

Nanostructure in Bone Apatite

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Abstract

The mineral component of bone is a form of calcium phosphate known as hydroxyapatite. Due to the presence of significant amount of foreign ions, biological apatites have a poor crystallinity and are non-stoichiometric. Size and shape of mineral particles change with species, age, and disease. This work studied the relationship between rat bone mineral and the age of rat. Analysis was carried out by using an X-ray diffraction (XRD) and a scanning electron microscopy (SEM). It was found that bone apatite has a nano sized crystal (14, 70 – 24,49 nm). Bone apatite crystallinity has a nonlinear relation to the age, however younger rats is more crystalline than older. SEM micrograph has shown that bone apatite, which is a nanostructure material, composes two phase, amorphous and crystalline.

Keywords bone mineral - carbonate apatite - hydroxyapatite