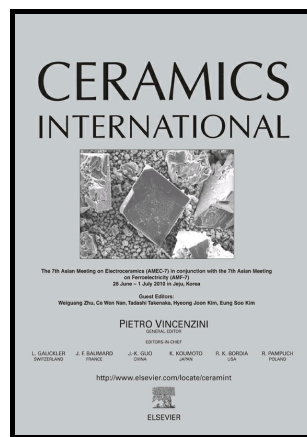


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Bioactive properties of CuO doped $\text{CaF}_2\text{-CaO-B}_2\text{O}_3\text{-P}_2\text{O}_5\text{-MO}$ (M = Ba, Sr, Zn, Mg) glasses

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Abstract

Calcium oxy fluoro boro phosphate glasses with fixed concentration of CuO and mixed with different modifier oxides (viz., BaO, SrO, ZnO and MgO) that play a vital role in collagen deposition, cellular activity, proliferation of osteoblasts and in blood vessel maturation, producing enzymes etc., that are necessary for normal functioning of human body were synthesized. *In vitro* bioactivity studies indicated the formation of hydroxy apatite (HAp) layer on the surface of the samples. This was confirmed by XRD and SEM photographs and also IR spectral studies. The magnitude of HAp layer formed was evaluated by measuring weight loss of the samples and pH measurements of the residual simulated body fluid (SBF) solutions at specific intervals of time. The analysis of the results of degradability studies together with spectroscopic studies has revealed that BaO is an effective modifier in improving the bioactivity of the host glass, among all the modifiers investigated.

Key words: Bioactive glasses; SBF solution; HAp layer; calcium fluoro boro phosphate glasses; copper ions

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