

# Synthesis and Structural Characterization of nanocomposite bioceramic powder based on hydroxyapatite

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## Abstract

Hydroxyapatite (HA) is the emerging most biomaterial used as a bioimplant material such as for the reparation and the reconstruction of the bone and dental defects. This work describe synthesis technique of HA powder using the aqueous precipitation method. The product was synthesized at two different temperatures 80°C and 100°C with precalcination at 1200 and 900 °C for ninety minutes in order to ameliorate the crystallinity of bioceramic hydroxyapatites. The obtained powder was characterized by X-ray analysis and Scanning electron microscopy (SEM) to reveal its phase content.

A detailed study on the effect of conditions on the microstructural evolution was investigated by X-ray diffraction using the MAUD program based on the Rietveld method combined with a Fourier analysis in order to describe the broadened diffraction Bragg peaks.

Key words: Hydroxyapatite; Bioceramic; Precipitation technique; X-ray diffraction, Rietveld method.