Table of Contents

Preface

Chapter 1: Materials and Technologies for Separation and Environmental Engineering

Application of Coconut Copra as Biosorbent for Removal of Heavy Metals T.Z.E. Lee and S.F. Sim	3
Fabrication of PSS/PDADMAC Polyelectrolyte Membrane via Layer-by-Layer (LbL) Technique for Forward Osmosis (FO) Application M.T. How and M.N. Abu Seman	13
Natural Deep Eutectic Solvent (NADES) as a Greener Alternative for the Extraction of Hydrophilic (Polar) and Lipophilic (Non-Polar) Phytonutrients Y.L. Kua and S. Gan	20
Removal of Copper (II) Ion: Effect of Polysulfone Support Thickness N.Z.K. Shaari, N.A. Sulaiman and S.N. Hamdan	29
Fabrication of Amino-Functionalized CAU-1/Cellulose Acetate Mixed Matrix Membranes for CO ₂ /N ₂ Separation Y.F. Yeong and T.S. Khoo	39
A Green <i>In Situ</i> Synthesis of Hybrid Graphene-Based Zeolitic Imidazolate Framework-8 Nanofillers Using Recycling Mother Liquor	40
N. Jamil, N.H. Alias, M.Z. Shahruddin and N.H. Othman Progressive Freeze Concentration for Wastewater Treatment from Food Industry F.H. Ab Hamid and S.N. Jami	48 55
Waste Characteristics Study and Recycling Practice Trend at Tuanku Abdul Halim Mu'adzam Shah Engineering Complex, UiTM P.F.M. Khamaruddin, T.A. Tony, A.B. Alias, S.A.S.A. Kadir and E.Q. Suhaili	65
Effect of Organic Nutrient Addition to the Biodegradation of Hydrocarbon Contaminated Marine Sediment in Malaysia A.N. binti Che Abdul Rahim, M.R. Zahid, P.F.M. Khamaruddin, N.R.N. Him, N.H. Othman and E. Yahya	74
Synthesis of Hybrid Cu-Doped TiO ₂ Photocatalyst for Dye Removal Y.P. Lim and Y.C. Lim	84
Study on Catalytic Steam Reforming of Toluene over Ni/Activated Carbon Catalysts Prepared from Adsorption Treatment of Nickel Electroplating Wastewater by Activated Carbon	
X.F. Chen, N. Jiang, S. Hu, L.M. He, G. Liao, Q.Q. Ren, S. Su, Y. Wang, J. Xiang and J.H. Qiu	92
Gasification of Municipal Solid Waste Using Tyre Char as Catalyst M.Q. Saharuddin, S.A.S.A. Kadir and R. Alias	102
Evaluation of Ammonia-Nitrogen Removal by Ultrasonic Irradiation in Synthetic Solution Using Response Surface Methodology K.M. Aris, S. Ramli, Z. Othman and J. Jaafar	108
Prediction of Interaction of Citric Acid Modified Cellulose with Water Region Using Molecular Modelling Technique N. Anuar, W.N.A. Wan Mohamed Daid, S.A. Khalid, S.F. Syed Draman and S.R. Sheikh Abdullah	118
Investigating the Risk Posed by Chlorine Incident Release under Wind Rose Effect: An Industrial Case Study	110
Z.A. Rashid, M.F.I. Muhd Fuad, K.A. Razak, A.B. Alias, M.A. Ahmad, M.A. Ahmad, A.F.M.S. Yeong and Q.K. Mozdah	127

Chapter 2: Biotechnologies, Food Processing Technologies, Pharmaceuticals and Biomedicine

