

ABSTRAK

STABILITAS DAN KEMAMPUAN COPOLY-EUGENOL DIVINIL BENZENA 10% UNTUK TRANSPOR FENOL MENGGUNAKAN METODE *POLYMER INCLUSION MEMBRANE (PIM)*

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Penelitian stabilitas dan kemampuan transpor fenol menggunakan Co-EDVB (Kopoli Eugenol Divinil Benzena) 10% sebagai senyawa *carrier* dengan metode *polymer inclusion membrane* (PIM) telah dilakukan. Penelitian ini bertujuan untuk mengetahui stabilitas membran PIM dengan pengaruh konsentrasi *plasticizer*, jenis dan konsentrasi garam, serta kemampuan membran PIM melalui pemakaian berulang dan umur membran. Membran dipreparasi dengan melarutkan Co-EDVB 10%, polivinil klorida (PVC) dan dibenzil eter (DBE) ke dalam pelarut tetrahidrofuran (THF). Penentuan konsentrasi fenol sesudah proses transpor dilakukan dengan metode spektrofotometri UV-Vis dengan penambahan 4-aminoantipirin dan absorbansinya diukur pada panjang gelombang 456 nm. Hasil penelitian menunjukkan bahwa stabilitas membran dicapai pada konsentrasi *plasticizer* 3,32% dengan konsentrasi fenol tertransfor sebesar 83,91%. Penambahan jenis garam NaNO₃ pada sumber menunjukkan hasil optimum dibandingkan jenis garam lainnya, yakni mampu mentranspor fenol pada fasa penerima sebesar 85,84%. Transpor fenol dengan melakukan penambahan NaNO₃ 0,01 M di fasa sumber dan penerima menghasilkan fenol yang tertranspor sebanyak 89,93% dan 86,76%. Pada uji kemampuan membran PIM melalui pemakaian berulang dilakukan 5 kali pengulangan transpor. Pemakaian berulang tanpa pencucian mampu mentranspor fenol sebesar 72,19%, 69,23%, 62,71%, 55,91%, dan 58,16%, serta pada pemakaian berulangan dengan pencucian mampu mentranspor fenol sebesar 70,85%, 64,10%, 56,72%, 49,26%, dan 27,19%. Tanpa penambahan NaNO₃, kemampuan transpor membran hanya 29 hari tetapi dengan penambahan NaNO₃ 0,1 M kemampuannya meningkat menjadi 58 hari.

Kata kunci: Co-EDVB, fenol, PIM, stabilitas, kemampuan

ABSTRAK

STABILITY AND ABILITY OF 10% COPOLY-EUGENOL DIVINIL BENZENE FOR PHENOL TRANSPORT USING POLYMER INCLUSION MEMBRANE (PIM) METHOD

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Research on the stability and ability of phenol transport using Co-EDVB (Copoly Eugenol Divinyl Benzene) 10% as a carrier using the polymer inclusion membrane (PIM) method had been carried out. The purposes of this research were to determine the stability of PIM membranes with the addition of plasticizer concentration, type and concentration of salt, and the ability of PIM membranes through repeated using and membrane lifetime. The membrane was prepared by dissolving Co-EDVB 10%, polyvinyl chloride (PVC) and dibenzyl eter (DBE) in tetrahydrofuran (THF) solvent. Determination of the concentration of phenol after the transport process was carried out by UV-Vis spectrophotometry method with the addition of 4-aminoantipyrine and its absorbance was measured at a wavelength of 456 nm. The results showed that the membrane stability was achieved at a plasticizer concentration of 3.32% with a transported phenol concentration of 83.91%. The addition of NaNO₃ salt at the source phase was an optimum result compared with other types of salt, which was able to transport phenol in the receiving phase of 85.84%. Phenol transport by adding 0.01 M NaNO₃ in the source and receiver phases resulted in 89.93% and 86.76%. In the test of the ability of the PIM membrane through repeated using, 5 transport repetitions were carried out. Repeated using without washing was able to transport phenol by 72.19%, 69.23%, 62.71%, 55.91%, and 58.16%, and in repeated using with washing it was able to transport phenol by 70.85%, 64 .10%, 56.72%, 49.26%, and 27.19%. Without the addition of NaNO₃, the membrane transport ability was only 29 days but the addition of 0.1 M NaNO₃, the ability increased to 58 days.

Keywords: Co-EDVB, phenol, PIM, stability, ability