**Abstract**

Magnetic nanoparticles of spinel ferrites are of great interest in fundamental science, especially for addressing the fundamental relationships between magnetic properties and their crystal chemistry and structure. Spinel ferrites have been investigated in recent years for their useful electrical and magnetic properties due to the wide applications in information storage systems, magnetic bulk cores, magnetic fluids microwave absorbers and magnetic diagnostics. The synthesis, structural characterization and magnetic properties of spinel nano ferrites have been investigated with much interest. Zn-Cu mixed ferrites are prepared by co-precipitation method. Zn-Cu mixed ferrites as prepared and sintered are subjected to X-ray diffraction (XRD) using Cu Kα radiation to confirm the particle size. The consistency of Nano size of the particle is analyzed using TEM micrograph. The FT-IR spectrum of the sample is recorded at different sintering temperatures. The magnetic measurements of Zn-Cu mixed ferrites are carried out using vibrating sample magnetometer.