

# HAZLEEN BT. ANUAR



- KULLIYAH OF ENGINEERING
- IIUM Gombak Campus
- Email address:  
[hazleen@iium.edu.my](mailto:hazleen@iium.edu.my)

## ACADEMIC QUALIFICATION

- Ph.D in Material Science
- Bachelor of Science in Material Science

## TEACHING RESPONSIBILITIES

ADVANCED COMPOSITE MATERIALS	2007/2008 2019/2020
APPLIED POLYMER PROCESSING	2007/2008 2008/2009 2009/2010
BIO COMPOSITES	2017/2018 2020/2021
COMPOSITE MATERIALS	2008/2009 2009/2010 2010/2011 2011/2012 2012/2013
COMPOSITE MATERIALS AND PROCESSING	2011/2012 2012/2013 2014/2015 2015/2016 2016/2017 2017/2018
CONTEMPORARY MATERIALS FOR ENGINEERING APPLICATIONS	2018/2019
Composites	2018/2019 2019/2020 2020/2021
ENGINEERING MATERIALS	2007/2008 2008/2009 2009/2010 2010/2011 2011/2012 2012/2013
FINAL YEAR PROJECT I	2018/2019 2019/2020
FINAL YEAR PROJECT II	2019/2020
HIGH PERFORMANCE POLYMERIC MATERIALS	2016/2017
INTEGRATED DESIGN PROJECT	2014/2015 2015/2016
MANUFACTURING OF COMPOSITE MATERIALS	2007/2008 2008/2009 2009/2010
MATERIALS CHARACTERIZATION AND NON-DESTRUCTIVE TESTING	2017/2018 2018/2019 2019/2020 2020/2021
MATERIALS ENGINEERING LAB IV	2017/2018 2018/2019 2019/2020 2020/2021
MATERIALS ENGINEERING LAB VI	2009/2010 2010/2011 2011/2012 2012/2013
MATERIALS LABORATORY I	2007/2008
MATERIALS SCIENCE AND ENGINEERING	2010/2011 2011/2012 2012/2013
Materials Engineering Lab 4	2017/2018

POLYMER PROCESSING	2007/2008 2008/2009 2010/2011 2017/2018
PROJECT I	2008/2009 2009/2010 2016/2017
SEMINAR	2007/2008
SEMINAR II	2007/2008

## RESEARCH PROJECTS

### In Progress

<b>2020 - Present</b>	Sustainable Soda Lignin-PLA 3D Printable Biocomposite Materials
<b>2020 - Present</b>	Toughened halloysite reinforced PA 11 nanocomposites
<b>2019 - Present</b>	Sustainable Soda Lignin-PLA 3D Printable Biocomposite Materials
<b>2019 - Present</b>	Sustainable Durian Skin Fibre Biocomposites for 3D Printable Filaments
<b>2019 - Present</b>	Dyes Adsorption Using Hybrid Aerogel-Based Cellulose Nanocrystal Isolated From Palm Oil Biomass
<b>2019 - Present</b>	Microwave-Assisted Polymerization of Polylactic Acid- Palm Oil Polyurethane
<b>2019 - Present</b>	Investigation on the Effectiveness of Diamond Reinforcement in Strengthening Porous Aluminum
<b>2019 - Present</b>	Highly Efficient Li-Ion Battery Recycling with capacity-sorted optimisation for secondary energy storage system
<b>2019 - Present</b>	Chitosan-copolymer loaded Acalypha indica extract for drug delivery
<b>2019 - Present</b>	Microcellular Polylactic Acid Biocomposite Foam via Supercritical Carbon Dioxide for Single Use Packaging
<b>2018 - Present</b>	Development of self-healing nanocoating via polyelectrolyte assemblies for corrosion protection applications.
<b>2018 - Present</b>	Polylactic Acid Biocomposite for Active Packaging
<b>2017 - Present</b>	Formulation of mechanical characteristics of palm oil fibre composite manufactured via vacuum bagging method
<b>2016 - Present</b>	Study on Miscibility and Degradation Behavior on Polylactic Acid / Thermoplastic polyurethane Blend

