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# Effect of Calcium hydroxide on mechanical strength and biological properties of bioactive glass

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## Abstract

In this manuscript for the first time calcium hydroxide ( $\text{Ca}(\text{OH})_2$ ) has been used for preparation of bioactive glass (BG-2) by co-precipitation method and compared with glass prepared using calcium nitrate tetrahydrate  $\text{Ca}(\text{NO}_3)_2 \cdot 4\text{H}_2\text{O}$  (BG-1), which is a conventional source of calcium. The new source positively affected physical, biological and mechanical properties of BG-2. The glasses were characterized by Fourier transform infra-red (FTIR), X-Ray Diffractometer (XRD), Scanning Electron Microscopy (SEM), Thermogravimetric Analysis/Differential Scanning Calorimetry (TGA-DSC), BET surface area analysis and Knoop hardness. The results showed that BG-2 possessed relatively larger surface properties ( $100\text{m}^2 \cdot \text{g}^{-1}$  surface area) as compared to BG-1 ( $78\text{m}^2 \cdot \text{g}^{-1}$ ), spherical morphology and crystalline phases (wollastonite and apatite) after

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