

TWELFTH ANNUAL CONFERENCE

YUCOMAT 2010

Hotel "Plaža", Herceg Novi, Montenegro, September 6–10, 2010
<http://www.mrs-serbia.org.rs>

Programme and The Book of Abstracts

Organised by:
Materials Research Society of Serbia,
and
**Institute of Technical Sciences of the
Serbian Academy of Sciences and Arts, Belgrade**

under the auspices of
Federation of European Material Societies
and
Materials Research Society

Title: THE TWELFTH ANNUAL CONFERENCE
“YUCOMAT 2010”
Programme and The Book of Abstracts

Publisher: Institute of Technical Sciences of the Serbian Academy of Sciences & Arts
Knez Mihailova 35/IV; P.O. Box 377, 11000 Belgrade, Serbia
Phone: +381 11 2185-437; Fax: + 381 11 2185-263
<http://www.itn.sanu.ac.rs>

Editor: Prof. Dr. Dragan P. Uskoković

Technical editor: Aleksandra Stojičić

Cover page: Aleksandra Stojičić and Milica Ševkušić

Copyright © 2010 Institute of Technical Sciences of the Serbian Academy of Sciences & Arts

Acknowledgment:



Printed in: Printing office “Čigoja”
Studentski trg 15, 11000 Belgrade
Phones: + 381 11 2186-725; + 381 11 2625-954
Circulation: 260 copies. The end of printing: July 2010.

P.S.E.4.

TESTING THE ANTIMICROBIAL ACTIVITY OF HYDROXYAPATITE NANOPARTICLES IN VITRO

Z. Ajduković¹, J. Miličević¹, M.B. Petrović¹, N. Djordjević²,
N. Ignjatović³, V. Savić⁴, D. Uskoković³

¹Faculty of Medicine, Niš, Clinic of Stomatology, Department of Prosthodontics, Niš, Serbia, ²Faculty of Medicine The University of Priština located in Kosovska Mitrovica, Clinic of Stomatology, Department of Prosthodontics, Niš, Serbia, ³Institute of Technical Sciences of the Serbian Academy of Sciences and Arts, Belgrade, Serbia, ⁴Faculty of Medicine, Niš, Institute of Biomedical Research, Niš, Serbia

Antimicrobial materials based on hydroxyapatite are very attractive for wide application in medicine and stomatology. The goal of this work was to test antimicrobial activity of hydroxyapatite nanoparticles Co/Ca- hydroxyapatite and biphasic calcium phosphate/ poly (lactide-co-glycolide) composite biomaterial. Antimicrobial activity of the samples was tested using dilution method and disk diffusion. The results of antimicrobial tests were obtained by determining the reduction percentage the number of bacteria in physiological solution where bacteria cells were exposed to the samples. It can be concluded that synthesized HAP biomaterials have satisfactory antimicrobial activity against tested bacteria strains.

P.S.E.5.

PGA CAPPED SILVER NANOPARTICLES FOR BIOMEDICAL APPLICATION

I. Savanović, M. Stevanović, Z. Stojanović, Lj. Veselinović, D. Uskoković
Institute of Technical Sciences of Serbian Academy of Sciences and Arts, Belgrade

Metallic nanoparticles possess unique electrical, optical and biological performances that have attracted considerable attention due to their potential use in many applications, such as catalysis, drug delivery, nanodevice fabrication, etc. Capped silver nanoparticles (AgNPs) have many biomedical applications due to its excellent biocompatibility, antiviral and antibacterial properties. However, in the literature it has been reported that bare silver nanoparticles can be toxic. This supports the idea that the toxicity is associated to the presence of bare metallic nanoparticle surfaces, while particles protected by the organic layer are much more biocompatible and thereby less toxic. Poly (α , γ , L-glutamic acid) (PGA) is a hydrophilic, biodegradable, and naturally available biopolymer. Its biological properties such as nontoxicity, biocompatibility, and nonimmunogenicity qualify it as an important biomaterial in drug delivery applications. In this study we used PGA as organic layer for silver nanoparticles. PGA capped silver nanoparticles were prepared by chemical reduction method with saccharides as reducing agent. The samples were characterized by particle analyzer, X-ray diffraction (XRD) and Ultraviolet Spectroscopy (UV).