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HYBRID ORGANIC-INORGANIC MATERIALS BASED ON HYDROXYAPATITE STRUCTURE

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Abstract

The present article details the formation of calcium hydroxyapatite synthesised by the hydrothermal way, in presence of glycine or sarcosine. The presence of these amino-acids during the synthetic processes reduces the crystalline growing through the formation of hybrid organic-inorganic species. The crystallite sizes are decreasing and the morphology is modified with the increase of the amino-acid concentration..

graphical abstract

Formation of Ca carboxylate salt leading to the grafting of glycine and sarcosine on the Ca=HAp surface (R= H, CH₃).

Keywords: Hydroxyapatite; glycine; sarcosine; hydrothermal synthesis

1. Introduction

Apatites which are the major inorganic component of bones and teeth [1-4], is a typical green natural material preferred in many fields due to its good biocompatibility, biodegradability, nontoxic properties [5-7]. Hydroxyapatites, mainly the calcium hydroxyapatite of formula Ca₁₀(PO₄)₆(OH)₂, (CaHAp), are known for their particular properties of ionic exchange, affinity of adsorption, and its ability to establish links with organic molecules of different sizes. This material is used in the abduction of rare earths and heavy metals [8]. Research into adsorption properties of apatite grown considerably in recent years. The inorganic-organic hybrids obtained have interesting applications due to the combination of some characteristic properties of the inorganic substrate (bioreactivity, chemical and

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