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Glavni i odgovorni urednik/ Editor

Daniela Šojić Merkulov

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Suzana Jovanović-Šanta, Stanislava Olić Ninković, Ksenija Pavlović, Aleksandar Oklješa

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Bioaktivne kompozitne prevlake na bazi hidroksiapatita na titanu za primene u ortopediji

Milena Lj. Stevanović¹, Marija Djošić², Ana Janković¹, Vesna Kojić³, Vesna Mišković-Stanković⁴

¹Univerzitet u Beogradu, Tehnološko-metalurški fakultet, Beograd, Srbija

²Institut za tehnologiju nuklearnih i drugih mineralnih sirovina, Beograd, Srbija

³Univerzitet u Novom Sadu, Institut za onkologiju Vojvodine, Sremska Kamenica, Srbija

⁴Univerzitet Union – Nikola Tesla, Fakultet za ekologiju i zaštitu životne sredine Beograd, Srbija

Kompozitna prevlaka hidroksiapatita (HAP) sa prirodnim polimerima hitozanom (CS) i polivinil-alkoholom (PVA), kao i sa antibiotikom gentamicinom (Gent) je elektroforetski taložena na titanu, pri konstantnom naponu. Formiranje nove kompozitne HAP/PVA/CS/Gent prevlake je potvrđeno infracrvenom spektroskopijom sa Furijeovom transformacijom. Necitotoksični efekat istaložene HAP/PVA/CS/Gent prevlake je dokazan MTT testom prema dve ćelijske linije (MRC-5 i L929). Sposobnost HAP/PVA/CS/Gent prevlake da indukuje i promoviše osteointegraciju je pokazana ALP testom.

Bioactive hydroxyapatite-based composite coatings on titanium for orthopedic applications

Milena Lj. Stevanović¹, Marija Djošić², Ana Janković¹, Vesna Kojić³, Vesna Mišković-Stanković⁴

¹University of Belgrade, Faculty of Technology and Metallurgy, Belgrade, Serbia

²Institute for Technology of Nuclear and Other Mineral Raw Materials, Belgrade, Serbia

³University of Novi Sad, Oncology Institute of Vojvodina, Sremska Kamenica, Serbia

⁴University Union – Nikola Tesla, Faculty of Ecology and Environmental Protection, Belgrade, Serbia

Composite coating of hydroxyapatite (HAP) with natural polymers chitosan (CS) and poly(vinyl alcohol) (PVA) with the antibiotic gentamicin (Gent) was electrophoretically deposited on titanium from an aqueous suspension, at a constant voltage. Formation of a new composite HAP/PVA/CS/Gent coating was confirmed by Fourier transform infrared spectroscopy. Non-cytotoxicity of deposited HAP/PVA/CS/Gent coating was demonstrated by MTT assay towards two types of cell lines (MRC-5 and L929). HAP/PVA/CS/Gent coating ability to induce and promote the osseointegration process was proved by the ALP assay.

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