Nayla, Mahdiya, 2013, Pembuatan dan Karakterisasi Membran *Hollow Fiber* Selulosa Asetat untuk Hemodialisis Urea. Skripsi di bawah bimbingan Siti Wafiroh, S.Si, M.Si dan Yanuardi Raharjo, S.Si, M.Sc, Departemen Kimia, Fakultas Sains dan Teknologi, Universitas Airlangga.

ABSTRAK

Membran *hollow fiber* banyak diaplikasikan dalam bidang kesehatan terutama untuk hemodialisis. Tujuan dari penelitian ini adalah untuk mengetahui pengaruh suhu bak koagulan terhadap sifat mekanik membran *hollow fiber*. Membran dibuat dengan komposisi larutan *dope* yaitu 22% selulosa asetat, 51% aseton dan 27% formamida. Membran dicetak dengan metode inversi fasa pada lima variasi suhu bak koagulan yaitu 5, 10, 15, 20 dan 25ºC. Karakterisasi membran meliputi sifat mekanik membran dengan uji tarik, kinerja membran dengan menentukan fluks dan rejeksi serta morfologi membran dengan SEM (*Scanning Electron Microscopy*). Hasil SEM menunjukkan distribusi pori yang rata dengan ukuran pori membran 45 nm. Aplikasi membran *hollow fiber* selulosa asetat untuk hemodialisis urea menunjukkan berkurangnya urea sebesar 87,66% setelah dipisahkan dengan membran. Nilai optimum membran diperoleh pada suhu bak koagulasi 5 ºC dengan nilai tegangan 99,6261 N/mm^2, regangan 0,218, *modulus young* 457 N/mm^2, fluks sebesar 4,367 L/m^{2}jam, rejeksi sebesar 12,34%.

***Kata Kunci**: Membran hollow fiber, selulosa asetat, variasi suhu bak koagulasi, hemodialisis*

Nayla, Mahdiya, 2013, The Production and Characterization of Cellulose Acetate Hollow Fiber Membrane for Hemodialysis Urea, Final project under guidance Siti Wafiroh, S.Si, M.Si and Yanuardi Raharjo, S.Si, M.Sc, Department of Chemistry, Faculty of Science and Technology, Airlangga University

ABSTRACT

Hollow fiber membranes are widely applied in the field of health, especially for hemodialysis. The purpose of this study was to determine the effect of coagulant bath temperature on mechanical properties of cellulose acetate hollow fiber membranes as well as membranes for hemodialysis urea application. Membranes made from dope solution with composition of 22% cellulose acetate, 51% acetone, and 27% formamide. Membrane printed with phase inversion method in five variations coagulant bath temperature which is 5 º C, 10 º C, 15 º C, 20 º C, 25 º C. Characterization of the mechanical properties of the membrane covering the membrane with a tensile test, the performance of the membrane by determine the flux and rejection and membrane morphology by SEM (Scanning Electron Microscopy). SEM showed that the distribution of average pore membrane with a pore size of 45 nm. Application of cellulose acetate hollow fiber membranes for hemodialysis urea showed the reduce of 87.66% after being separated by the membrane. Membrane optimum value obtained in the coagulation bath temperature of 5 º C with the stress of 99.6261 N/mm^2, 0.218 for strain values, 457 N/mm^2 for modulus young values, 4,367 L/m^{2}jam for flux values, 12.34% for rejection values.

Keywords: *Cellulose acetate, hollow fiber membranes, coagulation bath temperature variations, hemodialysis*