**2016 - Present** Cradle-to-Cradle Food Packaging Prototype from Durian Skin Fibre Biocomposite

**2016 - Present** Integrated Green Assessment of Poultry Waste Input-Output in Malaysia Farming Industry

**2016 - Present** Active Packaging from Polylactic Acid Biocomposite Film via Supercritical Fluids Impregnation

**2015 - Present** Study on the Novel Binder Based Biodegradable Polyhydroxyalkanoates (PHA) For Metal Injection Moulding Application

**2009 - Present** Advanced Materials and Surface Engineering (AMSERU)

**Unknown - Present** Toughened halloysite reinforced PA 11 nanocomposites

**Unknown - Present** Chitosan-copolymer loaded *Acalypha indica* extract for drug delivery

**Unknown - Present** Polylactic Acid Biocomposite for Active Packaging

#### **Completed**

**2016 - 2019** Cradle-to-Cradle Food Packaging Prototype from Durian Skin Fibre Biocomposite

**2016 - 2019** Study on Miscibility and Degradation Behavior on Polylactic Acid / Thermoplastic polyurethane Blend

**2016 - 2019** Active Packaging from Polylactic Acid Biocomposite Film via Supercritical Fluids Impregnation

**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

**2015 - 2018** Study on the Novel Binder Based Biodegradable Polyhydroxyalkanoates (PHA) For Metal Injection Moulding Application

**2014 - 2017** Effect of Irradiation Processing Route to the Improvement Properties of Green Recycled Polypropylene

**2014 - 2017** Synthesis and Characterizations of Novel Polyurethane based on Poly (lactic acid) Polymer for Green Packaging Materials

**2014 - 2017** Mechanism of Surface Degradation of Durian Skin Fibre Composite for Outdoor Application

**2014 - 2018** Morphology and Electrical Properties of Polylactide / Natural Rubber Blend Filled with Conductive Nano Carbon

- 2014 - 2016** Novel Method to Synthesize Polymeric Biphasic Micro-Particles Using Droplet Microfluidic Lab on a Chip
- 2014 - 2016** Engineered Properties of Biodegradable Poly(lactic acid) Using Environmental-Friendly Additives
- 2013 - 2015** Development of Environmental Friendly ZnO Nanocoating for Building Applications
- 2013 - 2016** Fabrication of High-Performance Carbon Nanotube Field-Effect Transistor by Alcohol Catalytic Chemical Vapor Deposition Method
- 2013 - 2016** Modelling of High Performance Lightweight Nanocomposite Sport Shoes During Running
- 2013 - 2016** Isolation and Characterization of Microfibrillated Cellulose (MFC) Obtained from Cocoa Pod Husks Treated via Fungal Pretreatment Combined with Homogenization
- 2013 - 2016** Fundamental Studies on Hybrid ZnO-SiO<sub>2</sub> Sol-gel Nanocoating for Anticorrosion Protection of Carbon Steel
- 2012 - 2016** Development of Green Recycled-PP Composites for High Strength Applications
- 2012 - 2015** Exploring the Potential of during Skin Waste as a Filler in Biodegradable Polymer
- 2012 - 2015** Prototype Development of High Performance Lightweight Nanocomposite Sport Shoes
- 2012 - 2013** Study the Effect of Kenaf Biomass' Morphology and its Chemicals Constituents on the Pre-Treatment Process and Production of L(+) Lactic Acid.
- 2012 - 2014** Potential of Microcrystalline Cellulose (MCC) as reinforcement in Polymer Composite
- 2011 - 2011** Malaysian Natural Fibre For Diverse Bio-Based Applications (KVC 2011)
- 2011 - 2012** Hydrolysis of Glucose in Kenaf Biomass
- 2011 - 2012** Effect Of Nanoclay On The Mechanical Properties Of Kenaf Fibre Reinforced Polylacticacid (PLA) Hybrid Biocomposite
- 2011 - 2014** RU 2011: Mechanical and Thermal Properties of Bioplastic Nanocomposites
- 2010 - 2012** The development of the thermoplastic starch for biodegradable fabrics
- 2009 - 2010** Fibre-matrix Interaction and Thermo-physical of PP/EPDM Composite Reinforced with Kenaf Fibre
- 2009 - 2011** The Effect of Electron Beam Radiation on Mechanical properties of HDPE/EPDM-Organic Montmorillonite Nanocomposites
- 2009 - -1** The Effect of Nano-modification on the Interphase Characteristic of the Multiscales Biocomposite with the Added of Nanoclay
- 2009 - 2011** The Effect of Nano-modification on the Interphase Characteristic of the Multiscales Biocomposite with the Added of Nanoclay

