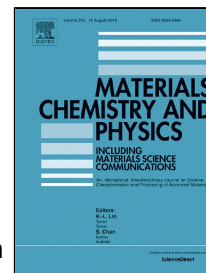


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Impact of magnetic field on the mineralization of iron doped calcium phosphates

S. Baskar^a, J Ramana Ramya^a, K. Thanigai Arul^b, E. A. K. Nivethaa^a, V.P. Mahadevan Pillai^c,

S. Narayana Kalkura^{a*}

^aCrystal Growth Centre, Anna University, Chennai-600 025, Tamil Nadu, India.

^bDepartment of Physics, AMET Deemed to be University, Kanathur, Chennai-603 112, Tamil Nadu, India.

^cDepartment of Optoelectronics, University of Kerala, Kariavattom, Thiruvananthapuram – 695 581, Kerala, India.

Abstract

Iron doped calcium phosphate having different morphologies has been synthesized using gel medium and the change in morphology caused due to the incorporation of iron in the presence and absence of magnetic field have been studied. The oriented dendritic growth of brushite crystals were observed in the presence of magnetic field. The plate like hydroxyapatite (HAp) was converted into needle like morphology on application of magnetic field. Various functional groups corresponding to HAp and dicalcium phosphate dihydrate (DCPD) were observed in the FTIR and Raman spectrum. Presence of HPO_4^{2-} in the crystals grown in the absence of magnetic field has been confirmed from FTIR and Raman results. Nanoroughness of the crystals was also seen to increase on applying a magnetic field of the order of 0.1 T. Magnetic field makes the samples devoid of HPO_4^{2-} phase and also limits the concentration of iron incorporated thus, leading to a change in the morphology.

Key words: Calcium phosphate, Iron, Magnetic field, Dendrite.

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