

عنوان مقاله:

Studies on preparation and characterization of sol-gel derived mesoporous bioactive glass nanopowders in the ternary system SiO₂-CaO-P₂O₅

محل انتشار:

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نویسندگان:

Masoud Mozafari - Biomaterials Group, Faculty of Biomedical Engineering, Amirkabir University of Technology

Fathollah Moztarzadeh

Nader Nezafati

خلاصه مقاله:

This paper reports on the results concerning the preparation and analysis of a new bioactive glass formulation with the molar composition 64%SiO₂-31%CaO-5%P₂O₅ by a sol-gel process. sol-gel derived bioactive glass material was produced in nanopowder using planetary milling machine, followed by sintering at 700°C. The obtained material was evaluated by X-ray powder diffraction (XRD), thermal gravimetric analysis (TGA), differential scanning calorimetry (DSC) analyses, Fourier transform infrared spectroscopy (FTIR), scanning electron microscope (SEM/EDS techniques). In addition, the pore texture of the sample was analyzed with an automatic nitrogen adsorption pore size analyzer by N₂ adsorption method which shows that the pores of the bioglass are in mesopores size range. Also, EDS and FTIR demonstrated that we synthesized this type of bioactive glass correctly for applications as bioactive material in bioactive scaffolds or in orthopaedic

کلمات کلیدی:

Bioactive glass; Sol-gel processing; mesoporous

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