



ABSTRACT

The copper nanoparticles were synthesized by chemical reduction method using malachite ore as a source of metal. The malachite ore (copper carbonate) was obtained from Chitral, NWFP, Pakistan and subjected to leaching by using 10 % H_2SO_4 . The copper extract was used as precursor and L- Ascorbic acid used as reducing agent as well as capping agent. Different concentrations of L- Ascorbic acid were employed and reactions were carried out on water bath at 90 °C. The variety of brown coloured colloidal copper nanoparticles were obtained and characterized by UV-VIS spectrophotometer, Fourier transmission infrared radiation (FTIR), X ray diffraction (XRD) analysis and Scanning electron microscope (SEM). The UV-VIS analysis showed peak of copper nanoparticles at 330 nm. FTIR revealed the banding and stretching vibrations of different functional groups of L-Ascorbic acid. XRD analysis represents crystalline nature of copper nanoparticles via intense peak and the mean particle size was found to be 7 nm using Scherrer equation. The SEM results showed the homogenized spherical copper nanoparticles.