

Table of Contents

Preface

Chapter 1: Polymers, Composites and Ceramics

Modification of Thermoresponsive Poly(<i>N</i>-Isopropylacrylamide) End-Group with Hydrophilic and/or Hydrophobic Compounds Tuned the LCST A. Zulkifli, M.A. Abdullah, N.H.R. Hashim, F.A. Md Yusof, H. Kahar and N.F. Che Harun	3
One-Pot Synthesis and Characterization of Gold Nanoparticle-Embedded Natural Magnetic Particles/Chitosan Composite A.A. Martha, S. Sutarno and N. Nuryono	11
Green Synthesis and Characterization of Natural Magnetic Particles/Chitosan Composite Material Impregnated with Copper Nanoparticles D.I. Permatasari, B. Rusdiarso and N. Nuryono	19
Development and Characterization of Zinc Glutarate (ZNGA) and Double Metal Cyanide (DMC) Catalyst for Bio-Based Polycarbonate Application M.A.S. A'zim, R.N. Hakim, F.W. Shaarani, M.A. Indok Nurul Hasyimah, Z.A.M. Yusof and A.N.D.M. Said	29
Fabrication and Characterization Studies of Alginate Biocomposite Film for Potential Use in Food Sensing Application N. Arifin, Z.R. Yet and M.Z. Abdul Rahim	35
A Study of Thermal Stability and Degradation Kinetics of Microcrystalline Cellulose (MCC)/Sol-Gel Silica (SiO₂) Hybrid Materials F.A. Md Yusof, N.S. Abd Somad, Z. Tajudin, N.F. Che Harun and S.K. Ong	53
Cellulose Nanofibers from Palm Oil Empty Fruit Bunches as Reinforcement in Bioplastic A.R. Nafisah, D. Rahmawati, F.M. Tarmidzi, D. Zhafirah and D. Anggraini	61
Influence of Mechanical Activation on the Formation of Yttrium Aluminum Garnet (YAG) at Lower Temperature M. Dioktyanto, A. Noviyanto and A.H. Yuwono	69

Chapter 2: Technologies for Bioceramics Synthesis, Assessment of Osteoconductivity, Bio- and Cytocompatibility

Opening New Avenues for Bioceramics: Oscillatory Flow Reactors and Upcoming Technologies in Skin-Tissue Engineering A. Veiga, F. Castro, F. Rocha, B. Bernardes, M.M. Duarte and A.L. Oliveira	79
Calcium Phosphate Nanoparticles as Carriers of Therapeutic Peptides F. Mancini, L.D. Esposti, A. Adamiano, D. Catalucci, S. Appleton, A. Vitali, F. Bugli, M. Sanguinetti and M. Iafisco	89
Type I Collagen-Apatite Fibrillar Nanocomposites: Mineralization, Crosslinking and Anti-Inflammatory Cocrytal Impregnation for Bone Tissue Engineering I. Páramo-Castillejo, R. Fernández-Penas, I. Romero-Castillo, A. Domínguez-Martín, E. López-Ruiz, J.F. Fernández Sánchez, D. Choquesillo Lazarte, J.A. Marchal and J. Gómez-Morales	95

Chapter 3: 3D Technologies in Scaffolds Production and Dental Restoration

Processing by Laser Stereolithography and <i>In Vitro</i> Biological Evaluation of Hydroxyapatite Scaffolds Mimicking Human Trabecular Bone Architecture P. Danty, A. Magnaudeix, E. Renaudie, F. Leborgne, V. Pateloup, V. Valle, E. Champion and P. Pascual-Mathieu	103
Structural and Mechanical Characterization of 3D Printed Hydroxyapatite Scaffolds Designed for Biomedical Applications I. Touaiher, M. Saadaoui, P. Reynaud, H. Reveron and J. Chevalier	109

Selective Laser Melting-Sintering Technology: From Dental Co-Cr Alloys to Dental Ceramic Materials

K. Dimitriadis and S. Agathopoulos

115

Chapter 4: Tribology and Coatings

Investigation on Wear Analysis of Aluminium (Al) 7075 Alloy Reinforced with Titanium Carbide (TiC) and Graphene (Gr) Nanoparticles

S.V. Lingaraju, C. Mallikarjuna and B.K. Venkatesha

125

Improving the Disseminations of Boiler Tube Material T-SA213-T-11 at High Temperature Behavior of CNT Reinforced NiCrAlY with HVOF

J. Nalini Kumari, N. Jegadeeswaran and B.S. Raju

135