- 2009 - 2010** Prediction of Failure Mechanism of Polylactic Acid-Kenaf Fibre Biocomposites Using Acoustic Emission Parameters
- 2009 - 2011** Prediction of Failure Mechanism of Polylactic Acid-Kenaf Fibre Biocomposite Using Acoustic Emission Parameters
- 2008 - 2009** Rubber Toughened Polycarbonate-kenaf Fiber Composite
- 2008 - 2011** Development of In-House Insulator Using Palm Oil Resin and Hibiscus Cannabinus, L
- 2008 - 2009** Development and Characterization of Medium Density Fiber Board using National Resource: Palm Oil Resin and Kenaf
- 2008 - 2009** Nanocomposites Rubber Toughened Polycarbonate for Gas Barrier Application

## PUBLICATIONS

### Article

- 2020** [Structural, ion transport parameter and electrochemical properties of plasticized polymer composite electrolyte based on PVA: a novel approach to fabricate high performance EDLC devices.](#) Polymer Testing , In press, pre-proof pp.1-65
- 2020** [The study of EDLC device with high electrochemical performance fabricated from proton ion conducting PVA-based polymer composite electrolytes plasticized with glycerol.](#) Polymers , 12 (9) pp.1-25
- 2020** [Development of biodegradable cosmetic patch using a polylactic acid/phycoocyanin-alginate composite.](#) Polymers , 12 (8) pp.1-11
- 2020** [Metal framework as a novel approach for the fabrication of electric double layer capacitor device with high energy density using plasticized Poly\(vinyl alcohol\): Ammonium Thiocyanate based Polymer Electrolyte.](#) Arabian Journal of Chemistry , 13 (8)
- 2020** [The effects of supercritical carbon dioxide on the degradation and antimicrobial properties of PLA biocomposite.](#) IIUM Engineering Journal , 21 (1) pp.212-227
- 2020** [Mechanical properties, morphology and hydrolytic degradation behavior of polylactic acid / thermoplastic polyurethane blends.](#) IIUM Engineering Journal , 21 (1) pp.193-201
- 2020** [Potential food additive of Boswellia carterii essential oil encapsulated within gum Arabic: a particle size distribution and zeta potential analysis.](#) Food Research , 4 (Supplementary 2) pp.1-5
- 2020** [Thermal, dynamic mechanical analysis and mechanical properties of polybutylene terephthalate/polyethylene terephthalate blends.](#) Jurnal Teknologi (Sciences & Engineering) , 82 (5) pp.73-83
- 2020** [Enhanced flexibility of polylactic acid/epoxidized palm oil/pineapple fiber composites.](#) Biological And Natural Resources Engineering Journal , 3 (1) pp.1-7

