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Detoxification of Methyl Orange and Trypan Blue Dyes by using Erbium loaded CuO nanoparticles

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Abstract : Erbium loaded CuO nanoparticles (ECO NPs) were synthesized by a simple precipitation - thermal decomposition method and the catalyst was characterized by X-ray diffraction (XRD), field emission scanning electron microscopy (FE-SEM), energy dispersive spectrum (EDS), diffuse reflectance spectra (DRS), photoluminescence (PL), X-ray photoelectron spectroscopy (XPS) and BET surface area measurements. The XRD patterns proved that the ECO NPs exhibited monoclinic feature type as that of pure CuO. The ECO absorbed much more light in the UV region and lesser percentage of reflectance was noticed from PL spectra than CuO. The photo catalytic activity of CuO has been tested by the degradation of Methyl Orange (MO) and Trypan Blue (TB) under UV light irradiation was considerably enhanced their activity with Er loading. The Chemical Oxygen Demand (COD) measurement was used to confirm the mineralization of MO and TB. This catalyst was reusable and stable under UV light illuminations.

Key words : Er loaded CuO, Photocatalysis, UV light, Methyl Orange, Trypan Blue and Reusability

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