Abstract

The lanthanum doped SnO_2- TiO_2 nanoparticles were synthesized via ultrasonication and reflux method using 3-(N,N-Dimetyloctadecylammonio) propane sulfonate as stabilizing agent. Lanthanum doped SnO_2-TiO_2 nanoparticles were obtained after calcination at 550 °C for 2 hrs. X-ray Diffraction (XRD), Thermogravimetric Analysis (TGA), Fourier Transform Infrared spectroscopy (FTIR) Scanning Electron Microscopy in combination Energy Dispersive X-ray Spectroscopy (SEM-EDX), and Transmission Electron Microscopy (TEM) were used to characterize La/SnO_2-TiO_2 nanoparticles. Size of Crystallites was found in the range of 1-4 nm calculated using Scherrer equation. Wood and tauc equation used to evaluate the band gap of prepared samples with different concentration La which observed as 2.8-2.6 eV. The catalytic activity of La/SnO_2-TiO_2 nanoparticles was studied by calculating the percentage deterioration of dye (methylene blue) in the visible radiation. Effect of change in concentration of La was also observed in degradation of methylene blue. 0.002M Lanthanum doped SnO_2- TiO_2 nanoparticles show best results in degradation of methylene blue than 0.004M and 0.006M La doped SnO_2- TiO_2nanoparticles.