

ABSTRAK

STUDI TRANSPOR FENOL DENGAN Co-EDAF 4% SEBAGAI SENYAWA PEMBWA MENGGUNAKAN METODE *POLIMER INCLUSION MEMBRANE* (PIM)

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Fenol merupakan salah satu senyawa organik yang beracun, berbentuk kristal tak berwarna, serta memiliki bau yang khas dan sulit untuk didegradasi yang banyak ditemukan sebagai polutan di perairan. Pada penelitian mengenai studi transpor fenol dengan senyawa kopoli(eugenol-DAF) 4% menggunakan metode *Polymer Inclusion Membrane* (PIM) telah dilakukan beberapa parameter yang berpengaruh terhadap transpor fenol diantaranya yaitu pH fenol fasa sumber, konsentrasi NaOH fasa penerima, ketebalan membran PIM, dan waktu transpor fenol. Membran dipreparasi dengan melarutkan senyawa *carrier* Co-EDAF 4%, polivinil klorida (PVC) dan dibenzil eter (DBE) kedalam pelarut tetrahidrofuran (THF). Konsentrasi fenol setelah transpor ditentukan dengan metode spektrofotometri UV-Vis menggunakan reagen 4-aminoantipirin dan absorbansinya di ukur pada panjang gelombang $\lambda=460$ nm. Hasil penelitian menunjukkan bahwa membran PIM dengan senyawa *carrier* kopoli(eugenol-DAF) 4% mampu mentranspor fenol secara efektif sebesar 74,15% pada kondisi optimum: pH fenol fasa sumber 5,5, konsentrasi NaOH 0,1 M, ketebalan membran PIM pada T_{54} dan waktu transpor fenol selama 24 jam. Membran PIM yang telah digunakan untuk transpor fenol selama 24 jam dikarakterisasi menggunakan FT-IR dan SEM. Transpor fenol dengan logam kompetitor Pb(II) dan Cd(II) menghasilkan konsentrasi fenol yang tertranspor lebih kecil dibandingkan transpor fenol tanpa logam sebesar 74,20%. Keberadaan logam kompetitor ini dapat diasumsikan telah menghambat proses fenol untuk tertranspor ke fasa penerima.

Kata kunci: Kopoli(eugenol-DAF), *Polymer Inclusion Membrane* (PIM),
Transpor Fenol.

ABSTRACT

STUDY OF PHENOL TRANSPORT WITH Co-EDAF 4% AS A CARRIER USING METHOD POLYMER INCLUSION MEMBRANE (PIM)

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Phenol is one of the toxic organic compounds, in the form of colorless crystals, and has a distinctive odor and is difficult to degrade which is commonly found as a pollutant in waters. In research on the study of phenol transport with 4% copoly(eugenol-DAF) compounds using the Polymer Inclusion Membrane (PIM) method, several parameters have been carried out that affect phenol transport including the pH of the source phase phenol, the concentration of NaOH in the receiving phase, the thickness of the PIM membrane, and phenol transport time. The membrane was prepared by dissolving 4% Co-EDAF carrier compound, polyvinyl chloride (PVC) and dibenzyl ether (DBE) in tetrahydrofuran (THF) solvent. The concentration of phenol after transport was determined by UV-Vis spectrophotometry using 4-aminoantipyrine reagent and the absorbance was measured at a wavelength of $\lambda=460$ nm. The results showed that the PIM membrane with 4% copoly(eugenol-DAF) carrier compound was able to transport phenol effectively by 74.15% under optimum conditions: pH of the phenolic source phase was 5.5, NaOH concentration was 0.1 M, the thickness of the PIM membrane at T_{54} and phenol transport time for 24 hours. PIM membranes that have been used for phenol transport for 24 hours were characterized using FT-IR and SEM. Transport of phenol with metal competitors Pb(II) and Cd(II) resulted in a lower concentration of phenol than that of 74.20% without metal. The presence of these competitor metals can be assumed to have inhibited the process of phenol being transported to the receiving phase.

Keywords: Copoly(eugenol-DAF), Polymer Inclusion Membrane (PIM), Phenol Transport.