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## The effects of excess calcium and aging media on the mechanical properties of calcium phosphate filling materials (Conference Paper)

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## Abstract

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The effect of excess calcium and aging media on calcium phosphate biomaterials mechanical strength was studied. The variation of excess calcium and sample type has shown different performance when they are being aged in the moist environment (ME) and the simulated body fluid (SBF). The calcium phosphates were synthesized via low temperature hydrothermal method and sampled to two types of powder-water (3:2) mixture and paste for 90 days of the aging time. Two mechanical tests were applied, compression and diametrical tensile test, while XRD to evaluate phases. Scanning electron micrograph showed the paste samples that soaked in SBF was better entanglement of the particles, better compression strength but with degradation and diametrical tensile strength improvement by aging. Calcium hydroxide and ammonium di-hydrogen phosphoric was traced in all the samples along with calcium deficient hydroxyapatite as the main phase. © (2014) Trans Tech Publications, Switzerland.

## Author keywords

[Aging](#) [Calcium deficient hydroxyapatite](#) [Calcium phosphate](#) [Excess calcium](#) [Hydrothermal](#) [Mechanical strength](#) [Single pot](#)

## Indexed keywords

Engineering controlled terms:

[Aging of materials](#) [Biological materials](#) [Calcium phosphate](#) [Hydroxyapatite](#) [Mechanical properties](#) [Scanning electron microscopy](#) [Strength of materials](#) [Tensile strength](#) [Tensile testing](#)[Calcium deficient hydroxyapatite](#)[Compression strength](#) [Hydrothermal](#)[Low-temperature hydrothermal methods](#)[Scanning electron micrographs](#)[Simulated body fluids](#) [Single pot](#)[Strength improvements](#)

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