



Synthesis and Characterization of Copper and Tin Codoped TiO₂ Nanoparticles

P. Babji* and L. Nageswara Rao

*Department of Physical, Nuclear Chemistry & Chemical Oceanography,
School of Chemistry, Andhra University, Visakhapatnam 530 003, Andhra Pradesh, **INDIA**

Email: babjichemistry007@gmail.com

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ABSTRACT

Copper and tin co-doped Titania nanophotocatalyst has been prepared by Sol gel method and characterized by XRD, FE-SEM, EDS, FT-IR, HR-TEM and SAED. X-ray diffraction studies of the Cu²⁺-Sn⁴⁺/TiO₂ show the presence of anatase phase TiO₂ and in the sample prepared from 0.05, 0.10, 0.15 and 0.20 mmol have also shown the presence of anatase phase only in which 0.15mmol of Cu²⁺-Sn⁴⁺/TiO₂ is the optimum concentration. The FE-SEM images of the prepared samples showed the decrease in size and morphological change of the TiO₂ particles when compared to un-doped TiO₂. The presence of elements copper, tin, titanium and oxygen were confirmed by Energy Dispersed Spectroscopy (EDS). From TEM images it can be concluded that the addition of dopants to titania hinders the growth of nanoparticles. These results suggested that the simple and cost effective method and shows excellent adsorption removal properties on dyes for industrial applications.

Keywords: copper and tin co-doped TiO₂, Sol-gel.
