SYNTHESIS AND CHARACTERIZATION OF HYDROXYAPATITE BY ZnO NANOPARTICLES

Diana Carolina Galvez Coy¹, Nestor Sanchez Ospina¹
¹Tecnoacademia, Centro de Automatización Industrial, Sena regional Caldas, Manizales, Caldas, C.P: 170003, Colombia.

Hydroxyapatite is the main inorganic component of bone, it corresponds to approximately 70% dry weight of bone tissue which makes it very resistant to compression. The Hydroxyapatite (HA) has a large percentage of biocompatibility and osteoconductive which makes it one of the most studied biomaterials and used as a bone substitute. This paper presents a process of obtaining Hydroxyapatite by the calcination method using samples of cortical area bovine femur bone, following cleaning procedures biological, macerated and calcination waste, taking samples at a temperature of 1000 °C. In addition to this method for obtaining hydroxyapatite, the material obtained was mixed with ZnO particles in a weight / weight percent equal to 0.1 subjected to temperatures 1050°C, 600°C, 800°C and room temperature. The set of samples were analyzed by XRD, Raman Spectroscopy, FTIR, Atomic Absorption and Scanning Electron Microscopy (SEM), analyzing the structural, vibrational, compositional and morphological properties of sample in study. The analysis show that the Hydroxyapatite obtained with ZnO alloy has very good quality and maintains mainly the characteristics of pure hydroxyapatite.

Keywords: Hydroxyapatite, Nanoparticles, ZnO

Presenting author’s email: d cgalvezc@unal.edu.co