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Harvesting of microalgae *Scenedesmus sp.* using polyvinylidene fluoride microfiltration membrane

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ABSTRACT

In this paper, polyvinylidene fluoride (PVDF) microfiltration membrane was used for harvesting microalgae *Scenedesmus sp.* The changes of permeation flux and OD_{750} of the algae medium during membrane filtration process were investigated. In order to reduce membrane fouling, both ventilation into algae medium and backwashing were adopted. The results showed that backwashing was better than ventilation to control membrane fouling. The optimized procedure was backwashing for 1 min every 20 min of continuing filtration. When the volume reduction factor (VRF) was up to 10, the recovery rate of the algae cells could reach above 90%. In addition, this paper showed that VRF and the initial concentrations of algae broth significantly affected the recovery rate. Higher VRF and higher initial concentrations of algae could make the recovery rate lower. Therefore, in order to obtain the needed recovery rate, these above factors needed to be considered. Generally, these results provided the feasible way to harvest microaglae efficiently and safely.

Keywords: Scenedesmus sp.; Harvesting; Microfiltration membrane; Flux; Ventilation; Backwashing

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