- 2019** [Biodegradable polymer composite for cosmetic patch.](#) Biological and Natural Resources Engineering Journal (BNREJ) , 2 (2) pp.49-64
- 2019** [From green remediation to polymer hybrid fabrication with improved optical band gaps.](#) International Journal of Molecular Sciences , 20 (16) pp.1-23
- 2019** [Degradation properties of biodegradable polymers.](#) Journal of Wastes and Biomass Management (JWBM) , 1 (2) pp.05-08
- 2018** [Effect of UV radiation on degradation of durian skin fibre composite.](#) International Journal of Engineering Materials and Manufacture , 3 (2) pp.105-112
- 2018** [Selective localization of multi-walled CNT in polylactic acid /thermoplastic polyurethane blends and its effect on mechanical properties.](#) Current Nanomaterials , 2 (2) pp.84-89
- 2018** [Effect of supercritical carbon dioxide on tensile Properties of Durian skin fibre biocomposite.](#) International Journal of Current Science, Engineering & Technology , Special issue pp.197-202
- 2018** [Optimization of component in solution casted polylactic acid biocomposite by response surface methodology.](#) Journal of Packaging Technology and Research , 2 (1) pp.17-28
- 2018** [Enhanced flexibility of biodegradable polylactic acid/starch blends using epoxidized palm oil as plasticizer.](#) Polymers , 10 (9) pp.1-12
- 2018** [Environmental degradation of durian skin nanofibre biocomposite.](#) IIUM Engineering Journal , 19 (1) pp.223-236
- 2018** [Thermal stability of plasticized durian skin fibre biocomposite.](#) International Journal of Current Science, Engineering & Technology , 1 (Special Issue 1) pp.447-451
- 2018** [Optimization of component in solution casted polylactic acid biocomposite by response surface methodology.](#) Journal of Packaging Technology and Research , 2 (1) pp.17-28
- 2018** [Physical and functional properties of durian skin fiber biocomposite films filled with natural antimicrobial agents.](#) BioResources , 13 (4) pp.7255-7269
- 2018** [Preliminary development of porous aluminum via powder metallurgy technique.](#) Materialwissenschaft und Werkstofftechnik , 49 (4) pp.460-466
- 2017** [Impregnation of cinnamon essential oil into plasticised polylactic acid biocomposite film for active food packaging.](#) Journal of Packaging Technology and Research , 1 (3) pp.149-156
- 2016** [Plasticizing poly\(lactic acid\) using epoxidized palm oil for environmental friendly packaging material = Peningkatan fleksibiliti poli\(laktik asid\) menggunakan minyak kelapa sawit terepoksi untuk aplikasi pembungkus mesra alam.](#) Malaysian Journal of Analytical Sciences , 20 (5) pp.1153-1158
- 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** [Preparation and characterization of plasticized polylactic acid/starch blend.](#) Jurnal Teknologi , 78 (11-2) pp.7-12
- 2016** [Tensile properties of durian skin fibre reinforced plasticized polylactic acid biocomposites.](#) International Journal of Materials and Manufacture [IJEMM] , 1 (1) pp.16-20
- 2016** [Fabrication and compressive properties of low to medium porosity closed-cell porous aluminum using PMMA space holder technique.](#) Materials , 9 (4) pp.254-1-254-13
- 2016** [Potential of irradiated high density polyethylene/ethylene propylene rubber-carbon nanotube nanocomposite as shoe sole.](#) Proceedings of the Institution of Mechanical Engineers, Part P: Journal of Sports Engineering and Technology , 230 (2) pp.100-110
- 2015** [Mechanical properties and failure modes of recycled polypropylene/microcrystalline cellulose composites.](#) Materials and Design , 69 pp.114-123
- 2015** [Preparation of durian skin nanofibre \(DSNF\) and its effect on the properties of polylactic acid \(PLA\) biocomposites = Penyediaan nano-serabut kulit durian \(DSNF\) dan kesannya ke atas sifat biokomposit asid polilaktik \(PLA\).](#) Sains Malaysiana , 44 (11) pp.1551-1559
- 2015** [Effects of dilute acid pretreatment on chemical and physical properties of kenaf biomass .](#) Journal of Natural Fibers , 12 (3) pp.256-264
- 2015** [Effect of nanofiller on flexing mechanism of HDPE/EPR nanocomposite for sport shoe sole application .](#) Advanced Materials Research , 1115 pp.382-385
- 2015** [Flexing test of HDPE/EPR filled CNT radiated nanocomposites for sport shoe soles.](#) Materials Testing , 57 pp.904 -908
- 2015** [Effects of coupling agent on the properties of durian skin fibre filled polypropylene composite.](#) International Journal of Chemical, Molecular, Nuclear, Materials and Metallurgical Engineering , 9 (12) pp.1261-1265
- 2015** [Finite element analysis of tensile test for HDPE/EPR-MMT nanocomposite.](#) Advanced Materials Research , 1115 pp.414-417
- 2015** [Finite element analysis of HDPE/EPR-CNT nanocomposite under tensile loading.](#) Advanced Materials Research , 1115 pp.410-413
- 2015** [Matrix cracking in reinforced polymer nanocomposites: a review.](#) Journal of Advanced Review on Scientific Research , 11 (1) pp.13-36
- 2014** [Potential of electron beam irradiated hdpe/epr blend as shoes sole.](#) Movement, Health & Exercise , 3 pp.49-56
- 2014** [Role of mechanical alloying parameters on powders distribution of Al/Cu alloy and Al/Cu composite.](#) Materials Research Innovations , 18 (6) pp.SD-190
- 2014** [Mechanical, thermal and morphological properties of durian skin fibre reinforced PLA biocomposites.](#) Materials and Design , 59 pp.279-286

