RINGKASAN

Telah dibuat 12 jenis membran datar dari bahan polimer selulosa asetat (SA), pelarut aseton (AS) dan aditif Dimetilformamida (DMF) dengan metode inversi fasa. Pembuatan membran dilakukan dengan variasi konsentrasi polimer 8, 9, 10, 11%, pelarut dibuat tetap 45% dan variasi konsentrasi aditif 44, 45, 46, 47%, serta variasi waktu penguapan 15, 35 dan 65 detik. Kemudian membran dikarakterisasi dengan mengukur fluks air, rejeksi terhadap larutan sukrosa, ketebalan membran dan diameter pori maksimum. Sebagai aplikasinya membran dengan nilai fluks terbesar dan terkecil diaplikasikan untuk penyaringan air sumur.

Membran dengan komposisi 10% SA, 45%AS, 45%DMF dan waktu penguapan 65 detik memberikan nilai fluks terbesar 108,03 $Lm^{-2}atm^{-1}jam^{-1}$ dan rejeksi sukrosa terkecil 86,2%. Membran ini memiliki diameter pori maksimum 4,09μm, dapat menurunkan kesadahan air sebesar 35,1%, menurunkan kadar logam Ca 14,96%, Mg sebesar 0,8% dan dapat menyaring bakteri. Membran dengan komposisi 11% SA, 45% AS, 44% DMF dan waktu penguapan 15 detik memberikan nilai fluks air terkecil 1,56 $Lm^{-2}atm^{-1}jam^{-1}$, rejeksi sukrosa terbesar 99,595%. Membran ini memiliki diameter pori maksimum 2,39μm, dapat menurunkan kesadahan air 45,5%, kadar logam Ca 24,98%, Mg 15,5% serta dapat menyaring bakteri.

Berdasarkan sifat-sifat membran yang diperoleh melalui pengaturan komposisi dan waktu penguapan, maka dapat disimpulkan bahwa semua membran yang dibuat dapat digunakan untuk proses mikrofiltrasi.

SUMMARY

It had been made 12 kinds of flat sheets membranes from cellulose acetate (CA) as polymer, aceton (AC) as solvent and Dimethylformamide (DMF) as additive with phase inversion method. The membranes were prepared with the variation of polymer concentration 8. 9. 10. 11%. the stationary of solvent concentration 45% and the variation of additive concentration 44. 45. 46. 47% and the variation of evaporation time 15. 35 and 65 seconds.

The membranes were characterized by determining water flux, rejection of sucrose, the membranes thickness and maximum pore diameter. Membranes with highest and lowest water flux were applied for purification of water source.

Membrane composition 10%CA, 45%AC and 45%DMF with evaporation time 65 seconds showed a maximum water flux 108.03 $Lm^{-2}atm^{-1}hour^{-1}$, minimum rejection of sucrose 86.2%. This membrane has a maximum pore diameter 4.09μm, the decrease of water hardness was 35.1%, the decrease of Ca concentration was 14.96%, Mg 0.8% and could filtrated the bacterias. Membrane composition 11% CA, 45% AC, 44% DMF and evaporation time of 15 seconds showed a minimum water flux 1.56 $Lm^{-2}atm^{-1}hour^{-1}$, rejection of sucrose 99.57%. This membrane has a maximum pore diameter 2.39μm, the decrease of water hardness was 45.5%, the decrease of Ca concentration 24.98%, Mg 15.5% and could filtrated the bacterias.

According to the specific characterized of the membranes by regulating the composition of casting solution and evaporation time, it could be concluded that all the membranes could be used to mikrofiltration process.