO₂ uptake: a review.](#) Journal of Pure and Applied Microbiology , 8 (Issue SPEC. ISS. 1) pp.761-768
- 2014** [Comparative and optimization studies of adsorptive strengths of activated carbons produced from steam- and CO₂-activation for BPOME treatment.](#) Advances in Environmental Biology , 8 (3) pp.603-612

- 2013** [Purification of antibacterial compounds from spathiphyllum cannifolium leaf.](#) Der Pharma Chemica , 5 (1) pp.350-357
- 2013** [Boiler-feed and process water reclamation from Biotreated Palm Oil Mill Effluent \(BPOME\): A developmental review .](#) Chemical and Biochemical Engineering Quarterly , 27 (4) pp.477-489
- 2013** [Zero liquid discharge and water conservation through water reclamation & reuse of biotreated palm oil mill effluent: A review.](#) International Journal of Academic Research , 5 (4) pp.170 -183

Conference or Workshop Item

- 2020** [Review: a comparison of conditions for the extraction of vegetable and essential oils via microwave-assisted extraction.](#) In: **26th Regional Symposium on Chemical Engineering (RSCE 2019@ Kuala Lumpur)**
- 2018** [Isolation and identification of bacteria-producing cellulose from tropical fruit for Halal capsule application.](#) In: **International Conference on Halal Innovation in Products and Services 2018 (i-CHIPS 2018)**
- 2018** [Surface functionalisation of Microfibrillated Cellulose \(MFC\) of cocoa pod husk with \$\gamma\$ -Methacryloxypropyltrimethoxysilane \(MPS\).](#) In: **The 3rd International Conference on Green Chemical Engineering and Technology (GCET 2017)**
- 2018** [Evaluation of water absorption of polyvinyl alcohol-starch biocomposite reinforced with sugarcane bagasse nanofibre: Optimization using two-level factorial design.](#) In: **Wood and Biofiber International Conference (WOBIC2017)**
- 2018** [Antimicrobial properties of composite film based polyvinyl alcohol/starch/nanocellulose from sugarcane bagasse coated with essential oil.](#) In: **5th International Conference on Biotechnology Engineering (ICBioE 2018)**
- 2018** [Isolation and screening of newly isolated bacteria producing nanocellulose from rotten banana skin and sugarcane bagasse.](#) In: **5th International Conference on Biotechnology Engineering (ICBioE 2018)**
- 2016** [Comparison study on characteristics of Microfibrillated Cellulose \(MFC\) extracted from cocoa pod husk and sugarcane bagasse .](#) In: **4th International Conference on Biotechnology Engineering 2016 (ICBioE 2016)**
- 2016** [Statistical optimization of gelatin immobilization to improve PCL microcarrier surface.](#) In: **4th International Conference on Biotechnology Engineering 2016 (ICBioE 2016)**
- 2016** [Characterization of biodegradable composite based on polycaprolactone/starch reinforced with sugarcane bagasse microfibrillated cellulose.](#) In: **4th International Conference on Biotechnology Engineering 2016 (ICBioE 2016)**
- 2016** [Protease purification from Bacillus amyloliquefaciens B7 using aqueous two phase system .](#) In: **4th International Conference on Biotechnology Engineering 2016 (ICBioE 2016)**
- 2015** [Screening of parameters for hydrolysis of sugarcane bagasse with Aspergillus niger for Microcrystalline Cellulose \(MCC\) production.](#) In: **Asian Congress on Biotechnology 2015 (ACB 2015)**

