World Academy of Science, Engineering and Technology
International Journal of Environmental and Ecological Engineering
Vol:10, No:04, 2016

Edible Oil Industry Wastewater Treatment by Microfiltration with Ceramic Membrane

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Abstract : Membrane technology is convenient for separation of suspended solids, colloids and high molecular weight materials that are present. The idea is that the waste stream from edible oil industry, after the separation of oil by using skimmers is subjected to microfiltration and the obtained permeate can be used again in the production process. The wastewater from edible oil industry was used for the microfiltration. For the microfiltration of this effluent a tubular membrane was used with a pore size of 200 nm at transmembrane pressure in range up to 3 bar and in range of flow rate up to 300 L/h. Box–Behnken design was selected for the experimental work and the responses considered were permeate flux and chemical oxygen demand (COD) reduction. The reduction of the permeate COD was in the range 40-60% according to the feed. The highest permeate flux achieved during the process of microfiltration was 160 L/m²h.

Keywords : ceramic membrane, edible oil, microfiltration, wastewater
Conference Title : ICCEES 2016 : International Conference on Chemical, Ecology and Environmental Sciences
Conference Location : Lisbon, Portugal
Conference Dates : April 14-15, 2016