

# Table of Contents

## Preface

|                                                                                                                                                                                                                                                          |     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| <b>Influence of Acid-Treatment on Waste Lignin for Synthesis of Carbon Nanoparticle</b><br>N. Ngamthanacom, N. Kaewtrakulchai, W. Chaiwat, L. Chuenchom, M. Fuji and A. Eiad-Ua                                                                          | 1   |
| <b>Promotion of Osteoblast Proliferation Activated by Betaglukan (BG) Derived from Yeast Sludge</b><br>S. Rujanant, W.K. Lee and S. Kongruang                                                                                                            | 8   |
| <b>Preparation and Properties of Polylactide Reinforced with Eggshell Modified with Different Fatty Acids</b><br>P. Threepopnatkul, A. Sittatrakul, A. Anuraka, O. Mekmok, A. Khunkaew, C. Kulsetthanchalee and H. Moustafa                              | 16  |
| <b>Transformation of Waste Marigold Flowers into Porous Carbons via Hydrothermal Carbonization</b><br>N. Chaiammart, S. Wongcharoen, A. Eiad-Ua, T. Ishizaki and G. Panomsuwan                                                                           | 23  |
| <b>Production and Characterization of Bacterial Cellulose from Rice Washing Drainage (RWD) by <i>Komagataeibacter nataicola</i> Li1</b><br>P. Sudying, N. Laingamnuay and P. Jaturapiree                                                                 | 30  |
| <b>Antifouling Property and Morphology of Polyethersulfone Membranes Blended with Bio-Based Amphiphilic Polymer Additives</b><br>Y. Phuphuak and T. Loythaworn                                                                                           | 38  |
| <b>Silver Recovery and Reduction of Chemical Oxygen Demand from Used Fixing Reagent of X-Ray Laboratory Using Electrolysis Coupled with Adsorption onto Crab-Shell Chitosan and Black Rice-Husk Ash</b><br>R. Sananmuang, J. Yodphet and W.C. Chaiyasith | 45  |
| <b>Effect on the Properties of Brake Pads of Recycling Dust as Filler</b><br>K. Chanadusakorn, K. Kaewlob and P. Reubroycharoen                                                                                                                          | 52  |
| <b>Effects of Hot Molding Parameters on Physical and Mechanical Properties of Brake Pads</b><br>T. Wilairat, N. Saechin, W. Buggakupta and P. Sujaridworakun                                                                                             | 59  |
| <b>Optimization of Mixing Conditions on the Physical and Tribological Properties of Brake Pads</b><br>K. Rupiyawet, K. Kaewlob, P. Sujaridworakun and W. Buggakupta                                                                                      | 67  |
| <b>Development of a Cold-Pressing Process for the Production of Brake Pads with Uniform Density</b><br>J. Sukultanasorn, M. Sriwiboon, N. Saechin and T. Bovornratanaraks                                                                                | 73  |
| <b>Post-Harvest Shelf Life Extension of Mango Using Chitosan and Carboxymethyl Cellulose-Based Coatings</b><br>S. Phuangto, O. Chandee, T. Subsomboon and W. Wattanakaroon                                                                               | 81  |
| <b>The Physical and Mechanical Properties of Biocomposite Films Composed of Poly(Lactic Acid) with Spent Coffee Grounds</b><br>N. Suaduang, S. Ross, G.M. Ross, S. Wangsoub and S. Mahasaranon                                                           | 87  |
| <b>Flexural Strength and Dynamic Mechanical Behavior of Rice Husk Ash Silica Filled Acrylic Resin Denture Base Material</b><br>P. Wongwitthayakool, T. Sintunon, W. Tanagetanasombat, P. Soonthornchai and A.A. Abbas                                    | 94  |
| <b>Effect of Mastication Time on the Properties of Stearic Acid Coated Pineapple Leaf Fiber Reinforced Natural Rubber</b><br>T. Wongpreedee, K. Mougin and T. Amornsakchai                                                                               | 100 |
| <b>Improving the Adhesion between Pineapple Leaf Fiber and Natural Rubber by Using Urea Formaldehyde Resin</b><br>C. Tongphang, S. Hajjar, K. Mougin and T. Amornsakchai                                                                                 | 107 |
| <b>Effect of Preparation Conditions on Heavy Metal Adsorption Characteristics of Activated Carbon Prepared from Non-Fibrous Material of Pineapple Leaves</b><br>C. Khumnuan, A. Moungon, K. Mougin and P. Amornsakchai                                   | 114 |
| <b>Studies on the Preparation and Application of Tetramethylsilylcellulose from Rain Tree Sawdust</b><br>W. Wongchompoo, T. Kanthamoon and R. Bunttem                                                                                                    | 121 |

