

Special Issue

BIOPOLYMERS AND FUNCTIONAL RESTORATIVE MATERIALS: ORIGINS, REASONS AND APPLICATIONS

Guest Editor



Victoria Tamara Perchyonok

VTPCHEM PTY LTD
Research and Innovations
Gold Coast, Southport, 4215, QLD
Australia

Editor in Chief

Alexandru Mihai Grumezescu

Associate Editors

Michael R Hamblin, Harvard-MIT Division of Health Sciences and Technology, Cambridge, **United States**
Badal Kumar Mandal, Environmental and Analytical Chemistry Division, School of Advanced Sciences, VIT University, **India**
Carmen Chifiriuc, University of Bucharest, Faculty of Biology, Microbiology Immunology Department, **Romania**

Assistant Editor

Valentina Grumezescu, National Institute for Lasers, Plasma & Radiation Physics, Lasers Department, P.O. Box MG-36, Bucharest-Magurele, Romania
Florin Iordache, Flow Cytometry and Cell Therapy Laboratory, Institute of Cellular Biology and Pathology "Nicolae Simionescu" (ICBP), Bucharest, Romania
Alexandra Elena Oprea, Department of Science and Engineering of Oxide Materials and Nanomaterials, Faculty of Applied Chemistry and Materials Science, University Politehnica of Bucharest, Romania

Editorial Board

- (1) **Howard I. Maibach**, Department of Dermatology, 90 Medical Center Way, Surge Building Room 110, University of California, San Francisco, CA 94143-0989, USA
- (2) **Anton Ficai**, Department of Science and Engineering of Oxide Materials and Nanomaterials, Faculty of Applied Chemistry and Materials Science, Politehnica University of Bucharest, Romania
- (3) **Carmen Limban**, University of Medicine and Pharmacy Carol Davila, Faculty of Pharmacy, Romania
- (4) **Christian Hellmich**, Institute for Mechanics of Materials and Structures, Faculty of Civil Engineering, Vienna University of Technology, Austria
- (5) **Evghenia Bezirtzoglou**, Democritus University of Thrace Faculty of Agricultural Development, Department of Food Science and Technology, Greece
- (6) **Frank Trixler**, Center for NanoScience & Department for Earth and Environmental Sciences, Ludwig-Maximilians Universität München, Germany; Open Research Laboratory, School of Education, Technische Universität München, Germany.
- (7) **Fu-Zhai Cui**, Laboratory of Advanced Materials, Department of Material Science and Engineering, Tsinghua University, Beijing, P.R. China.
- (8) **George Dan Mogosanu**, University of Medicine and Pharmacy, Craiova, Romania
- (9) **Jose Luis Balcazar**, Catalan Institute for Water Research, Girona, Spain
- (10) **Keng-Shiang Huang**, The School of Chinese Medicine for Post-Baccalaureate, I-Shou University, Ta-Hsu Hsiang, Taiwan
- (11) **Keng-Liang Ou**, College of Oral Medicine, Taipei Medical University, Taiwan
- (12) **M.V. Reddy**, Departments of Physics & Chemistry Graphene Center, Advanced Batteries Lab, National University of Singapore, Singapore
- (13) **Mariana Chirea**, University of Porto, Faculty of Science, Portugal
- (14) **Mihaela Badea**, University of Bucharest, Faculty of Chemistry, Romania
- (15) **Nazmiye Altintas**, Faculty of Medicine, Parasitology Department, Izmir, Turkey
- (16) **Rodica Cristescu**, National Institute for Lasers, Plasma and Radiation Physics, Laser Department, Laser – Plasma – Surface Interactions Laboratory, Magurele, Romania
- (17) **Veronica Lazăr**, University of Bucharest, Faculty of Biology, Microbiology Immunology Department, Romania
- (18) **Mazeyar Parvinzadeh Gashti**, Département de Chimie, Université Laval, 1045 Avenue de la Médecine, Québec, QC G1V 0A6, Canada
- (19) **Mohammad Mehdi Rashidi**, Department of Mechanical Engineering, Bu-Ali Sina University, Hamedan, Iran
- (20) **Mu. Naushad**, Department of Chemistry, College of Science, King Saud University, Riyadh, Saudi Arabia
- (21) **Piotr Lulinski**, Department of Organic Chemistry, Faculty of Pharmacy, Medical University of Warsaw, Poland
- (22) **Zhi Ping (Gordon) Xu**, Australian Institute for Bioengineering and Nanotechnology, The University of Queensland, Brisbane, QLD 4072, Australia
- (23) **Fang Xie**, Department of Materials, Imperial College, London, SW7 2AZ, United Kingdom
- (24) **Kateryna Kon**, Department of Microbiology, Virology, and Immunology of Kharkiv National Medical University, Ukraine
- (25) **Mahendra Kumar Rai**, Department of Biotechnology, SGB Amravati University, Amravati, Maharashtra, India
- (26) **Victoria Samanidou**, Department of Chemistry, School of Sciences, Aristotle University of Thessaloniki, Greece
- (27) **Yu Cao**, Key Laboratory of Pesticide and Chemical Biology (Ministry of Education), College of Chemistry, Central China Normal University, Wuhan P. R. China
- (28) **Shinihci Arakawa**, Graduate School, Department of Lifetime Oral Health Care Science, Tokyo Medical and Dental University (TMDU), Yushima, Bunkyo-ku, Tokyo, Japan
- (29) **Santiago Daniel Palma**, Instituto de Investigaciones para la Industria Química (INIQUI, Universidad Nacional de Salta – CONICET). Av. Bolivia 5150, 4400, Salta, Argentina
- (30) **Dan Mihaiescu**, Politehnica University of Bucharest, Faculty of Applied Chemistry and Material Science, Romania
- (31) **Zivile Luksiene**, Vilnius University, Inst. Applied Research, Sauletekio10, 10223, Vilnius, Lithuania
- (32) **Vladimir K. Ivanov**, Kurnakov Institute of General and Inorganic Chemistry of the Russian Academy of Sciences, Moscow, Russia

TABLE OF CONTENTS

836	V. Tamara Perchyonok	Editorial: Biopolymers and functional restorative materials: origins, reasons and applications
837	Christian B. Fischer Magdalena Rohrbeck Simon Zentgraf Stefan Wehner	Diamond-like carbon coatings on medically relevant polyurethane tubing with a follow-up aging study
843	V. Tamara Perchyonok Shengmiao Zhang Nicolaas J Basson Sias R Grobler	Evaluation of tetracycline containing chitosan hydrogels as potential dual action bio-active restorative materials capable of wound healing: <i>in vitro</i> approach
850	V. Tamara Perchyonok Vanessa Reher Shengmiao Zhang Ward Massey Sias Grobler	Microwave assisted prepared interpenetrating hydrogels from guar-gum: chitosan IPN and guar gum hydrogels as novel functional materials: bonding, antioxidant and bioactivity
857	Petros L. Gkizis Iriní Kalara-Lafkioti Dimitrios Varelas Ioannis Tamiolakis Gerasimos S. Armatas Ioannis N. Lykakis	Efficient and selective oxidation of aromatic amines into nitrosoarenes catalyzed by supported polyoxometalates
861	Beatriz Lantaño Sebastián Barata-Vallejo M. Rosario Torviso Selva M. García Aldana Tinnirello Al Postigo	Perfluorobutylation of benzo(hetero)arenes in aqueous media
865	Al Postigo	Photoinduced perfluorobutylation of organic substrates in aqueous media