

**PHOTOLYSIS OF METHYLENE BLUE IN SIMULATED WASTEWATER:  
PARAMETRIC AND KINETIC STUDIES**

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## ABSTRACT

Photo degradation of Methylene Blue (MB) dye assisted by photolysis was studied. Influence of different UV irradiation wavelength, contact time, initial concentration and pH on degradation of MB in aqueous solution were analyzed and identified. 27 Watts UV lamps were used as a source of energy for MB molecules to undergo photochemical reactions thus broken down to smaller molecules. Among four types of UV irradiation, UV-C irradiation was proven to be the most effective irradiation that cause almost complete degradation of MB. Solar irradiation also proven to be a reliable source of energy for photo degradation of MB in simulated wastewater. As sunlight energy is renewable and available throughout the year, it can be used as a pretreatment for textile wastewater. At lower initial concentration of MB, more degradation of MB was observed. When MB aqueous solution exposed longer to UV irradiation, more MB molecules degraded. The alkaline condition (pH 10) was proven to be the optimum pH for higher photo degradation. UV-Vis spectrophotometer proven the diminish of the maximum peak of MB thus indicating the removal of MB. COD analyzer proven 83.33% decrease in the amount of organic pollutants in the solution after the irradiation indicating almost complete removal of the dye.