**Abstract**

 Zinc oxide nanoparticles have attracted great attention in recent years because of its unique properties and versatile applications in transparent electronics, ultraviolet (UV) light emitters, piezoelectric devices, chemical sensors and spintronics. ZnO has high chemical stability and low toxicity, which is widely used as an active ingredient for dermatological applications in creams, lotions and ointments on an account of its antibacterial properties. Doped ZnO shows maximum effect against pathogenic organisms as compared to ZnO, there by using nanoparticles as an antimicrobial agent. In the present investigation, an attempt is made to synthesize Co-Ag co-doped Zinc oxide nanoparticles by chemical co-precipitation method. Zinc Chloride, Cobaltous chloride, Silver nitrate and sodium hydroxide is used as raw materials. The synthesized nanoparticles are subjected to X-ray diffraction technique to calculate the average nano-crystalline size using Debye – Scherrer formula and are found to be around 25 nm. The optical properties are characterized by UV-Vis spectral analysis. The FT-IR spectrum of the sample is recorded and the characteristic absorption bands are observed. The morphological analysis of the sample is studied using Scanning Electron Microscope (SEM). These co-doped (Co, Ag)ZnO nanoparticles may be used as antibacterial reagents to treat diseases caused by bacteria and fungi.