Synthesis of glass nanocomposite powders : structure, thermal and antibacterial study

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Abstract

The aim of the present study was to synthesize $CaO \cdot GeO_2$ nanocomposite poweders glasses. The sample were prepared to 1450°C°. To investigate the structure of the samples, Differential Thermal Analysis (DSC), X-ray diffraction and Fourier Transform Infrared (FTIR) spectroscopy were used. The main crystallising phase was found to be $CaGe_20_5$ crystals. The molar ratio of $Ge0_6/Ge0_4$ groups increases with the $CaO \cdot GeO_2$ molar ratio. Furthermore, in order to study the potential antibacterial properties of the materials the Gram-negative (Escherichia coli) bacteria was used and the diameter of zone of inhibition was observed.