|                                                                                                                                                                                          |     |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| <b>The Phase Morphology of Citrogypsum Waste Controlled by a Hydrothermal Process in Ethylene Glycol/Water Solutions</b>                                                                 |     |
| T. Sirimahasal, Y. Kalthong, L. Simasatitkul, S. Pranee, S. Durmus and S. Seeyangnok                                                                                                     | 128 |
| <b>Development of Breathable Films from Blends of Low-Density Polyethylene and Thermoplastic Polyester Elastomer</b>                                                                     |     |
| N. Hongsririphan, S. Dang-Arsa, K. Saklo and T. Thongsima                                                                                                                                | 134 |
| <b>Preparation and Application of Poly(Acrylic Acid-co-Acrylamide) on Scale and Corrosion Inhibition</b>                                                                                 |     |
| P. Jitrewas, P. Tansiri, S. Pranee, C. Khemtong, N. Pungwiwat and S. Seeyangnok                                                                                                          | 142 |
| <b>Effect of pH on the Environmentally Friendly Fabrication of Silver Nanoparticles Using Rambutan Peel Extract</b>                                                                      |     |
| S. Phongsongpasuk, T. Norasingsatorn and N. Yongvanich                                                                                                                                   | 149 |
| <b>Durable Superhydrophobic Silica Aerogel Coating from Hydrophobic Gel Synthesis</b>                                                                                                    |     |
| T. Piyawongsiri, C. Ammarinponchai, S. Yodyingyong, T. Nidup and D. Triampo                                                                                                              | 156 |
| <b>Synthesis and Characterization of Gold Nanoparticles Synthesized in Gel and Paper by Electrolysis</b>                                                                                 |     |
| P. Dechen and E. Somsook                                                                                                                                                                 | 163 |
| <b>Effect of Crystallinity on Near Infrared Reflectance of Indium TiN Oxide Nanorice-Particles</b>                                                                                       |     |
| T. Hongsakul, S. Yodyingyong, T. Nidup and D. Triampo                                                                                                                                    | 168 |
| <b>Novel Polyacrylamide/Polypyrrole Hydrogel for Electrically Controlled Release of Salicylic Acid</b>                                                                                   |     |
| W. Prissanaroon-Ouajai, N. Koedsombat and N. Subbua                                                                                                                                      | 176 |
| <b>Metallic Film Modified Screen-Printed Carbon Electrode for Determination of 17<math>\alpha</math>-Methyltestosterone</b>                                                              |     |
| C. Math, W. Dungchai and S.P. Thanasupsin                                                                                                                                                | 182 |
| <b>Fabrication of an ISFET Sensor for the Detection of Sodium Ions in Body Plasma</b>                                                                                                    |     |
| K. Yanwittayakul, T. Khaokhiew, W. Chaisriratanakul, W. Bunjongpru and S. Srinives                                                                                                       | 190 |
| <b>Enhancement of Voltammetric Signals Using a Graphene Oxide Modified Carbon Electrode for Electrochemical Paper-Based Analytical Devices</b>                                           |     |
| K. Sirivibulkovit, T. Pimklang, P. Pakawatpanurut, A. Sabarudin, D. Nacapricha and P. Saetear                                                                                            | 197 |
| <b>Structural and Spectroscopic Properties of Metal Complexes with Ruhemann's Purple Compounds Calculated Using Density Functional Theory</b>                                            |     |
| M. Promkatkaew, P. Boonsri and S. Hannongbua                                                                                                                                             | 204 |
| <b>Colorimetric Determination of Pb<sup>2+</sup> Based on Ionochromic Polydiacetylene/Anionic Surfactant Materials</b>                                                                   |     |
| T. Pattanatornchai and A. Boonmalai                                                                                                                                                      | 212 |
| <b>Preparation of Monometallic Catalysts on Carbon Support for Synthesis of Biodiesel Fuel</b>                                                                                           |     |
| T. Longprang, P. Udomsap, N. Chollacoop, M. Fuji and A. Eiad-Ua                                                                                                                          | 219 |
| <b>Low-Cost Catalyst for Glycolysis of Polyethylene Terephthalate (PET)</b>                                                                                                              |     |
| S. Putisompon, I. Yunita, K.H. Sugiyarto and E. Somsook                                                                                                                                  | 225 |
| <b>Influence of Crystallization Time for Synthesis of Zeolite A and Zeolite X from Natural Kaolin</b>                                                                                    |     |
| S. Srilai, W. Tanwongwal, K. Onpetch, T. Wongkitikun, G. Panomsuwan, M. Fuji and A. Eiad-Ua                                                                                              | 231 |
| <b>Theoretical Study of the Electronic Structure and Properties of Alternating Donor-Acceptor Couples of Carbazole-Based Compounds for Advanced Organic Light-Emitting Diodes (OLED)</b> |     |
| S. Makjan, M. Promkatkaew, S. Hannongbua and P. Boonsri                                                                                                                                  | 236 |
| <b>Color Masking of Betel Nut Extract Using Encapsulation Technology for Nutricosmeceutical Applications</b>                                                                             |     |
| S. Thepwatee, P. Adam, P. Boonpongpha, K. Suktham, O. Unger, S. Jangkana and J. Iemsam-Arng                                                                                              | 245 |
| <b>Structure and Mechanical Properties of Unheated Chromium Aluminum Nitride Coatings Sputter-Deposited with Various Aluminum Content</b>                                                |     |
| C. Chantharangsi, C. Paksunchai, C. Oopathump, S. Chaikayun, P. Janphuang, N. Chanlek and R. Phatthanakun                                                                                | 254 |
| <b>Corrosion Investigation and Microstructure of High Calcium Fly Ash Reinforced Al6061</b>                                                                                              |     |
| O. Kosasang, A. Kummoo, R. Konghakot and S. Talangkun                                                                                                                                    | 260 |