

## Abstract :

Olive mill wastewater generated by the process olive oil extraction is considered as the main waste product of this industry. It is an odorous liquid that contains turbidity, mineral and organic matters. The olive mill wastewater is usually discharged in the open environment without purification, thus it pollutes both the soil surface and underground water. The present study is carried out to assess the ability of electrocoagulation process, with aluminum electrodes, to treat the waste by chemical oxygen demand, turbidity, chlorides and polyphenols reduction. This experimental study is performed by using a bath system. The applied pilot comprises a reactor containing two parallel metal electrodes (Al). The latter are connected as mono polar and a different potential was applied between them. Several working parameters, such as applied potential difference value, electrolysis time, active electrode surface, inter-electrode distance and pH, have been studied to achieve a higher removal capacity. Results obtained revealed that the most effective removal capacity of turbidity, chemical oxygen demand, chlorides and polyphenols can be achieved at potential difference: 5 V, electrodes surface: 88 cm<sup>2</sup>, inter-electrode distance: 0.5 cm; basic pH medium and a contact time of 90 min. The removal rate is 99% for the turbidity, 90% for the chemical oxygen demand, 33% for chlorides and 92% for the polyphenols. Considering the obtained efficiency in the present study, electrocoagulation process has the potential to be utilized for the cost-effective removal of pollutants from wastewater.