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

New Photochemical and Electrochemical Methods for the Degradation of Pesticides in Aqueous media. Environmental Applications

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**Abstract:** The development of new electrochemical and photochemical methods for the decontamination of natural water containing significant concentrations of aromatic pesticides is described. The electrochemical method is based on the electro-Fenton process, i.e. the simultaneous reduction of  $O_2$  and  $Fe^{3+}$  ions. Hydroxyl ( $OH\cdot$ ) radicals are electrosynthesized in aqueous solutions, followed by complete mineralization of the initial pollutants. The photochemical methods involve either a direct photodegradation reaction of pesticides by UV light, or indirect photodegradation processes including  $H_2O_2$  photolysis or photo-Fenton reagents ( $H_2O_2/Fe^{3+}$ ). Examples of the application of these methods to chlorophenoxy acid herbicides and four aromatic pesticides (bendiocarb, pirimiphos-methyl, coumatetralyl, chlorophacinon) in aqueous media are given. Environmental applications are also presented. The performances of electrochemical and photochemical methods are compared.

**Key Words:** electro-Fenton method; photo-Fenton method; pesticides; water treatment.

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