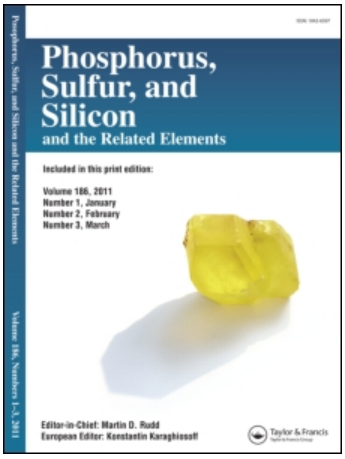

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Syntheses and Mechanical Properties of Calcium Phosphate--Methacrylate Phosphate Composites

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SYNTHESES AND MECHANICAL PROPERTIES OF CALCIUM PHOSPHATE—METHACRYLATE PHOSPHATE COMPOSITES

Takuya Nomoto,[a] *Shunro Yamaguchi,*[a] *Hirokazu Tokunaga,*[c] *Yoh Sasaki,*[c] *Kiyoko Sakamoto,*[b] *Masayuki Okazaki,*[d] *Takafumi Kusunose,*[a] *Tohru Sekino,*[a] *and Koichi Niihara*[a]
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There has been considerable interest in the bioactive bone cements based on calcium phosphates. We report herein the syntheses of surface-modified composites and their compressive strength. The surface modification of calcium phosphate were achieved by the treatment of calcium phosphate with methacylate ethyl-2-phosphate (MEP) in acetone. Successively, the modified calcium phosphate was mixed with MEP, which were polymerized by heating in the presence of benzoyl peroxide.

The compressive strength of the surface-modified composites are as follows; α-TCP*-MEP composite/21 MPa, β-TCP*-MEP composite/53 MPa, Hap*-MEP composite/22 MPa. The compressive strength of the corresponding non-modified composites are as follows; α-TCP-MEP composite/4 MPa, β-TCP-MEP composite/49 MPa, HAp-MEP composite/11 MPa. By the surface modification of calcium phosphate the compressive strength was substantially improved.

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