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Study of Removal Trace Amount of Organic Dye Pollutant from Contaminated Water By Advanced Oxidation Process in Presence of Immobilized Nano- Ag

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Treatment of colored wastewater from the industries is a serious problem for many researchers [1]. Among all of the methods for the treatment of wastewater, "Advanced Oxidation Processes" (AOPs) is one of the newest methods have been developed to degrade bio refractory organics industrial effluents. Almost all of the AOPs are based on the generation of very reactive radicals such as hydroxyl radicals ($\cdot\text{OH}$) which can degrade a broad range of organic pollutants quickly and non-selectively [2]. Direct Blue 129 (DB 129) is a diazo dye used for dyeing of cotton, silk and cellulose fabrics. The present study investigates the degradation of Direct Blue 129 in aqueous medium through the selected advanced oxidation process consist of nano-Ag/S₂O₈²⁻ (initial concentration of nano-Ag, DB 129 and pH). Also these systems, showed that decrease of absorption peak at $\lambda_{\text{max}} = 610 \text{ nm}$ indicates a rapid degradation of the azo dye under optimum conditions. Our results showed that the oxidative treatment of DB 129 by potassium peroxydisulfate 0.2 mM activated with nano-Ag cause 98% removal of dye, also irradiation is a viable, fast, economic and environment friendly option for removal of the textile dyes from effluents.

References:

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