

Synthesis and Characterization Of Copper Doped Strontium Titanate (SrTiO₃): Application to Methylene Blue Dye Degradation under Visible Light

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We report on the preparation of copper (Cu) doped SrTiO₃ by sol-gel method via modified Pechini process for the methylene blue dye degradation. The morphological and physical properties of synthesized Cu doped SrTiO₃ materials were characterization by X-rays diffraction (XRD), field-emission scanning electron microscope (FESEM), transmission electron microscope (TEM) and UV-DRS spectroscopy. From UV-DRS, the band gap was calculated of about 2.9 eV, which is lower than that of bare SrTiO₃ (3.2 eV). It confirmed the Cu doping on the interstitial vacancy in SrTiO₃ surface and showed a visible active material. The photocatalytic activity of the Cu doped SrTiO₃ is measured by examine the degradation of methylene blue under visible light irradiation. It was observed that Cu-doped SrTiO₃ degraded about 40% of methylene blue dye under visible light.