

ABSTRACT

La doped SnO₂-TiO₂ nanocomposites were prepared successfully by a two- step method: ultrasonication under the assistance of reflux method. Host material (SnO₂-TiO₂) was prepared via ultrasonication using Dioctyl sulfosuccinate sodium salt (DSS) as stabilizing agent. Reflux method was employed for the doping of Lanthanum onto SnO₂-TiO₂ composites. FT-IR, SEM-EDX, XRD, and UV-Vis spectroscopy were used to characterize prepared samples. The XRD data exposed the crystal size of the nanoparticles was 2-7nm in range. Influence of La doping concentration was also studied. Results indicated La doping enhanced photoreactivity to the visible area. The catalytic efficiency was accessed by the decomposition of methylene blue in sunlight. Doped samples showed more catalytic behavior towards decomposition of methylene blue. The smallest band gap, lowest particle size and greatest rate constant "k" value was observed in 0.006 M La doped SnO₂-TiO₂.