



Abstract

The present work involves the study of coordination behavior of calcium metal complexes with 1, 3, 5-Tricarboxybenzene ligand. The synthesis of Calcium metal complexes was executed by Reflux, Sonochemical and Hydrothermal methods. These complexes were characterized by elemental analysis and FT-IR spectroscopy. The shapes of the crystals were identified by stereomicroscope. The proposed structures were drawn that were well in agreement with the supportive information obtained through Elemental analyzer and FTIR spectroscopy. Post-synthetic modification of the compounds was carried out by calcination at 600°C. These calcium metal complexes served as the precursor to obtain the calcium oxide nanoparticles in good yield. These calcium oxide nanoparticles were characterized by elemental and FT-IR analysis. Photocatalytic activity of calcium complexes was also explored and degradation behavior of organic pollutant (methylene blue dye) in aqueous solution was studied. Melting point and solubility of complexes formed was also determined. Band gap energy of calcium based coordination compounds was also calculated that falls under the range of semiconductors.