Morphology Prediction and Dissolution Behavior of α-Succinic Acid in Ethanol Solution Using Molecular Dynamic Simulation	
M.F. Othman, N. Anuar, S.N. Yusop, M.A. Nik Salwani and N.A. Abd Samad	139
Molecular Dynamic Investigation on the Dissolution Behaviour of Carbamazepine Form III in Ethanol Solution	
S.N. Yusop, N. Anuar, M.A. Nik Salwani and N.H. Abu Bakar	149
Meal Disturbance Effect on Blood Glucose Control for Type 1 Diabetes Using Improved	
Hovorka Equations A.M. Som, N.F.M. binti Mohd Yusof, S.A. Ali and N.S. Fuzil	158
Isolation of Antimicrobial Peptide from Food Protein Hydrolysates: An Overview M.N. Farhana, H.L. Tan, Y.P. Lim and S.N.S. Maqsood-Ul-Haque	168
Simulation and Optimisation of Anti-Dengue Nutraceutical Drink Production Plant for Medic IG Biopharma M.S. So'aib and J. Salihon	177
Stabilisation of Emulsified Agarwood Oil in an Aqueous System Using Non-Ionic Surfactant B.Y. Tien, M.N. Naim, R. Zakaria, N.F.A. Bakar, N. Ahmad and W. Lenggoro	186
Far-Infrared Drying Effects onto the Physical Characteristics of <i>Aquilaria malaccensis</i> Leaves	
H. Alwi, N.S.M. Zain, H.Z. Abidin, J. Jaafar and K.H.K. Hamid	196
Effect of Solvent Types on Gaharu (<i>Aqualaria malaccensis</i>) Extract Quality and its Chemical Compound	
S. Ngadiran, I.I. Muhamad, R. Aziz, H. Yaakob, N.F. Aman Nor, M. Yahayu, N.R. Ahmed and M. Jamil	202
Concerns on Analytical Results Involving Infrared to Microscopic Data Dealing with Ionic Liquids in Pretreatment of Lignocellulosic Biomass A. Azizan, N. Mokti, S. Zaharudin and N.S. Mohd Safaai	211
Investigation of Lignin Content Removal in the Steam Exploded Empty Fruit Bunch Fibers	211
S. Jamari, M.N. Nawi, D.K.N. Mohd Amin, N.S. Sulaiman, S. Mohamad, J. Zakaria, M.F. Ali, S.M. Shaarani, A.I. Nafsun, M.A.F. Supian, R. Mohammad and Z. Hassan	218
Application of CMC from Oil Palm Biomass as Anti-Redeposition Agent in Laundry Detergent N.B. Nill Him. S.N.M. Hidrin and W.H. Wan Hassan	224
N.R. Nik Him, S.N.M. Hidzir and W.H. Wan Hassan Musa Sapientum (Banana) Peels as Green Corrosion Inhibitor for Mild Steel	224
N.R. Rosli, S.M. Yusuf, A. Sauki and W.M.R.W. Razali	230
Characteristic and Erosion Study of Uncoated Sand Proppant Using Impingement Test H.H. Jarni, R.M. Zin, N.F.A. Bakar, N.B.A. Rahman, N.Z.K. Shaari and N.H. Othman	240
Chapter 3: Polymers and Composites, Synthesis of Nanomaterials	
Effect of Bio Fillers on Mechanical Properties of Natural Rubber Latex Films H. Ghani, S.F. Abd Karim, R. Ramli, M. Musa and J. Jaapar	249
Interaction on Standard and Modified Adhesive (Albipox) with Water Using Molecular Modelling R.W. Sharudin, M.A. Nik Salwani and A. Zakiah	255
Precursor Concentration Effect on Physicochemical Properties of Zinc Oxide Nanoparticle	233
Synthesized with Banana Peel Extract R.A. Abdol Aziz, S.F. Abd Karim, U.K. Ibrahim and N. Sanuddin	262
The Effect of pH on Zinc Oxide Nanoparticles Characteristics Synthesized from Banana Peel Extract	
R.A. Abdol Aziz, S.F. Abd Karim and N.A. Rosli	271
The Effect of Carboxymethyl Cellulose as Bio Filler on Ionic Conductivity and Physical Property of Waste Cooking Oil Based Polyurethane Composite Polymer Electrolyte S.M. Tahir and N. Alias	280
Biodegradation Characteristics of <i>Tacca leontopetaloides</i> Thermoplastic Films under Controlled Composting Conditions A.M.M. Amin and S.M. Sauid	289
A.IVI.IVI. AIIIII aliu S.IVI. Saulu	409

