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Examination of bioactivity studies of phosphate-based glasses

Bioactive glasses are a type of biomaterials that have applications in the field of bone tissue engineering and regeneration. Phosphate based glass sample were prepared by traditional melt quench method and were subjected to in-vitro bioactivity studies by immersing in Simulated Body Fluid (SBF) solution with pH=7.4 at 37 °C. In-vitro study of bioactivity of phosphate-based glasses involves examining the interaction between the glass material and biological systems, such as cells or tissues. The glass samples after immersion in SBF were evaluated using X-ray Diffraction (XRD), Fourier Transform Infrared (FTIR), and Scanning Electron Microscope (SEM) analyses. The formation of hydroxyapatite layer on the surface of glass sample post-immersion in SBF was confirmed by XRD and FTIR spectra. SEM micrographs show the formation of crystal agglomerates on the surface of glasses. The results of these studies can give valuable insights into the bioactivity of the glasses and their potential applications in the fields of bone tissue engineering and regeneration.

Key words: Bioactive glasses; bone tissue; phosphate-based glasses; SBF; XRD; FTIR; SEM

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