

Treatment of Olive mill Wastewater by ozonation and electrocoagulation processes

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, Department of chemical Engineering wbanisalamh@hotmail.com Abstract

The main purpose of this paper was to investigate the removal of total suspended solids (TSS) and chemical oxygen demand (COD) for olive mill wastewater (OMW) by the combination of electrocoagulation (EC) and the ozonation process. In the combination of electrocoagulation followed by ozonation process the optimum working pH was found to be in range 6. The efficiency of the electrocoagulation process allowed removal of TSS and COD about 82.5% and 47.5% respectively at 45mA/cm² after 70 minutes by using coupled iron–aluminum electrodes. These results showed that the optimum TSS and COD removal was obtained at the optimum experimental parameters such as current density, pH, and reaction time. After EC, most organic compounds still remained in the effluent. The subsequent ozonation shows high levels of organic compound elimination. The obtained TSS and COD values: 31.1g/L and 67.3 g/L for the sample from the olive mill, 5.4 g/L and 35.35 g/L after EC and 5.4 g/L and 2.6 g/L respectively after ozonation.

Keywords: olive mill wastewater; Electrode; Electrocoagulation (EC); TSS; COD; ozonation