

## **Table of Contents**

### Preface

### **Chapter 1: Biotechnologies, Food Chemistry and Pharmacology**

<b>Catalyst Free Hydroxyl Protection of Quinine via Esterification</b>	
R. Roswanda, I.A. Putra, M. Mardiastuti and D. Mujahidin	3
<b>Inclusion Complexes between Starch and Oleic Acid as Hydrogel Materials</b>	
S.N. Intan and R. Rachmawati	8
<b>The Synthesis of Polyethersulfone (PES) Derivatives for the Immobilization of Lipase Enzyme</b>	
N. Rahmahwati, D. Wahyuningrum and A. Alni	14
<b>Synthesis of [Mn(Salen)Cl] Complex Compound and Superoxide Dismutase Activity Determination through Non-Enzymatic Method</b>	
Y. Deawati, D. Onggo, I. Mulyani, I. Hastiawan, R.A. Utami and D. Kurnia	22
<b>Biosynthesis and Characterization of Bioplastic Polyhydroxybutyrate from Halophilic Bacterium <i>Halomonas elongata</i> BK-AB8</b>	
R. Rachmawati, W. Falahuddin and R. Hertadi	28
<b>Inclusion Complexes between Starch and Vanillin</b>	
R. Rachmawati and I.A. Dwitasari	34
<b>Fatty Acids in <i>Tamarindus indica</i> L. Seeds Oil and Antibacterial Activity Assay</b>	
Sutrisno, R. Retnosari, S. Marfu'ah and F. Fajaroeh	40
<b>The Microwave Assisted Synthesis of Imine Derivative Ligands for Nickel(II) Complex as Catalyst Precursors in Glucose Conversion to Sorbitol</b>	
D. Wahyuningrum, I. Mulyani and R.P. Prajnamitra	47
<b>Effect of Microcellulose on Wettability of Reservoir Rock Surface Model</b>	
M. Ledyastuti and G. Sukmarani	55

### **Chapter 2: Materials and Technologies for Environmental Engineering**

<b>Synthesis of Composite Zn<sub>2</sub>SnO<sub>4</sub>/SnO<sub>2</sub> as Photocatalyst Materials by Means of Sonochemical Treatment and Its Electronic Structure</b>	
B. Prijamboedi, A.N. El Aisnada and W.O. Kuswantoro	65
<b>Biosorbent from Chinese Cabbage (<i>Brassica pekinensis</i> L.) for Phenol Contaminated Waste Water Treatment</b>	
A. Alni, K. Puspita and M.A. Zulfikar	71
<b>Application of Benzoyl-Acetone as a Cation Carrier in Mercury (II) Extraction by Using Liquid Membrane Emulsion Technique</b>	
B. Hamzah, S. Rachmawati and R. Hardani	80
<b>Synthesis of Imidazolium Based Ionic Liquids and its Application as Medium in Cyclization Reaction of Diketone</b>	
A. Alni, A.Y.D. Cahya and D. Wahyuningrum	86
<b>The Physicochemical Characteristics of Natural Zeolites Governing the Adsorption of Pb<sup>2+</sup> from Aqueous Environment</b>	
T. Puspitasari, M.M. Ilmi, N. Nurdini, R.R. Mukti, C.L. Radiman, D. Darwis and G.T.M. Kadja	92
<b>Adsorption of Humic Acid from Aqueous Solution onto PAA Nanofiber: Thermodynamic Study</b>	
M.A. Zulfikar, D. Maulina, H. Setiyanto and M. Nasir	99

### **Chapter 3: Materials and Technologies for Microelectronics and Sensors**

<b>The Effect of Tartrazine in Voltammetric Determination of Rhodamin B with Molecularly Imprinted Poly(3-Aminophenol) Modified Carbon Electrode</b>	107
I. Noviandri and A. Raminas	
<b>Potential Application Zn-MOF/MnO<sub>2</sub> Composite as Methanol Gas Sensor</b>	113
A. Patah, W. Kasim and B. Yuliarto	
<b>Thermal Stability and Morphology Analysis of Polymer Electrolyte Membranes Prepared from Cellulose Acetate-LiClO<sub>4</sub></b>	120
T. Sudiarti, D. Wahyuningrum, B. Bundjali and I.M. Arcana	
<b>The Synthesis of Polyethersulfone (PES) and its Derivatives as Polymer Light Emitting Diode (PLED) Material</b>	126
C.S. Anggraini, D. Wahyuningrum and A. Alni	
<b>Optimization of Pyrrole Electropolymerization on a Steel Gauze Electrode Using the Cyclic Voltammetry Method</b>	133
Y. Sukmawardani, Ihsanawati and Buchari	

## Chapter 4: Functional and Structural Materials

<b>Atmospheric Corrosion to Steel Pile on Meulaboh and Pipeline Structure along Jambi - Riau Area</b>	141
L.H. Budi and S. Handoko	
<b>Synthesis and Characterization of Sulfonated PVDF TiO<sub>2</sub>-Natural Zeolite Nanocomposites Membrane</b>	147
Juliandri, A. Nurfadillah, Rukiah, M. Nasir and R.A. Lubis	
<b>Influence of pH and Concentration of Ionic Strength Adjuster (ISA) on the Performance of Nd(III) Ion Selective Electrodewith 4-Sebacoylbis(1-Phenyl-3-Methyl-5-Pyrazolone)(H<sub>2</sub>SbBP) as Ionophores</b>	153
H. Sosidi, I. Noviandri and Buchari	
<b>Effect of Sintering Temperature on Crystal Structure and Surface Morphology of NdFeO<sub>3</sub> Oxide Alloy Materials Prepared by Solid Reaction Method</b>	158
J. Agus, S. Samnur, K. Triyana and E.H. Sujiono	
<b>Preparation and Characterization of Poly(Methyl Methacrylate) (PMMA) Fibers by Electrospinning</b>	163
E.T. Suryandari, M.A. Zulfikar, R.R. Mukti and M. Nasir	
<b>Effect of ZnO Nanoparticles on Grain Refinement of Mg-Al-Zn Alloy by Thixoforming Process</b>	170
K. Kusharjanto, S. Soepriyanto, A.A. Korda and S.A. Dwiwanto	
<b>Optical Absorption Spectra of Mn<sup>2+</sup> in of (C<sub>6</sub>H<sub>5</sub>CH<sub>2</sub>CH<sub>2</sub>NH<sub>3</sub>)<sub>2</sub>-MnCl<sub>4</sub> and (NH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>NH<sub>2</sub>)<sub>2</sub>-MnCl<sub>4</sub> Hybrid Compounds</b>	179
M.A. Saleh, A.A. Nugroho, K.K. Dewi, A.R. Supandi, D. Onggo, H. Kuhn and P.H.M. van Loosdrecht	