- 2014** [Tensile properties and morphological studies on HA/PLA biocomposites for tissue engineering scaffolds.](#) International Journal of Engineering Research , 3 (3) pp.186-189
- 2014** [Improvement in thermomechanical properties of injection molded nano-modified hybrid biocomposite.](#) Journal of Thermoplastic Composite Materials , 27 (7) pp.992-1009
- 2014** [Optimizing the parameters in durian skin fiber reinforced polypropylene composites by response surface methodology.](#) Industrial Crops and Products , 54 pp.291-295
- 2014** [Study of chemical and thermal properties of kenaf biomass-based polylactic acid \(PLA\).](#) Advances in Environmental Biology , 8 (3 Spec. Issue) pp.633-638
- 2013** [Ductile-brittle transition temperature of polylactic acid-based biocomposite .](#) Journal of Thermoplastic Composite Materials , 26 (2) pp.216-226
- 2013** [Effect of processing routes on the mechanical, thermal and morphological properties of PLA-based hybrid biocomposite.](#) Iranian Polymer Journal (English Edition) , 22 (2) pp.123-131
- 2012** [Properties of montmorillonite-reinforced thermoplastic sago starch composites .](#) Advanced Materials Research , 445 pp.469-474
- 2012** [Preparation and characterization of physical properties of Durian skin fibers biocomposite.](#) Advanced Materials Research , 576 pp.212-215
- 2012** [Dynamic mechanical behaviour of Poly Ethylene Glycol Plasticized Polylactic acid.](#) Advanced Materials Research , 576 pp.224-227
- 2012** [Mechanical properties and environmental stress cracking resistance of rubber toughened polyester/clay composite.](#) Advanced Materials Research , 576 pp.318-321
- 2012** [Thermal properties of PLA/kenaf green nanocomposite: Effect of chemical treatment.](#) Advanced Materials Research , 576 pp.342-344
- 2012** [Thermogravimetric analysis of OMMT filled HDPE/EPDM treated EB irradiation.](#) Advanced Materials Research , 576 pp.362-365
- 2012** [Physical and mechanical properties of Thermoplastic Natural Rubber \(TPNR\) nanocomposites.](#) Advanced Materials Research , 576 pp.394-397
- 2012** [Evaluation of elastic modulus and hardness of polylactic acid-based biocomposite by nano-indentation.](#) Advanced Materials Research , 576 pp.446-449
- 2012** [Improvement of Mechanical Properties of Injection-Molded Polylactic Acid-Kenaf Fiber Biocomposite .](#) Journal of Thermoplastic Composite Materials , 25 (2) pp.153-164
- 2012** [Influence of Maleic anhydride on mechanical properties and morphology of Hydroxyapatite/Poly-\(lactic acid\) composites.](#) Regenerative Research , 1 (2) pp.32-38
- 2012** [Evaluation of maximum percentage glucose conversion for dilute acid hydrolysis of kenaf biomass using statistical analysis.](#) Advanced Materials Research , 576 pp.244-247



