



Olive oil mill wastewater treatment by means of electro-coagulation

H. Inan, Anatoly Dimoglo*, H. Şimşek, M. Karpuzcu

Gebze Institute of Advanced Technology, P.O. Box 141, Gebze/Kocaeli 41400, Turkey

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Abstract

The removal of chemical oxygen demand (COD), color and suspended solid (SS) from olive oil mill wastewater (OMWW) was experimentally investigated by using electro-coagulation (EC). Aluminum and iron were used in the reactor simultaneously as materials for electrodes. The reactor voltage was 12 V, current density (CD) was changing between 10 and 40 mA cm⁻², pH was taken equal to 4, 6, 7, and 9 units, and duration varied in the limits of 2–30 min. Under the 30-min retention time, 52% COD was removed by the aluminum anode and 42% was removed by the iron anode. CD efficiency versus the percent of COD removal was examined at the 10-min retention time for pH 6.2 ± 0.2. It appeared that with the CD increase, the percent of COD removal was increasing as well. The color removal yield was examined as the result of using different retention times, current densities, and iron and aluminum as materials for anodes. CD values in the range of 10–40 mA cm⁻² were tested at the 10-min retention time each one; color removal was 90–97% by this. In this study the EC process was examined with the aim of determining the highest rate of SS removal from the OMWW as well.

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* Corresponding author. Tel.: +90-262-653-8497x1428;
fax: +90-262-563-8490.

E-mail address: dimoglo@gyte.edu.tr (A. Dimoglo).