Thesis Title	Analysis of Wastewater Treatment from Fish-Canning Factory by Ultrafiltration
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Abstract

In this thesis, treatment of wastewater from fish-canning factory by ultrafiltration was analysed in both economic and technical aspects. The wastewaters used had been pretreated by dissolved air floatation method. The experiments were carried out at 30^{o}C and used multichannel monolith ceramic membranes with Molecular Weight Cut-Off (MWCO) 20,000 and 50,000. The ranges of operating condition were 120-500 kPa and cross-flow velocity 2.1-4.9 m/s. The wastewater contained approximately 320-930 mg/L of suspended solid, 3,920-4,360 mg/L of total solid, 1,810-2,663 mg/L of BOD and 2,619-3,552 mg/L of COD.

The results indicated that the membrane with MWCO 50,000 showed higher flux and lower rejection than that MWCO 20,000. The highest flux condition was at a pressure of 500 kPa and cross-flow velocity 4.9 m/s. In addition, it was found that the effectiveness of wastewater treatment by ultrafiltration with a MWCO 20,000 membrane was higher than that by a stabilization pond system, which in turn was higher than that by ultrafiltration with a MWCO 50,000 membrane

This study also compared the cost of different treatments for a system with 100 m^3/hr capacity. It was found that the costs for a system using a ceramic membrane, polymer membrane and stabilization pond were 21.77 Baht/m^3, 16.53 Baht/m^3 and 7.58 Baht/m^3, respectively. The fixed cost of a system using membrane was lower than the stabilization pond system, while the

operating cost was the opposite. Factors that significantly affected the treatment cost were in the following order, flux, membrane life, life time of the system, membrane cost, and the interest rate. Moreover, land cost and treatment capacity had neglegible effect on the unit cost of a system using membrane, whilst, they exhibited strong effect on a stabilization pond system.

Keywords : Ceramic Membrane / Dissolved Air Floatation / Stabilization Pond / Ultrafiltration / Unit Cost