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**TREATMENT OF OLIVE-POMACE OIL REFINERY
WASTEWATER USING COMBINED COAGULATION-
ELECTROFLOTATION PROCESS**

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Electroflotation is an aeration process which can be used to treat effectively industrial effluents. In the present work, a combined version of the electroflotation process with the coagulation operation was conceived to treat the olive pomace oil refinery wastewater. Batch and continuous mode of treatment was done in order to optimize the main operating parameters affecting the suspended solids elimination. In batch mode, the methodology of experimental research was adopted with these operating parameters: current density, pH and coagulant concentration. Then, the continuous mode aimed to optimize the residence time. As a main finding, the suspended solid removal efficiency and chemical oxygen demand abatement efficiency exceeded 92%.

Keywords: coagulation, electroflotation, optimization, suspended solids.

Introduction

Large quantities of wastewater are produced by the refining of vegetable oils and they are harmful to the environment. These effluents are mostly treated by biological processes such as anaerobic treatment [1], chemical process such as coagulation [2 - 5]. Indeed, these methods ensure that the wastewater responds to standard norms for discharges to sewerage systems but they take often a long time for treatment and require extensive land area, furthermore, other innovative and less expensive techniques prove their efficiency in this domain. Among them the electrocoagulation [6], the advanced oxidation processes as well as the bubble columns that are chosen for many chemical applications also for the treatment of the wastewater.

Besides, the electrochemical techniques are more interesting technologies in this field [7]. For wastewater with high chemical oxygen demand (COD), the treatment by electroflotation is competitive with other technic, when the fine hydrogen bubbles float the suspended solid (SS) [8], the oxygen bubbles

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