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DECOLORIZATION OF *p*-DIMETHYLAMINO BENZAL-RHODANINE UNDER PHOTOCATALYTIC PROCESS BY USE OF TITANIUM DIOXIDE NANOPARTICLES AT VARIOUS BUFFER pHs

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Abstract

This paper presents the decolorization of *p*-Dimethylaminobenzalrhodanine using titanium dioxide nano-particles under photocatalytic process at various buffer media under air atmosphere. Several effective agents including nano-photocatalyst loading, illumination time, pH of medium and initial dye concentrations have been subjected to be estimated. Furthermore, kinetic investigations of photocatalytic process fitted the pseudo-first-order kinetic for dye decolorization at all considered buffer media. Then Langmuir-Hinshelwood model was applied for evaluation of photodecolorization rate constant (k_r) and adsorption constant K_A for all media. Spectrophotometric monitoring showed that the titled dye is nearly decolorized completely after 9-15 h and 3.5 h at buffer pHs of 9-12 and pH of 13 under high pressure irradiation respectively.

Keywords: decolorization; nano-particle, photocatalytic, *p*-Dimethylaminobenzal-rhodanine, titanium dioxide

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