

عنوان مقاله:

Fabrication and Characterization of Hydroxyapatite/Chitosan-Gelatin Nanocomposite Bone Tissue Engineering Scaffold

محل انتشار:

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تعداد صفحات اصل مقاله: 6

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خلاصه مقاله:

Chitosan-gelatin /nanohydroxyapatite composite scaffolds are extremely used in bone tissue engineering as biodegradable materials. In this study, 3D chitosan-gelatin scaffold was coated with a calcium phosphate slurry and then immersed in simulated body fluid (SBF) at 37 °C for various periods to prepare an apatite/chitosan-gelatin nanocomposite. The change in phase composition, structural groups and morphology of the nanocomposite was examined using XRD, FTIR and SEM, meanwhile the change in chemistry of the SBF during soaking was checked by ICP-AES. Apatite crystals which were similar to that of natural bone in chemistry (carbonated) and morphology (nanostructured) were formed on surfaces of the scaffold after soaking for 14 days. The results indicated that simple coating of chitosan-gelatin scaffold by reactive calcium phosphate particles can serve as a novel way to obtain a biomimetic nanocomposite which may have improved bioactivity and osteoconductivity.

کلمات کلیدی:

nanocomposite; chitosan; hydroxyapatite; tissue engineering; bone scaffold

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