

## RINGKASAN

Efisiensi suatu membran ditentukan oleh permeabilitas dan selektivitasnya. Permeabilitas dan selektivitas membran tergantung pada struktur pori. Pada pembuatan membran, struktur pori dipengaruhi oleh komposisi larutan cetak, pemilihan sistem pelarut/non pelarut dan waktu penguapan.

Penelitian ini bertujuan untuk mempelajari pengaruh komposisi larutan cetak terhadap permeabilitas dan selektivitas membran selulosa asetat. Untuk itu, penelitian dikerjakan dalam dua tahap. Tahap pertama adalah pembuatan membran dengan menggunakan selulosa asetat, aseton dan air. Tahap kedua adalah karakterisasi membran yang meliputi pengukuran fluks air, rejeksi terhadap larutan NaCl, diameter pori dan ketebalan membran. Penelitian ini dikerjakan di Laboratorium Kimia Universitas Diponegoro Semarang. Dari berbagai komposisi yang telah dipelajari, didapatkan harga fluks, rejeksi, ketebalan dan diameter pori yang bervariasi pula. Fluks membran paling besar adalah  $1003,549 \text{ Lm}^{-2}\text{H}^{-1}\text{atm}^{-1}$  untuk komposisi larutan cetak Selulosa Asetat : Aseton : Air = 9% : 79% : 12%. Dan rejeksi paling besar adalah 6,64 % untuk komposisi larutan cetak Selulosa Asetat : Aseton : Air = 11% : 79% : 10%.

Dari penelitian ini, dapat disimpulkan bahwa, pada konsentrasi air tetap, semakin besar harga konsentrasi selulosa asetat akan menurunkan permeabilitas dan meningkatkan selektivitas. Sedangkan, pada konsentrasi selulosa asetat tetap, semakin besar konsentrasi air, secara umum, akan meningkatkan permeabilitas dan menurunkan selektivitas.

## SUMMARY

Efficiency of a membrane is determined by its permeability and selectivity. The permeability and the selectivity of membrane are depended on its pore structure. In preparation of membrane, the pore structure is influenced by its casting solution composition, its solvent/non-solvent system and its evaporation time.

This research was designed to investigate the influence of casting solution composition on the permeability and selectivity of cellulose acetate membrane. To achieve this goal, this research has been carried out into two steps. The first step was preparation of membrane with the cellulose acetate, acetone and water. The second step was characterization of membrane which involved the measurement of flux, rejection of NaCl solution, maximum pore diameter and membrane thickness. This research was carried out in the Laboratory of Chemistry Department, Diponegoro University, Semarang. The flux, rejection, thickness and pore diameter of the membranes were varied by the variation of the casting solution composition. The highest flux was  $1003.549 \text{ Lm}^{-2}\text{D}^{-1}\text{atm}^{-1}$  for the casting solution with composition CA : Acetone : Water = 9% : 79% : 12% and the highest rejection was 6.64% for the casting solution with composition CA : Acetone : Water = 11% : 79% : 10%.

By this research, it could be concluded that, at a constant water concentration, increasing of the cellulose acetate concentration would decrease the permeability and increase the selectivity. While, at a constant cellulose acetate concentration, the increasing of the water concentration, generally, would increased the permeability and decreased the selectivity.