Chapter 4: Chemical Technologies in Energy Production

E.E. Samy Berthold, S.L. Fang, Y.T. Xue, Y. Wang, Z. Xiong, J.H. Guo, S. Hu, J. Xiang and S. Su	299
Combining Wet Rendering with Torrefaction to Improve the Fuel Characteristics of Biochar from Food Waste	
R.A. Rasid, T.X. Yee, R.N.U.A. Rahman and M. Ismail	309
Slow Pyrolysis Temperature and Duration Effects on Fuel Properties of Food Rice Waste Bio-Char	
N. Ahmad, N.N.H. Baharudin and N. Talib	319
Experimental Study of Ignition and Combustion Characteristics of Mixed Rice Straw and Sewage Sludge Solid and Hollow Spherical Pellets in a Plasma Combustion System M.E. Mostafa, H. Tang, J. Xu, H.Y. Chi, K. Xu, S. Su, S. Hu, Y. Wang, S.A. El-Sayed and J. Xiang	327
Aspen Plus Simulation of Bio-Char Production from a Biomass-Based Slow Pyrolysis Process	
Y.A. Dahawi, A. Abdulrazik, M.N.A. Seman, M.A.A. Aziz and M.Y.M. Yunus	336
Evaluation of Renewable Methanol Production Plant Design Using Tri-Pressure Stripper Configuration	
M.A. Ahmad, M.F. Nizam and Z.A. Rashid	342
Effect of Electron Beam Irradiation and Ionic Liquid Combined Pretreatment Method on Various Lignocellulosic Biomass	
N.A.A. Jusri, A. Azizan, Z.S.Z. Zain and A.M.F. Rahman	351
Thermo Distillation and Characterization of Bio Oil from Fast Pyrolysis of Palm Kernel Shell (PKS)	
D. Qarizada, E. Mohammadian, A.B. Alis, S.M. Yusuf, A. Dollah, H.A. Rahimi, A.S. Nazari and M. Azizi	359
Chlorella sorokiniana: Effect of Nitrate Replete Concentration on Biomass Yield, Cell and Nitrate Concentration	
N.A. Zakariah, N.B.A. Rahman and N.A.A. Rahim	365
Chapter 5: Materials and Chemical Technologies in Oil Recovery	
Diffusion Coefficient and Interfacial Tension with Addition of Silica Nanoparticles in CO ₂ -Surfactant-Water-Hexane for Enhanced Oil Recovery (EOR) Using Molecular Dynamic Simulation	
M.A. Nik Salwani, N.R. Rosli, T.A. Tengku Mohd, H.L. Tan and N.F.A. Bakar	375
Investigation on the Impact of an Enhanced Oil Recovery Polymer towards Microbial Growth and Microbial Induced Corrosion Rates	205
A.R. Hasrizal and N. Yaakob Investigation of Corrosion Mechanisms in a Continuous Catalytic Regeneration (CCR)	385
Platformer Unit N.B. Rusli, N. Yaakob and R.M. Savory	393
Exploring the Potential Application of Palm Methyl Ester Sulfonate as an Interfacial Tension Reducing Surfactant for Chemical Enhanced Oil Recovery S. Mahendran, P. Siwayanan, N.A. Shafie, S.K. Subbiah and B. Azeem	402
Synthesis of ZnO Nanoparticles for Wax Deposition Control and Oil Upgrading: Effect of Ratio of Zinc Acetate Dihydrate to Oxalic Acid Dihydrate	
S.N. Che Mohamed Hussein, A. Dollah, M.F. Mohamad Salleh, N.H. Othman, A.N. Che Abdul Rahim and N.S. Japperi	411