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Synthesis and properties of biphasic calcium phosphate prepared by different methods (Conference Paper)

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Abstract

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Hydroxapatite (HA) is a stable phase with low dissolution rate in body fluid. Meanwhile,  $\beta$ -tricalcium phosphate ( $\beta$ -TCP) is rather soluble but the dissolution rate is too fast for bone bonding. Therefore a mixture of both is desirable to control the bioresorbability. In this work, calcium phosphate powder has been synthesized via sol gel and wet precipitation method to compare phase behaviour of these powders upon calcination. XRD result clearly revealed that both as-synthesized powders were pure HA with good purity. The decomposition of HA to TCP took place in the range of 700-800 °C and 800-900 °C for sol gel and wet chemical precipitation powder, respectively. The weight loss detected at 700-850°C in TGA analysis confirmed the presence of this biphasic mixtures. From FTIR analysis, profound change in OH- band intensity was attributed to the increased in HA crystallinity with calcination temperature. © (2014) Trans Tech Publications, Switzerland.

Author keywords

Biphasic mixtures Calcination Calcium phosphate Sol gel Synthesis Wet precipitation

Indexed keywords

Engineering controlled terms:

Calcination Dissolution Magnesium printing plates Mixtures Powders Precipitation (chemical) Sol-gel process Sols Synthesis (chemical) Transmission control protocol

As-synthesized powder

Biphasic calcium phosphates

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Biphasic calcium phosphates bioceramics (HA/TCP): Concept, physicochemical properties and the impact of standardization of study protocols in biomaterials research

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Multiphasic calcium orthophosphate (CaPO4) bioceramics and their biomedical applications

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