- 2015 [Modification of Polycaprolactone microspheres surface by ultra violet/ozone treatment to improve its hydrophilicity.](#) In: **1st UMM International Conference on Pure and Applied Research (UMM-ICoPAR)**
- 2015 [Extraction of microcrystalline cellulose \(mcc\) from cocoa pod husk via alkaline pretreatment combined with ultrasonication.](#) In: **28th Symposium of Malaysian Chemical Engineers (SOMChE 2015)**
- 2015 [Isolation and identification of halophilic bacteria producing halotolerant protease.](#) In: **International Conference on Advancement in Science and Technology (iCAST 2015) - 'Frontiers in Biotechnology'**
- 2015 [Process improvement on the production of microfibrillated cellulose using fungal pretreatment and ultrasonication.](#) In: **Asian Congress on Biotechnology 2015 (ACB 2015)**
- 2015 [Comparison of high pressure processing with chemical method to characterize astaxanthin profile from various species of shrimp carapace.](#) In: **Asian Congress on Biotechnology 2015 (ACB 2015)**
- 2014 [Modelling of membrane fouling in ultrafiltration of Adsorbed Biotreated Palm Oil Mill Effluent \(ABPOME\).](#) In: **The 27th International Symposium on Chemical Engineering (ISChE 2014)**
- 2013 [Screening of process parameters for CO2 mitigation by using mutant Synechococcus sp. PCC 7002.](#) In: **National Conference of Industry-Academia Initiatives in Biotechnology (CIA-Biotech13)**
- 2013 [Screening of the process parameters for lipid production using mutant Synechococcus sp. PCC 7002.](#) In: **National Conference on Industry-Academia Joint Initiatives in Biotechnology 2013**
- 2013 [Treatment of biotreated palm oil mill effluent using powdered activated carbon produced from palm empty fruit bunch.](#) In: **3rd International Conference on Biotechnology Engineering (ICBioE 2013)**
- 2013 [Synthesis of ZSM-5 Zeolite from low-water/fluoride route for the treatment of petroleum industry effluent.](#) In: **3rd International Conference on Biotechnology Engineering (ICBioE 2013)**
- 2013 [Process optimization on cell disruption of recombinant bromelain expressed in E. coli BL21-AI using ultrasonication.](#) In: **International Conference on Biotechnology Engineering (ICBioE 2013)**
- 2013 [Isolation of fungi producing Cellulases from Cocoa Pod \(Theobroma Cacao L.\).](#) In: **IIUM Engineering Congress 2013 (ICOM '13)**
- 2012 [Optimization of cell disruption for recombinant bromelain using high pressure homogenizer \(HPH\) for commercial production COMMERCIAL PRODUCTION.](#) In: **Malaysian International Conference on Trends in Bioprocess Engineering (MICOTriBE 2009)**
- 2012 [Production of alpha-amylase by immobilized bacillus subtilis in polymeric polyhipe matrix.](#) In: **4th International Conference on Chemical and Bioprocess Engineering (ICCBPE 2012)**

2012 [Production of lactic acid from fermentation of pretreated cassava starch and leaves using *Rhizopus* sp.](#) In: **15th International Biotechnology Symposium & Exhibition (IBS 2012)**

2010 [Improve product quantity of aromatase inhibitor from *Nicotiana tabaccum* by metabolic engineering technique.](#) In: **National Biotechnology Seminar 2010**

Book

2018 [Multifaceted protocol in biotechnology.](#) Springer Nature . ISBN 978-981-13-2256-3

Book Section

2020 [Isolation of Nanocellulose Fibers \(NCF\) from cocoa pod \(*Theobroma cacao* L.\) via chemical treatment combined with ultrasonication.](#) In: **Advances in nanotechnology and its applications** Springer, Singapore . ISBN 978-981-15-4741-6 , pp.97-105

2018 [Site-directed mutagenesis on plasmid using polymerase chain reaction.](#) In: **Multifaceted protocol in biotechnology** Springer Nature . ISBN 978-981-13-2256-3 , pp.1-12

2018 [Site-directed mutagenesis on plasmid using polymerase chain reaction.](#) In: **Multifaceted protocol in biotechnology** Springer Nature . ISBN 978-981-13-2256-3 , pp.1-12

2018 [Characterization of conformational and oligomeric states of proteins.](#) In: **Multifaceted protocol in biotechnology** Springer Nature Singapore . ISBN 978-981-13-2256-3 , pp.167-178

