

Table of Contents

Preface

Chapter 1: Polymers and Composites

The Effects of Alkaline Treatment on Physical and Mechanical Properties of Oil Palm Trunk/Polypropylene Blends Composite N.A. Mohd Hasdi, N. Salim, R. Roslan and S.N. Sarmin	3
Bending Performance of Aluminum Sandwich Panel with Polyurethane Foam Core J.T. Chun and M.S. Salwani	11
Experimental and Simulation of Supercritical Carbon Dioxide PLA Biocomposite Foamed N.M. Nordin, H. Anuar, W.N.Q. Mohd Noor and Y.F. Buys	17

Chapter 2: Materials for Electronics and Energy Storage

Voltage Mediated Control of Fluorescence Protein Emissions at the Metal-Solution Interface T.D. Farha, S. Kim, M. Imayasu and H. Tsutsui	27
Multiwall Carbon Nanotubes Based Triboelectric Nanogenerators M.H. Ani, M.Z. Zulkeflee, A. Kaderi, A.G.E. Sutjipto and N. Salim	33
Optical and Electrical Modeling of DSSC with Light Scattering Layer E. Supriyanto, A. Istiqomah, R.P. Asmara, A.T. Nugroho, A. Subekti and A.G.E. Sutjipto	39
Bimetallic Prussian Blue Analogues: An Efficient Electrode Alternative for Energy Storage Applications O. Javed and R. Abd Aziz	45

Chapter 3: Building Materials

Compressive Strength of Palm Oil Lightweight Aggregate Concrete Containing Industrial Waste as Partial Sand Replacement K. Muthusamy, N.F.A. Jamaludin, M.F. Md Jaafar, A.M.A. Budiea and M.A. Ismail	55
A Review: Utilization of Waste Materials in Concrete N.N. Nasrudin, N.F. Ariffin, A.M. Hasim and M.N.S. Zaimi	61
The Effect of Density and Resin Content on Oil Palm Trunk Particleboard N. Ahmad, N.Y.M. Yunus, N.A. Mohammad, N.H.M. Hassan and S.Z. Mahmud	69
A Review on Structural Performance of Bamboo Reinforced Concrete B.A. Solahuddin	75
Strengthening of Reinforced Concrete with Steel Fibre: A Review B.A. Solahuddin	81
Review of Mechanical Performance of Oil Palm Fiber and Coconut Fiber as an Additional Material in Concrete M.N.S. Zaimi, N.F. Ariffin, S.M.S. Mohsin, A.M. Hasim, N.N. Nasrudin and M.R. Ashaari	87

Chapter 4: Materials and Technologies for Environmental Engineering

Structural and Magnetic Characteristics Evaluation of Iron Oxide Extracted from Printer Toner Wastes R. Nazlan, N.H. Ghazali, N.A.A. Nazri, A. Razali, R.A. Ramli and M.L. Yuen	99
Crude Oil Extraction and Technologically-Enhanced Naturally Occurring Radioactive Materials (TENORM) Pre-Treatment of Petroleum Sludge: A Review M.N. Saleh, R. Embong, N. Ridzuan, N.H. Hamidi, R.R. Nasaruddin, P.N.F.M. Khamaruddin and N. Ismail	105

Carbon Quantum Dots (CQDs) Based Composites Photocatalyst for Wastewater Purification	
F.F. Hasan, N.A.W. Mohd Zahidi, V.S. Bahar, U.R.R.P. Remli and A. Abd Aziz	111
Ag/RGO Photocatalyst for Methyl Orange Treatment	
W.H. Mun, N. Abdul Halim, F. Khatun and A. Abd Aziz	119
Comparison of Using Electrospun Polystyrene, Polysulfone, and Polyvinylidene Fluoride Mixed with N, N-Dimethylformamide on Oil Sorption from Water	
S. Akter, P.N.F.M. Khamaruddin and N.F. Abu Bakar	127
Study on the Development of Ceramic Ball Based on Selendang Clay	
N.M. Zainal@Zulkifli and A.G.E. Sutjipto	135

Chapter 5: Membranes and Membrane Technologies

Development of Carbon Nanotubes (CNTs) Membrane from Waste Plastic: Towards Waste to Wealth for Water Treatment	
L.J. Wei, T.D. Hui, A. Abd Aziz, L. Singh and N. Khodapanah	143
Surface Modification of PVDF Membrane Using Formic Acid for Enhance the Hydrophobicity for Desalination	
H. Agamparam and S.A. Rahman	151
Oil Palm Empty Bunches Adsorber Membrane for CO₂ Reduction of Biogas TPA Gunung Kupang in South Borneo	
N. Hidayah, M. Elma, P.V. Darsono and I. Syauqiah	159

Chapter 6: Biotechnologies and Pharmacology

Optimisation of Characteristics of CHI-ALG-CaCl₂ Nanocarriers Loaded with Non-Volatile Extracts of <i>Cymbopogon Sp.</i>	
R.I. Jalani, R. Edros and S.A. Mutallib	167
Prediction on Mechanism Design of Molecularly Imprinted Polymer Synthesis Using Oleic Acid as a Template	
S.M.A. Azhar, N.A. Samah and G.P. Maniam	173
Water Holding and Release Properties of Bacterial Cellulose Produced from Oil Palm Frond Juice	
R. Abu, S. Mohamad, J. Zakaria, W.N.M. Amin and C.G.C. Yin	179
Enhancement of Fermentable Sugars Obtained from <i>Amorphophallus Spp.</i> Tuber for Bioethanol Production by Optimizing Temperature and Pretreatment Concentration	
P. Bhuyar, M. Trejo, A.N.M. Ramli, N. Govindan, Y. Unpaprom and R. Ramaraj	185
Synthesis of Imidazolium Hydrogen Sulphate and Morpholinium Tetrafluoroborate Ionic Liquids: Its Antimicrobial Activity	
N.A. Rahman, H.W. Yussof, S.M. Zain, S. Omar and J. Jaapar	191