

Author:  [ADVANCED](#)

Volume Page

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

ONLINE ISSN : 1881-1361

PRINT ISSN : 0287-4547

**Dental Materials Journal**

Vol. 25 (2006) , No. 4 p.706-712

[\[PDF \(518K\)\]](#) [\[References\]](#)**Preparation and Properties of Chitosan/Calcium Phosphate Composites for Bone Repair**[Shinn-Jyh DING](#)<sup>1)</sup>

1) Institute of Oral Materials Science, Chung-Shan Medical University

(Received June 26, 2006)

(Accepted September 15, 2006)

**Abstract:**

Chitosan/calcium phosphate (CaP) composites composed of bioactive calcium phosphate and flexible chitosan were made by a simple mixing-and-heating method. Phase composition, morphology, and mechanical properties — including in-air and *in vitro* fatigue behavior — were evaluated. Experimental results showed that the chitosan matrix did not affect the crystalline phase of CaP. However, the content of CaP additive affected the three-point bending strength of the composites. A CaP/chitosan ratio of 5% by mass to volume in the composite achieved the significantly highest bending strength of 45.7 MPa. Stability of chitosan/CaP hybrid composites was apparently affected by *in vitro* cyclic loading. Nonetheless, when applied a loading stress of 11.4 MPa, the sample containing the optimal 5 mass/vol% CaP lasted 40 minutes in *in vitro* fatigue test until failure occurred. It was thus concluded that hybrid biocomposites with initial high strength might be a potential implant candidate for bone defect repair.

**Key words:**[Chitosan](#), [Calcium phosphate](#), [Composites](#)[\[PDF \(518K\)\]](#) [\[References\]](#)Download Meta of Article [\[Help\]](#)[RIS](#)[BibTeX](#)

To cite this article:

Shinn-Jyh DING. Preparation and Properties of Chitosan/Calcium Phosphate Composites for Bone Repair . Dent. Mater. J. 2006; 25: 706-712 .

---

doi:10.4012/dmj.25.706

JOI JST.JSTAGE/dmj/25.706

Copyright (c) 2009 The Japanese Society for Dental Materials and Devices

---



---

[Japan Science and Technology Information Aggregator, Electronic](#)

