

ABSTRACT



The present work was selected because the Cambridge Structural Database (CSD 2017) enlisted only 3 hits of Pyridine-3,4-dicarboxylic acid with silver. This study covers the reflux, Sonochemical and hydrothermal synthesis of coordination complexes of silver with Pyridine-3,4-dicarboxylic acid as well as Benzene-1,3,5-tricarboxylic acid, single crystal study and photocatalytic activity of the complex (AgBS) and quenching efficiency of complex (AgNH₃) against different quenchers. FT-IR spectroscopy supported the fact of the binding of silver with Benzene-1,3,5-tricarboxylic acid. Single crystal X-Ray Diffraction (SCXRD) analysis of AgBS revealed it's a two-dimensional complex with monoclinic crystal system. The same complex was also investigated for its photocatalytic degradation ability against organic dyes like methylene blue and Congo red, 89.4% and 88% photocatalytic degradation of both dyes were calculated respectively. Excitation based photoluminescence of complex AgNH₃ was studied in the spectral ranges of 200-800nm with the λ_{max} at 406 and 426nm. On addition of successive dilutions of quencher 4-Nitro toluene, the emission intensity decreased accordingly. 81% quenching efficiency was calculated for 4-NT that is being used as a pesticide.