- 2012** [Production of lactic acid from kenaf core hydrolysate by rhizopus oryzae FTCC 5215.](#) Advanced Materials Research , 576 pp.248-251
- 2012** [Characterization on surface modification of kenaf biomass via microbial fermentation.](#) Advanced Materials Research , 576 pp.268-271
- 2012** [The effect of water and citric acid on sago starch bio-plastics.](#) International Food Research Journal , 19 (2) pp.715-719
- 2011** [The influence of EB-irradiated treatment on enhancing barrier property and crystallization behavior of rubber-toughened nanocomposites.](#) Journal of Nanotechnology , 2011 pp.8 pg.
- 2011** [Modification of tensile and impact properties of crosslinked rubber toughened nanocomposites via electron beam irradiation.](#) Canadian Journal on Scientific & Industrial Research , 2 (3) pp.95-101
- 2011** [Enhancing the mechanical properties of cross-linked rubber-toughened nanocomposites via electron beam Irradiation.](#) Journal of Nanotechnology
- 2011** [Improvement in mechanical properties of reinforced thermoplastic elastomer composite with kenaf bast fibre.](#) Composites: Part B: Engineering , 42 pp.462-465
- 2011** [Micromechanical property investigations of poly\(lactic acid\)-kenaf fiber biocomposites.](#) Journal of Natural Fibers , 8 (1) pp.14-26
- 2011** [Thermal properties of injection moulded polylactic acid 13 kenaf fibre biocomposite.](#) Malaysian Polymer Journal , 6 (1) pp.51-57
- 2011** [Effect of Rhizopus Oryzae Fermentation on Kenaf-based Polylactic Acid's Monomer.](#) IIUM Engineering Journal , 12 (4) pp.83-87
- 2011** [Ductile-brittle transition temperature of polylactic acid-based biocomposite.](#) Journal of Thermoplastic Composite Materials , 26 (2) pp.216-226
- 2011** [Effects of high energy radiation on mechanical properties of PP/EPDM nanocomposite.](#) Advanced Materials Research , 264 pp.738-742
- 2011** [Compatibilized PP/EPDM-kenaf fibre composite using melt blending method.](#) Advanced Materials Research , 264 pp.743-747
- 2011** [The effects of high energy radiation on the tensile properties of rubber toughened nanocomposites.](#) Advanced Materials Research , 264 pp.765-770
- 2011** [The study of biodegradable thermoplastics sago starch.](#) Key Engineering Materials , 471 pp.397-402
- 2011** [Effect of electron beam irradiation \(EB\) on gas barrier property of HDPE/EPDM nanocomposites.](#) Key Engineering Materials , 471 pp.775-780
- 2011** [Interfacial shear strength of Polylactic Acid-Kenaf fibre biocomposites.](#) Key Engineering Materials , 471 pp.781-785
- 2011** [Cotton reinforced biopolymer matrix composite: effect of ultraviolet \(UV\) on its mechanical properties.](#) Key Engineering Materials , 472-72 pp.928-932

- 2011 [Effects of MAPE and EB irradiation techniques on the mechanical properties of crosslinked rubber toughened nanocomposites.](#) Journal of Rubber Research , 14 (4) pp.200-215
- 2010 [The mechanical and physical properties of thermoplastic natural rubber hybrid composites reinforced with hibiscus cannabinus, L and short glass fiber.](#) Polymer-Plastics Technology and Engineering , 49 (13) pp.1315-1322
- 2010 [A linear relationship between the tensile, thermal and gas barrier properties of mape modified rubber toughened nanocomposites.](#) IIUM Engineering Journal , 11 (2) pp.225-239
- 2008 [Mechanical properties and dynamic mechanical analysis of thermoplastic-natural-rubber-reinforced short carbon fiber and kenaf fiber hybrid composites.](#) Journal of Applied Polymer Science , 107 (6) pp.4043-4052
- 2008 [Reinforced thermoplastic natural rubber hybrid composites with Hibiscus cannabinus, L and short glass fiber – Part I: Processing parameters and tensile properties.](#) Journal of Composite Materials , 42 (11) pp.1075-1087
- 2007 [Essential work of fracture and acoustic emission study on TPNR composites reinforced by Kenaf Fiber.](#) Journal of Composite Materials , 41 (25) pp.3035-3049
- 2007 [Mechanical and fracture toughness behavior of TPNR nanocomposites.](#) Journal of Composite Materials , 41 (17) pp.2147-2159

#### Conference or Workshop Item

- 2020 [Employing circular economy on offshore D&A via life cycle assessment.](#) In: **Industry Meets Academia: Decommissioning & Abandonment Webinar Series**
- 2019 [Effects of plasticizer on mechanical properties of durian skin fiber reinforced polylactic acid biocomposite.](#) In: **International Conference on X-Rays and Related Techniques in Research and Industry 2018 (ICXRI 2018)**
- 2019 [Physical properties of durian skin fibre reinforced plasticized polylactic acid biocomposite.](#) In: **International Conference on Natural Polymers (ICNP - 2019)**
- 2019 [Development of conductive polymer composites from PLA/TPU blends filled with graphene nanoplatelets.](#) In: **6th International Conference on Recent Advances in Materials, Minerals and Environment (RAMM)**
- 2018 [Effect of coupling agent on durian skin fibre nanocomposite reinforced polypropylene.](#) In: **International Conference on Advances in Manufacturing and Materials Engineering 2017, ICAMME 2017**
- 2018 [Mechanical properties, morphology, and hydrolytic degradation behavior of polylactic acid / natural rubber blends.](#) In: **International Conference on Advances in Manufacturing and Materials Engineering 2017, ICAMME 2017**
- 2015 [Finite element analysis of HDPE/EPR-CNT nanocomposite under tensile loading.](#) In: **International Conference on Advanced Manufacturing and Materials Engineering 2014 (ICAMME 2014)**

