

15th World
MEDICAL NANOTECHNOLOGY CONGRESS
October 18-19, 2017 Osaka, Japan

Cobalt-doped nanohydroxyapatite: Synthesis, characterization, antimicrobial and hemolytic studies

Kashmira P Tank

Saurashtra University, India

Hydroxyapatite (HAP) or calcium apatite is naturally occurring mineral with formula $\text{Ca}_5(\text{PO}_4)_3(\text{OH})$, which is usually written as $\text{Ca}_{10}(\text{PO}_4)_6(\text{OH})_2$. It is mostly area of interest due to its application in the field as implant coating, antimicrobial agent, catalysis, chromatographic separation of proteins and DNA, drug delivery carrier and non-viral vector as gene therapy, dentistry. In the present investigation, cobalt-doped hydroxyapatite (Co-HAP) nanoparticles were synthesized by surfactant-mediated approach and characterized by different techniques. The EDAX was carried out to estimate the amount of doping in Co-HAP. The transmission electron microscopy result suggested the transformation of morphology from needle shaped to spherical type on increasing the doping concentration. The powder XRD study indicated the formation of a new phase of brushite for higher concentration of cobalt. The average particle size and strain were calculated using Williamson-Hall analysis. The average particle size was found to be 30-60nm. The antimicrobial activity was evaluated against four organisms *Pseudomonas aeruginosa* and *Shigella flexneri* as Gram negative as well as *Micrococcus luteus* and *Staphylococcus aureus* as Gram positive. The hemolytic test result suggested that all samples were non-hemolytic. The photoluminescence study was carried out to identify its possible applicability as a fluorescent probe.

kashmira_physics@yahoo.co.in