

## TREATMENT OF TEXTILE DYE WASTEWATER BY SOLAR-POWERED ELECTROOXIDATION

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### ABSTRACT

Wastewaters represent one of the biggest problems today as they contain many pollutants, some of which are well-known pollutants, while there are also those whose impact on human health and the ecosystem has not been fully investigated. There are many persistent pollutants that cannot be removed by conventional wastewater treatment technologies, which causes great concern regarding their impact on human health. For this reason, the study, development and implementation of advanced technologies in wastewater treatment are of great importance. In recent years, new advanced oxidation processes based on electrochemical technology - electrochemical advanced oxidation processes (EAOPs), have been developed for the treatment of persistent pollutants. EAOPs are known not only as very efficient technologies but also as large consumers of electricity. In this research EAOP were used for the treatment of textile dye wastewater. In order to eliminate their biggest drawback, instead of being powered by the distribution network, the electrochemical reactor was powered by solar panel. A battery was used to store the energy obtained from the solar panel to ensure continuous operation and avoid energy fluctuations. The key parameters that affect the efficiency of the process, the economic feasibility and the potential for real-scale application were examined.

**Keywords:** green energy, EAOPs, electrooxidation, dye removal.

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