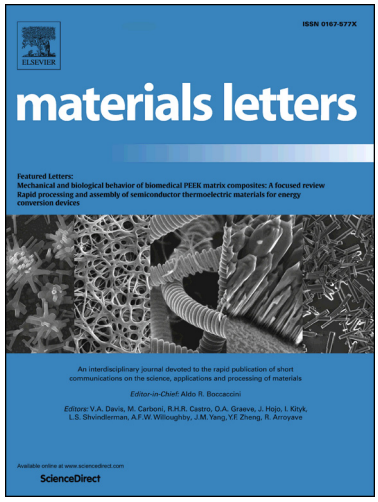

Effect of addition of calcium ions and hydrothermal treatment on the morphology of calcium phosphates.

Lina P. Higuita, Andrés F. Vargas

PII: S0167-577X(16)31986-3
DOI: http://dx.doi.org/10.1016/j.matlet.2016.12.102
Reference: MLBLUE 21914

To appear in: *Materials Letters*

Received Date: 10 June 2016
Revised Date: 20 December 2016
Accepted Date: 28 December 2016

Please cite this article as: L.P. Higuita, A.F. Vargas, Effect of addition of calcium ions and hydrothermal treatment on the morphology of calcium phosphates., *Materials Letters* (2016), doi: http://dx.doi.org/10.1016/j.matlet.2016.12.102

Effect of addition of calcium ions and hydrothermal treatment on the morphology of calcium phosphates.

Lina P. Higuita[1], Andrés F. Vargas[1]

1. *Grupo de Química Básica, Aplicada y Ambiente, Departamento de Ciencias Básicas, Instituto Tecnológico Metropolitano. Medellín, Colombia. lphg08@gmail.com*

Abstract

Chemical precipitation followed by hydrothermal processing is conducted to obtained different phases of calcium phosphate. The hydrothermal treatment time affects the calcium phosphate phases obtained. The aging time does not influence the calcium phosphate phases obtained but it has an effect on crystallinity. On the other hand, the presence of calcium carbonate, together with hydrothermal treatment, promotes the formation of hydroxyapatite with rod-shape.

Keywords: Hydroxyapatite, Calcium carbonate, hydrothermal, precipitation, DCPD.

1. Introduction

Calcium phosphates are one of the main component of bones and teeth, and they play an essential role in our daily lives [1-3]. Therefore, when there is a fracture or damage in this kind of tissues, these materials can be used for repairing, restoring and replacing them. Due to their high bioavailability, osteoinductive properties and ease of synthesis [2,3], most of the calcium phosphates are used in biomedical applications [2–10]. In previous studies, it has been reported that morphology and particle size of calcium phosphates can be