



Effect of coagulation pretreatment on microfiltration of paper mill wastewater using electrospun membranes

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ABSTRACT

The pulp and paper mill industry consumes a large amount of water and thus discharges a large amount wastewater, which should be properly treated. Accordingly, this study focused on the application of microfiltration (MF) together with coagulation for the treatment of the paper mill wastewater. A statistical model based on the response surface methodology (RSM) was attempted to determine the optimum coagulation conditions (i.e., coagulant dose, pH, and temperature). Empirical models were developed to understand the interactive correlation between the responses and process variables. After the coagulation, the MF membranes prepared by an electrospinning method were used to treat the wastewater. Nevertheless, it seems that the coagulation conditions optimized for water quality parameters are not always the appropriate conditions for pretreatment of MF feed water.

Keywords: Paper mill wastewater treatment; Coagulation; Microfiltration; Response surface methodology; Electrospun membrane

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