

PREPARATION AND CHARACTERIZATION OF HAP-GLASS POROUS COMPOSITES

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Abstract

The aim of this study was to prepare a porous biocomposite material for bone defect replacement. Hydroxyapatite (HAP), a bioactive and biocompatible powder, was mixed with phase-separable borosilicate glass containing calcium oxide. Calcium carbonate was added as a foaming agent. The composite specimens were made by mixing, pressing and sintering. Phase separation of the glassy phase was controlled by heat treatment. Thereafter, the specimens were acid-leached and characterized in terms of phase, pore size and pore structure by means of x-ray diffractometry (XRD), scanning electron microscopy (SEM) and mercury porosimetry. The evaluations were performed both before and after acid leaching. The results showed that HAP-glass porous composites containing a HAP phase and a minor amount of the second phase and having an interconnected pore structure could be prepared.

Keywords: hydroxyapatite-glass composite, porous biocomposite.

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