**Abstract**

The oxides of transition metals are an important class of semiconductors and have a wide attention due to their unique properties. Among these, copper oxide nanoparticles are of special interest because of its narrow band gap and have immense potential applications in the field of solar energy. These copper oxide nanoparticles and Aluminium doped copper oxide nanopartciles are synthesized using hydrothermal method. The optical and structural properties of pure and aluminium doped copper oxide nanoparticles are studied using UV-Vis, PL and X-ray diffraction analysis. The FT-IR spectral analysis confirms the presence of the functional groups in the prepared samples. XRD analysis shows that the synthesized nanoparticles are well crystalline in nature. The morphology of the samples are studied using scanning electron microscope.