

Sveučilište u Zagrebu
Prirodoslovno-matematički fakultet
Kemijski odsjek

KOLOKVIJ

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održat će u četvrtak 23. listopada u predavaonici A1 (prizemlje zgrade Kemije, Horvatovac 102a) s početkom u 15:00 sati kolokvij pod naslovom:

Healing Bones, Defeating Bacteria: The Science Behind Metal-Doped Hydroxyapatite

Certain bacterial species are a persistent issue in hospital-acquired infections due to their fast and potent development of multi-drug resistance. To address this urgent challenge, this study aimed to evaluate the antibacterial activity of mono-doped hydroxyapatite (HAp), incorporating potentially antibacterial ions (Sr^{2+} , Zn^{2+} , Mg^{2+} , SeO_3^{2-} , Ag^+ , Ce^{3+} , Cu^{2+} , Ga^{3+} and Mn^{2+}), against *Escherichia coli*, *Staphylococcus aureus*, *Acinetobacter baumannii*, *Klebsiella pneumoniae*, and *Pseudomonas aeruginosa*. All materials were non-cytotoxic to cells, except for Cu-doped HAp. HAp doped with Ag^+ showed significant antibacterial activity against all tested bacteria. Ce-doped HAp showed no antibacterial effect, while Ga-, Se-, Zn-, Mg-, Se- and Mn-doping indicated potential antibacterial properties towards certain bacterial strains by inhibiting bacterial attachment and survival. The Gram-negative bacteria attached to the HAp surface in a lesser amount than the Gram-positive ones. The antibacterial activity of Ag-doped HAp toward *A. baumannii* was time-dependent and should be considered in potential applications.