2018 [Isolation of halophilic bacteria.](#) In: **Multifaceted protocol in biotechnology** Springer Nature . ISBN 978-981-13-2256-3 , pp.13-22

2018 [Construction of metagenomic DNA libraries and enrichment strategies.](#) In: **Multifaceted protocol in biotechnology** Springer Nature . ISBN 978-981-13-2256-3 , pp.23-42

2018 [Construction of metagenomic DNA libraries and enrichment strategies.](#) In: **Multifaceted protocol in biotechnology** Springer Nature . ISBN 978-981-13-2256-3 , pp.23-42

2018 [Thermotolerant bacteria producing fibrinolytic enzyme.](#) In: **Multifaceted protocol in biotechnology** Springer Nature . ISBN 978-981-13-2256-3 , pp.43-52

2018 [Chemical mutation method for high CO₂- requiring- mutants of the *Cyanobacterium Synechococcus* sp. PCC 7002.](#) In: **Multifaceted protocol in biotechnology** Springer Nature . ISBN 978-981-13-2256-3 , pp.53-62

2018 [Chemical mutation method for high CO₂- requiring- mutants of the *Cyanobacterium Synechococcus* sp. PCC 7002.](#) In: **Multifaceted protocol in biotechnology** Springer Nature . ISBN 978-981-13-2256-3 , pp.53-62

2018 [Carrier-free enzyme immobilization by cross-linked enzyme aggregates \(CLEA\) technology.](#) In: **Multifaceted protocol in biotechnology** Springer Nature . ISBN 978-981-13-2256-3 , pp.93-108

2018 [Integrated data analysis model for screening cell line producer.](#) In: **Multifaceted protocol in biotechnology** Springer Nature . ISBN 978-981-13-2256-3 , pp.227-234

- 2018** [Isolation of microfibrillated cellulose \(MFC\) via fungal cellulases hydrolysis combined with ultrasonication.](#) In: **Multifaceted protocol in biotechnology** Springer Nature . ISBN 978-981-13-2256-3 , pp.109-118
- 2016** [Isolation and characterisation of thermophilic bacterial isolates producing L-asparaginase.](#) In: **Experimental Methods in Modern Biotechnology** IIUM Press . ISBN 978-967-418-384-4 , pp.72-80
- 2016** [Isolation and characterisation of thermophilic bacterial isolates producing L-asparaginase.](#) In: **Experimental Methods in Modern Biotechnology** IIUM Press . ISBN 978-967-418-384-4 , pp.72-80
- 2015** [Economic and environmental evaluation of recombinant enzyme production.](#) In: **Recombinant Enzymes—From Basic Science to Commercialization** Springer International Publishing . ISBN 978-3-319-12396-7 , pp.129-142
- 2013** [Production of \$\alpha\$ -amylase by immobilized bacillus subtilis in polymeric polyHIPE matrix.](#) In: **Developments in sustainable chemical and bioprocess technology** Springer Science+Business Media . ISBN 9781461462088 (O), 9781461462071 (P) , pp.159-171
- 2011** [Case study 4: improvement of clarification and separation process for hybridoma cell supernatant.](#) In: **Taguchi Method in Bioprocess Engineering : Case Studies** IIUM Press . ISBN 9789674180766 , pp.103-112
- 2011** [Process improvement of conventional palm oil milling: continuous cooker.](#) In: **Current research and development in biotechnology engineering at IIUM** IIUM Press . ISBN 9789674181444 , pp.146-154
- 2011** [Process improvement of conventional palm oil milling: depulper.](#) In: **Current research and development in biotechnology engineering at IIUM** IIUM Press . ISBN 9789674181444 , pp.169-174
- 2011** [Improvement of conventional milling process in palm oil processing: rotary filter press.](#) In: **Current research and development in biotechnology engineering at IIUM** IIUM Press . ISBN 9789674181444 , pp.245-250
- 2011** [The use of modified polymeric polyhipe as an immobilized cell matrix.](#) In: **Current research and development in biotechnology engineering at IIUM** IIUM Press . ISBN 9789674181444 , pp.297-305