

ABSTRACT

In current research work, Lanthanum (La) loaded SnO₂/TiO₂ nanocomposite particles were prepared by sol-gel method in the presence of cationic surfactant. These nanocomposite particles were applied for their Photocatalytic potential and optical properties were also studied. Characterization of these nanoparticles was done by Fourier Transform Infra Red spectroscopy (FTIR), X-ray diffraction (XRD), Scanning electron microscopy (SEM) and Energy Dispersive X-ray spectroscopic (EDX) techniques. Solid phase spectroscopy was used to determine their optical properties while Photocatalytic activity was monitored by UV-visible spectroscopy. Particle size was calculated by both Scherrer and Williamson-Hall equations. From these findings a relationship between particle size, optical band gap energy and Photocatalytic efficiency was established. Moreover effect of dopant concentration on crystallinity of nanoparticles was also studied. These nanoparticles showed remarkable efficiency in photocatalyzing methylene blue.