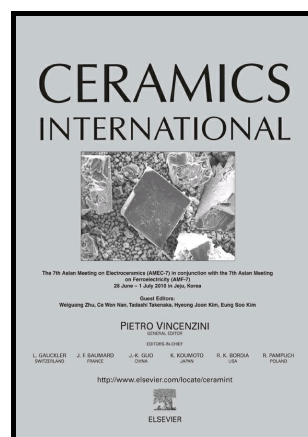


Author's Accepted Manuscript

One step method to synthesize flower-like hydroxyapatite architecture using mussel shell bio-waste as a calcium source

Govindan Suresh Kumar, Easwaradas Kreedapathy Girija, Manickam Venkatesh, Gopalu Karunakaran, Evgeny Kolesnikov, Denis Kuznetsov



www.elsevier.com/locate/ceri

PII: S0272-8842(16)32177-0
DOI: <http://dx.doi.org/10.1016/j.ceramint.2016.11.163>
Reference: CERI14251

To appear in: *Ceramics International*

Received date: 11 November 2016
Revised date: 22 November 2016
Accepted date: 23 November 2016

Cite this article as: Govindan Suresh Kumar, Easwaradas Kreedapathy Girija, Manickam Venkatesh, Gopalu Karunakaran, Evgeny Kolesnikov and Denis Kuznetsov, One step method to synthesize flower-like hydroxyapatite architecture using mussel shell bio-waste as a calcium source, *Ceramic International*, <http://dx.doi.org/10.1016/j.ceramint.2016.11.163>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain

One step method to synthesize flower-like hydroxyapatite architecture using mussel shell bio-waste as a calcium source

Govindan Suresh Kumar^{a*}, Easwaradas Kreedapathy Girija^b, Manickam Venkatesh^a,
Gopalu Karunakaran^{c,d}, Evgeny Kolesnikov^c, Denis Kuznetsov^c

^aDepartment of Physics, K.S. Rangasamy College of Arts and Science (Autonomous), Tiruchengode 637 215, Tamil Nadu, India.

^bDepartment of Physics, Periyar University, Salem 636 011, Tamil Nadu, India.

^cDepartment of Functional Nanosystems and High-Temperature Materials, National University of Science and Technology "MISiS," Leninskiy Pr. 4, Moscow, 119049, Russia.

^dDepartment of Biotechnology, K.S. Rangasamy College of Arts and Science (Autonomous), Tiruchengode 637 215, Tamil Nadu, India.

*Corresponding author: Tel.: + 91 9944429261. gsureshkumar1986@gmail.com

Abstract

Mussel shell, a calcium-rich resource, is found plenty in nature. We have developed a novel and facile method to convert mussel shell bio-waste into hydroxyapatite (HAp) biomaterial using microwave irradiation with the aid of ethylenediaminetetraacetic acid (EDTA) as chelating agent. The obtained HAp had flower-like morphology which can be a potential candidate for developing biomaterial for orthopedic applications. Moreover, the developed method has the potential to recover the bio-waste and reduce environment pollution.

Keywords: A. Microwave processing; B. X-ray methods; D. Apatite; E. Biomedical applications.

Download English Version:

<https://daneshyari.com/en/article/5439039>

Download Persian Version:

<https://daneshyari.com/article/5439039>

[Daneshyari.com](https://daneshyari.com)