Electrochemical and photoelectrochemical studies of C. I. Acid Orange 52 oxidation

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Basic electrochemistry (oxidation) of C. I. Acid Orange 52 at a platinum electrode was investigated. The electrochemical and photoelectrochemical oxidation of C. I. Acid Orange 52 were also conducted using a titanium electrode coated with a mixture of TiO₂/RuO₂. The conversion of the dye was observed as a change in absorbance (η_{Abs}) at λ_{max} , total organic carbon (η_{TOC}) and chemical oxygen demand (η_{COD}). Quantum chemical calculations were conducted using the B3LYP/6-31G+ density functional theory (DFT) and AM1 method with HyperChem software to predict the primary oxidation products.

Keywords: electrochemical oxidation, photoelectrochemical oxidation, quantum chemical calculation, DFT.

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