- 2015 [Finite element analysis of tensile test for HDPE/EPR-MMT nanocomposite.](#) In: **2nd International Conference on Advances in Manufacturing and Materials Engineering 2014 (ICAMME 2014)**
- 2015 [Plasticizing Poly\(lactic acid\) using epoxidized palm oil for environmental friendly packaging material.](#) In: **Malaysia Polymer International Conference (MPIC 2015)**
- 2015 [Preparation and characterization of plasticized Polylactic acid/starch blend.](#) In: **5th International Conference on Advancement in Science and Technology (iCAST 2015)**
- 2015 [Flexible and biodegradable film for environmental friendly packaging material.](#) In: **IIRIE 2015**
- 2013 [Mechanical properties of recycled PP reinforced with microcrystalline cellulose: effect of MAPP content.](#) In: **9th International Conference on Composite Science and Technology (ICCST/9)**
- 2012 [Extraction of glucose from kenaf core using mild acid treatment .](#) In: **26th Symposium of Malaysian Chemicals Engineers in conjunction with the 4th International Conference on Chemical and Bioprocess Engineering**
- 2012 [Effect of PEG on tensile properties of PLA-Based biocomposite.](#) In: **The International Conference on Composite Interfaces**
- 2012 [Mechanical and flammability properties of PVC reinforced with nano-sized ATH particles.](#) In: **International Conference on Nanotechnology (ICONT 2012)**
- 2012 [Processing and characterization of durian skin fibers composites: Mechanical properties.](#) In: **1st International Conference on Design and Innovation 2012**
- 2012 [Effect of maleic anhydride \(MA\) on thermal properties of polylactic acid \(PLA\) composites reinforced with durian skin fiber \(DSF\).](#) In: **1st International Conference on Design and Innovation 2012**
- 2012 [Effect of maleic anhydride on mechanical properties of Polylactic Acid \(PLA\) composites reinforced with Durian Skin Fiber \(DSF\).](#) In: **1st International Conference on Design and Innovation 2012**
- 2012 [Production of lactic acid from kenaf core hydrolysate by rhizopus oryzae FTCC 5215.](#) In: **International Conference on Advances in Manufacturing and Materials Engineering (ICAMME'2012)**
- 2012 [The effect of coupling agent treatment on the mechanical and flame retardancy properties of rigid PVC-ATH nanocomposites.](#) In: **The International Conference on Composite Interfaces**
- 2011 [The effect of nanoclay on the tensile properties of PLA-kenaf fibre hybrid bionanocomposite.](#) In: **International Conference on Advanced Manufacturing of Composites (ICMAC)**
- 2011 [Electron beam irradiated nanocomposite for gas barrier application.](#) In: **IUM Research, Invention and Innovation Exhibition IRIIE 2011**
- 2011 [Kenaf: renewable source for biopolymer.](#) In: **IUM Research, Invention and Innovation Exhibition (IRIIE) 2011**

