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Removal of Direct Blue 71 from wastewater using micellar enhanced ultrafiltration

Narjess Zaghbani, Amor Hafiane, Mahmoud Dhahbi*

Laboratoire Eau et technologies Membranaires, Centre de Recherche des Technologies des Eaux (CERTE), BP 95, Route touristique Borj Cedria BP 273 8020 Soliman, Tunisia
email: mahmoud.dhahbi@certe.rnrt.tn, amor.hafiane@certe.rnrt.tn, zaghbani_narjess@yahoo.fr

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ABSTRACT

Micellar-enhanced ultrafiltration (MEUF) represents a potentially attractive tool for the removal of different contaminants from wastewaters. In this study, MEUF has been carried out to investigate the retention of Direct Blue 71 (DB71MW965.94), an azo dye with a high worldwide consumption providing toxic effluents, from aqueous stream. The efficiency of MEUF on the removal of DB71 was studied as a function of dye and surfactant concentrations, type of surfactant, ionic strength and pH. The experiments showed that the highest dye rejection was about 98% for cationic surfactants due to the high electrostatic interaction between this surfactant and dye. The retention depended slightly on dye and surfactant concentration, ionic strength and pH. However, permeate flux decreases when surfactant and electrolyte concentrations increases which was mainly attributed to the concentration polarisation and osmotic pressure.

Keywords: Direct Blue71; Micelles; Ultrafiltration; Surfactant

* Corresponding author.

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