



## Optimization of electrocoagulation of pistachio processing wastewaters using the response surface methodology

Dünyamin Güçlü

*Department of Environmental Engineering, Selcuk University, 42075 Campus, Selcuklu, Konya, Turkey, email: [bgucclu@selcuk.edu.tr](mailto:bgucclu@selcuk.edu.tr)*

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### ABSTRACT

Optimization of electrocoagulation using aluminum electrode in terms of chemical oxygen demand (COD) removal from pistachio processing wastewaters was carried out by using response surface methodology (RSM) and Box–Behnken experimental design. Initial pH, current density, and electrolysis time were selected as independent process variables. The experimental data and model predictions agreed well. Optimization result for the maximum COD removal efficiency was 57.4% at 317 A/m<sup>2</sup> current density, pH 6, and 29 min application time for treatment of pistachio processing wastewaters. The operating cost of the model at the optimized conditions was 2.89 €/m<sup>3</sup>.

*Keywords:* Electrocoagulation; Response surface methodology (RSM); Chemical oxygen demand (COD); Pistachio processing wastewaters; Operating cost

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