- 2011 [Injection moulded lightweight kenaf fibre thermoplastic elastomer composite for automotive components.](#) In: **IUM Research, Invention and Innovation Exhibition (IRIIE) 2011**
- 2011 [Eco-friendly PLA-kenaf fibre biocomposite for food packaging.](#) In: **IUM Research, Invention and Innovation Exhibition (IRIIE) 2011**
- 2011 [Eco-friendly PLA-kenaf fibre biocomposite for food packaging .](#) In: **Malaysia Technology Expo (MTE 2011)**
- 2011 [Electron beam irradiated nanocomposite for gas barrier application .](#) In: **Malaysia Technology Expo (MTE 2011)**
- 2011 [Kenaf as natural resource for lactic acid production.](#) In: **Malaysia Polymer International Conference 2011 (MPIC 2011)**
- 2011 [Optimizing the pre-treatment of kenaf bast.](#) In: **Malaysia Polymer International Conference 2011 (MPIC 2011)**
- 2011 [Effect of Nanoclay on Thermal Properties of Polylacticacid-Clay Nanocomposite.](#) In: **Malaysia Polymer International Conference 2011 (MPIC 2011)**
- 2011 [Kenaf biomass as potential biopolymer.](#) In: **Malaysia Polymer International Conference 2011 (MPIC 2011)**
- 2011 [Properties of compression moulding starch - nanoclay biocomposites .](#) In: **The 19th Annual International Conference on Composites/Nano Engineering (ICCE 19)**
- 2011 [Properties of montmorillonite-reinforced thermoplastic sago starch composites .](#) In: **14th International Conference on Advances in Material and Processing Technologies (AMPT 2011)**
- 2011 [The effect of water and citric acid on sago starch bio-plastics.](#) In: **2nd International Conference on Biotechnology Engineering (ICBioE 2011)**
- 2011 [Effect of Nanoclay on Thermal Properties of Polylacticacid-Kenaf Hybrid Biocomposite.](#) In: **International Conference on Chemical Engineering (ICChE 2011)**
- 2011 [Study of new eco-core metal matrix composite sandwich structure.](#) In: **14th International Conference on Advances in Material and Processing Technologies (AMPT 2011)**
- 2011 [Tensile properties and morphological studies on HA/PLA biocomposites for tissue engineering scaffolds.](#) In: **20th Scientific Conference of the Microscopy society of Malaysia (EMSM 2011)**
- 2011 [Comparison of theoretical and experimental values of tensile properties of injection moulded polylactic acid - kenaf fibre biocomposite.](#) In: **14th International Conference on Advances in Material and Processing Technologies (AMPT 2011)**
- 2010 [Biodegradable PLA-Kenaf fibre biocomposite for cleaner environment.](#) In: **Malaysian Science and Technology Congress (MSTC 2010)**
- 2010 [Hazardless nanocomposite for gas barrier potential.](#) In: **IUM Research, Innovation & Invention Exhibition (IRIIE 2010)**

- 2010 [Lactic acid production from Kenaf fibre.](#) In: **IIUM Research, Innovation & Invention Exhibition (IRIIE 2010)**
- 2010 [Single kenaf fibre properties via in situ monitoring using acoustic emission.](#) In: **Simposium Kebangsaan Aplikasi Sains Matematik 2010 (SKSM)**
- 2010 [Kenaf fibre reinforced poly\(lactic acid\) biocomposites.](#) In: **8th Global WPC and Natural Fibre Composites Congress and Exhibition**
- 2010 [New potential of biomaterials from kenaf fibre biomass .](#) In: **Islamic Innovation Expo 2010 (i-Inova' 2010)**
- 2010 [Renewable food packaging from PLA-kenaf fibre biocomposite.](#) In: **Islamic Innovation Expo 2010 (i-Inova' 2010)**
- 2010 [An eco-plastic made of PLA-Kenaf fibre biocomposite for cleaner environment.](#) In: **IIUM Research, Innovation & Invention Exhibition (IRIIE 2010)**
- 2010 [A comparative study on the mechanical properties of clay-modified epoxy adhesive by using different clay types.](#) In: **14th European Conference On Composite Materials (ECCM14)**
- 2010 [Fabrication of biodegradable composite - an implication of plasticizer.](#) In: **National Conference in Mechanical Engineering for Research and Postgraduate Studies 2010 (NCMER 2010)**
- 2010 [Development of reinforced thermoplastic elastomer with kenaf bast fibre for automotive component.](#) In: **14th European Conference on Composite Materials**
- 2009 [Preliminary studies of rubber toughened polypropylene - kenaf fiber composite.](#) In: **4th International Conference on Recent Advabces in Materials, Minerals & Environment and 2nd Asian Symposium on Material and Processing**

#### Book

- 2018 [International Journal of Current Research in Science & Technology.](#) UR Publishers . ISBN 2581-4311 (ISSN)
- 2012 [Advances in manufacturing and materials engineering.](#) Trans Tech Publications Ltd., . ISBN 978-3-03785-498-3
- 2011 [Advances in nanotechnology & its application.](#) IIUM Press . ISBN 9789670225876
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#### Book Section

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