**Abstract**

Co-Ag co-doped Zinc oxide nanoparticles were synthesized by chemical co-precipitation method. The synthesized nanoparticles were subjected to X-ray diffraction technique and the average crystallite size was found to be around 29 - 31 nm. The crystallite size increased as the cobalt concentration increased. The optical properties were characterized by UV-Vis and PL spectral analysis. The FT-IR spectra of the samples were recorded and the characteristic absorption bands shifted to lower values as the cobalt concentration increased. The SEM analysis showed sphere shaped particles distributed uniformly. These co-doped (Co,Ag) ZnO nanoparticles may be used in optoelectronics, spintronics, as antibacterial reagents to treat diseases caused by bacteria and fungi and in waste water treatment.