THE INFLUENCE OF THE CaCO$_3$ CONCENTRATION ON THE SYNTHESIS OF NANO-HYDROXYAPATITE USING THE HYDROTHERMAL METHOD

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In this work, a study on the influence of CaCO$_3$ concentration in the synthesis of nano-hydroxyapatite is presented. Then, using tribasic sodium phosphate as precursor of the phosphorous to establish the stoichiometric ratio of Ca/P=1.96 as reference, it was evaluated the optimal synthesis condition of nano-hydroxyapatite when the CaCO$_3$ concentration is variated; the synthesis was performed through the hydrothermal method in a microwaves oven. The appropriate characteristics of the hydroxyapatite could be chosen on the basis of scanning electron microscopy, X-ray Diffraction and infrared spectroscopy analysis [1, 2]. Therefore, the morphology, chemical composition, crystallographic phase and chemical purity were evaluated. Results allow mainly observed the formation of agglomerates of the order of 2.8 µm 4.8 µm wide and 4.0 µm 5.6 µm in length, identified by XRD as the main phase to hydroxyapatite, and that is corroborated by FTIR where identifies the fundamental bands corresponding to the vibration of the main groups of hydroxyapatite. In these Spectra was observed in five samples found present vibrational modes of the bands corresponding to the groups phosphates (PO$_4$) in the bands within the range comprised between 530 and 1053 cm$^{-1}$, the Group hydroxyl (OH) in the nearby peaks 3650 cm$^{-1}$ and the Group carbonate (CO$_3$$^{2-}$) in the peaks close to 871 and 1440 cm$^{-1}$ characteristic of the has stoichiometric. The results indicate that of synthesized hydroxyapatite (1:1) is stoichiometry which presents best feature since it differentiates the formation of fibers of 2.3 µm wide and 4.6 µm in length

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