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YUCOMAT 2022

&

TWELFTH WORLD ROUND TABLE CONFERENCE ON SINTERING

XII WRTCS

Hunguest Hotel Sun Resort, Herceg Novi, Montenegro
August 29 - September 2, 2022

Program
and
the Book of Abstracts

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Initial characterization and evaluation of two tailing dumps in Bulgaria for application as precursors for geopolumers

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Andrea Osmoković[1], Ivan Jancic[2], Ivona Janković- Častvan[1], Predrag Petrović[3], Marina Milenković[2], Bojana Obradović[1]
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Characterization and drug release of Zn-Al layered double hydroxyde–nifuroxazide composite

Željko Radovanović[1], Lidija Radovanović[1], Đorđe Janaćković[2], Rada Petrović[2]
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Bio-mimetic bone-like surface structure of Ti-based implants

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Poster Presentations

P.S.III.E.4.

Characterization and drug release of Zn-Al layered double hydroxyde–nifuroxazide composite

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During last decades, layered double hydroxides ($[M^{II}_{1-x}M^{III}_{x}(OH)_2]^{x+}(A^-)_{x/n}\cdot yH_2O$, LDHs) have been used in catalysis, ceramics as well as in removal of anionic pollutants. Due to their excellent anion exchange capacity, good biocompatibility and low toxicity, the nanoparticles of LDHs showed an excellent potential as drug carriers. Nifuroxazide ($C_{12}H_9N_3O_5$, NFX) is a broad-spectrum antibacterial drug, poorly soluble in water. Towards to increase the solubility of NFX, Zn-Al-LDH/NFX composite has been prepared by precipitation method at room temperture. Zn-Al-LDH, NFX and the obtained composite were analyzed by Fourier transform infrared spectroscopy (FTIR), field emission scanning electron microscopy (FESEM), X-ray diffraction (XRD), simultaneous thermogravimetry-differential thermal analysis (TG-DTA) and Brunauer–Emmett–Teller (BET) method. Characterization of the raw materials and the obtained composite confirmed the intercalation of NFX in Zn-Al-LDH. The in vitro study of drug release in simulated stomach acid and intestinal fluid showed constant release of NFX from Zn-Al-LDH during 24 h, confirming Zn-Al-LDH is a promising drug carrier.

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