

Synthesis, Characterization, and Activity of The Photocatalyst Polyaniline (PANI)/TiO₂ in Degrading Rhodamine B Dye

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Abstract	The photocatalysts of Polyaniline (PANI) and composite Polyaniline /TiO ₂ were syntheses by the interfacial polymerization (twophase organic/water) method. The characteristics of the photocatalyst were identified by FTIR (Fourier Transform Infra-Red), SEM (Scanning Electron Microscopy), and EDX (Energy Dispersive X-ray Spectroscopy). The characteristic FT-IR peaks of Polyaniline and composite Polyaniline/TiO ₂ are formed due to the formation H-Bonding. The XRD pattern shows that Polyaniline has a typical peak starting from 25.080 (2????) planes (110) and amorphous polymer. The addition of TiO ₂ (1%, 5% and 10% (w/w)) were found increased the activities. Photocatalyst Polyaniline/TiO ₂ 1% was proven to provide the highest reduction in Rhodamine B degradation, 53%. Rhodamine B degradation increased by 80% at pH 9 with an optimum time of 300 minutes under visible light from a tungsten lamp. The rate of kinetics was obtained following first order with a constant rate of photodegradation of 0.005445 minutes ⁻¹ .
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