

Author: [ADVANCED](#)

Volume Page

Keyword: [TOP](#) > [Available Issues](#) > [Table of Contents](#) > [Abstract](#)

ONLINE ISSN : 1881-1361

PRINT ISSN : 0287-4547

Dental Materials Journal

Vol. 29 (2010) , No. 3 p.303-308

[\[PDF \(1785K\)\]](#) [\[References\]](#)**Fabrication of carbonate apatite block based on internal dissolution-precipitation reaction of dicalcium phosphate and calcium carbonate**[Fumikazu DAITOU](#)¹⁾²⁾, [Michito MARUTA](#)¹⁾, [Giichiro KAWACHI](#)¹⁾, [Kanji TSURU](#)¹⁾, [Shigeki MATSUYA](#)³⁾, [Yoshihiro TERADA](#)²⁾ and [Kunio ISHIKAWA](#)¹⁾

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(Received October 13, 2009)

(Accepted January 14, 2010)

Abstract:

In this study, we investigated a novel method for fabrication of carbonate apatite block without ionic movement between precursor and solution by using precursor that includes all constituent ions of carbonate apatite. A powder mixture prepared from dicalcium phosphate anhydrous and calcite at appropriate Ca/P ratios (1.5, 1.67, and 1.8) was used as starting material. For preparation of specimens, the slurry made from the powder mixture and distilled water was packed in a split stainless steel mold and heat-treated, ranging from 60°C to 100°C up to 48 hours at 100% humidity. It appeared that carbonate apatite could be obtained above 70°C and monophasic carbonate apatite could be obtained from the powder mixture at Ca/P ratio of 1.67. Carbonate content of the specimen was about 5–7%. Diametral tensile strength of the carbonate apatite blocks slightly decreased with increasing treatment temperature. The decrease in diametral tensile strength is thought to be related to the crystal size of the carbonate apatite formed.

Key words:[Carbonate apatite](#), [Dicalcium phosphate](#), [Calcium carbonate](#)[\[PDF \(1785K\)\]](#) [\[References\]](#)

To cite this article:

Fumikazu DAITOU, Michito MARUTA, Giichiro KAWACHI, Kanji TSURU, Shigeki MATSUYA, Yoshihiro TERADA and Kunio ISHIKAWA. Fabrication of carbonate apatite block based on internal dissolution-precipitation reaction of dicalcium phosphate and calcium carbonate . Dent. Mater. J. 2010; 29: 303-308 .

doi:10.4012/dmj.2009-095

JOI JST.JSTAGE/dmj/2009-095

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[View "Advance Publication" version \(April 24, 2010\).](#)



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