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# POLLUTION CONTROL AND SUSTAINABLE ENVIRONMENT

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## Treatment of mixed herbal oil processing factory wastewaters by pilot-scale electrocoagulation unit

This paper investigates the application of electrocoagulation (EC) and electroflotation (EF) in wastewater originating from mixed vegetable oil (hazelnut oil, sunflower oil, soybean oil, corn oil and canola oil) processing factory. EC has been in use for industrial and domestic wastewater treatment finding more applications using aluminum (Al), iron (Fe) or hybrid Al and Fe electrodes. EF is proved to perform better than any other methods and effective in removing colloidal particles, oil and grease as well as organic wastewaters. This study aims to determine the optimum operating conditions for the treatment of wastewaters of mixed vegetable oil plant effluents with high organic pollution load by electrocoagulation method. The effects of pH, conductivity, current density and operating time on the removal efficiency of chemical oxygen demand (COD), total nitrogen (TN), total phosphorus (TP) and turbidity have been explored. The results show that 87.32% COD, 51% TN and 88% TP removal has been achieved with optimum pH of 7-8 with 3 minutes reaction time and optimum energy of 250 A.

### Biography

Başak TAŞELİ is a professor in the engineering faculty of environmental engineering at the University of Giresun where she has been a faculty member since 2015. She is the Director of Graduate School of Natural and Applied Sciences. She completed her Ph.D. at Middle East Technical University and her undergraduate studies at the same university. Her research interests lie in the area of environmental sciences, ranging from nature protection to wastewater treatment technologies. She has collaborated actively with researchers in several other disciplines of environmental science especially biomass energy and water quality and wastewater treatment. Her teaching interest include environmental ecology, environmental ethics, biomass energy, renewable and conventional energy sources and environmental effects, water supply and engineering design, wastewater treatment technologies.

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