



Investigating morphology and performance of cellulose acetate butyrate electrospun nanofiber membranes for tomato industry wastewater treatment

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ABSTRACT

In this research, cellulose acetate butyrate (CAB) electrospun nanofiber membrane (ENM) was prepared by electrospinning method in order to separate the contaminants of an industrial wastewater. The influence of various electrospinning parameters on morphology and average fiber diameter of the membranes were investigated by scanning electron microscopy and image analysis. The permeability of the membranes was evaluated by measuring pure water flux. In order to investigate the performance of the prepared membranes for tomato wastewater treatment, the rejection of the pollution indices and flux were determined. The results demonstrated the potential of using CAB nanofiber membrane for wastewater treatment. The appropriate electrospinning conditions led to preparation of the membranes with high water permeability in the range of microfiltration, proper retention efficiency in the range of ultrafiltration and noticeable antifouling property.

Keywords: Cellulose acetate butyrate; Electrospun membrane; Nanofiber; Wastewater treatment

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