

عنوان مقاله:

Electrophoretic Deposition Behavior of Sol-Gel Synthesized Hydroxyapatite and Tricalcium Phosphate Nano-Powders

محل انتشار:

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خلاصه مقاله:

Recently, hydroxyapatite and β -tricalcium phosphate coatings have been used as bonding layer on implants in medical applications. In this research, nano-powders of calcium phosphate ceramics were synthesized by sol-gel route. Calcium nitrate and dihydrogen phosphate were used as precursors. Deionized water and ammonia were also employed as solvent and pH adjuster, respectively. The prepared sol was aged at room temperature and transformed to a white gel. Finally, hydroxyapatite and β -tricalcium phosphate were obtained by heat treatment at different temperatures. Then, these nano-powders were electrophoretically deposited on stainless steel substrate by applying 120 V for 10 min. Crystalline phase characterization was done by X-ray diffraction (XRD) and the results were confirmed by energy dispersive X-ray (EDX). Suspension of each nano-powder was prepared in two different media and the dispersion behavior of each colloid was investigated. Based on dispersion behavior results and scanning electron microscopy (SEM) images, ethanol and 2-propanol are the best media for electrophoretic deposition of hydroxyapatite and β -tricalcium phosphate, respectively.

کلمات کلیدی:

Hydroxyapatite, Tricalcium phosphate, Sol-gel, Electrophoretic deposition

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