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Si- and Fe-substituted beta-tricalcium phosphate: Synthesis, characterization and *in vitro* properties

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The aim of this study was to investigate the effects of Si and Fe ions in β-TCP on the physical and chemical properties. Beta-tricalcium phosphate (β-TCP) has been known as biodegradable material for temporary medical devices. Enhancing the strength and osteoconduction properties of β-TCP is important for their applications. To modify mechanical properties and *in vitro* behavior, Si and Fe ions were substituted in β-TCP. The Si- and Fe- substituted β-TCP powder were synthesized by co-precipitation method. Crystal structure and thermal properties of Si- and Fe-substituted β-TCP were investigated by using X-ray diffraction combined with Rietveld refinement analysis and differential thermal analysis (DSC) to compare the effects of substituted elements on β-TCP. Moreover, MTT assay, alkaline phosphate (ALP) staining confirmed the cytotoxicity, cell differentiation and cell proliferation.

Biography

Kyung-Hyeon Yoo has completed her BS from Pusan National University.

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