

## **The structural study of the ternary zinc magnesium phosphate glass**

### **ABSTRACT**

Background: Glass in the system  $(\text{ZnO})_{30}(\text{MgO})_x(\text{P}_2\text{O}_5)_{100-x}$  (where  $x = 5, 10, 15, 20$  mol %) were prepared by melt quenching technique. The structure of these glass systems has been investigated using FTIR spectroscopy. Objective: The IR spectra of the investigated glasses have been studied in order to understand the characteristic frequency of the vibrational chemical bonds and revealed the network structures of the phosphate glass samples. Results: The results revealed that the absorption band observed in the IR spectra composed of Q2 and Q3 phosphate units in the network glass structure. Conclusion: This study suggests that the changes in the structural of the ternary zinc magnesium phosphate glass related to the addition of Mg cation which acts as network modifier.

**Keyword:** Phosphate glasses Melt-quenching; Infrared spectroscopy; Network modifier