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EFFECT OF EXPERIMENTAL PARAMETERS ON CRYSTAL VIOLET MINERALIZATION BY ELECTRO-FENTON PROCESSES

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Abstract

This paper presents a study on mineralization of the triphenyl-methan dye, Crystal Violet (CV) in aqueous medium at pH 3.0, by environmentally friendly electrochemical methods such as Electro-Fenton (EF) processes using boron-doped diamond (BDD) anode, in terms of effects of the experimental parameters on the mineralization degree. Experimental data obtained on EF method allow identifying the main factors influencing the rate of mineralization process: the nature of the anode (Pt / BDD), temperature, pH, current intensity, initial concentration of CV, dose of Fe²⁺ and Cu²⁺ ions. The maximum of the degree of mineralization achieved was 97.14%, under the condition that we may consider the best: BDD anode, pH = 3.0, I = 300 mA, T = 308 K, the initial concentration of CV = 100 ppm, iron dose 1.0 mM and 0.25 mM dose of copper.

Key words: AOP, dyes, electro-Fenton, radical hydroxyl

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