**Abstract**

The oxides of transition metals are an important class of semiconductors which have a wide range of applications because of its unique properties. Among these, copper oxide nanoparticles are of special interest because of its narrow band gap. Also, Aluminium is the most preferred dopant element because of its small ionic radius and low material cost. Hence in this present work, a novel idea of doping aluminium in copper oxide nanoparticles are carried out using hydrothermal method. The optical and structural properties of aluminium doped copper oxide nanoparticles are studied using UV-Vis and X-ray diffraction analysis. The FT-IR spectral analysis confirms the presence of 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. These nanoparticles may be tested for solar cell applications.