

ABSTRAK

STUDI TRANSPOR FENOL MENGGUNAKAN SENYAWA *CARRIER* Co-EDAF (Copoli Eugenol-Dialil Ftalat) 8% DENGAN METODE *Polymer Inclusion Membrane* (PIM)

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Telah dilakukan Sintesis kopoli eugenol-dialil ftalat (Co-EDAF) 8% yang berfungsi sebagai senyawa *carrier*. Co-EDAF 8% merupakan salah satu komponen dalam pembuatan *polymer inclusion membrane* (PIM). Selanjutnya senyawa Co-EDAF 8% dikarakterisasi menggunakan *Fourier-Transform Infrared Spectroscopy* (FTIR) serta dilakukan uji transpor fenol menggunakan metode PIM dengan beberapa parameter diantaranya pH fasa sumber, konsentrasi fasa penerima, ketebalan membran yang digunakan, waktu transpor serta uji transpor pada limbah buatan. Karakterisasi membran dilakukan dengan menggunakan *Scanning Electron Microscopy* (SEM) untuk mengetahui morfologi permukaan membran dan FTIR untuk mengetahui gugus fungsi. Senyawa hasil sintesis berbentuk serbuk, berwarna *orange* dan larut terhadap kloroform, dietil eter dan tetrahidrofur. Hasil FTIR menunjukkan hilangnya gugus vinil pada bilangan gelombang $995,27\text{ cm}^{-1}$ dan gugus alil pada bilangan gelombang 1636 cm^{-1} . Hasil uji transpor fenol menunjukkan bahwa PIM menggunakan senyawa *carrier* Co-EDAF 8% mampu mentranspor fenol sebesar 82,42 % pada pH 5,5 di fasa sumber, konsentrasi NaOH 0,1 M di fasa penerima, ketebalan membran 0,27 mm (tipe membran t_{54}) dengan waktu transpor selama 48 jam. Uji transpor fenol pada limbah buatan dihasilkan bahwa membran PIM selektif terhadap *recovery* fenol,

Kata kunci : Co-EDAF, *Dialil Ftalat*, Fenol, PIM

ABSTRACT

TRANSPORT PHENOL STUDY USING Co-EDAF (Copoly Eugenol-Diallyl Phthalate) 8% AS A CARRIER COMPOUND BY Polymer Inclusion Membrane (PIM) METHODE

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Synthesis of copoly eugenol-diallyl phthalate (Co-EDAF) 8% has been carried out as a carrier compound. Co-EDAF 8% is one component in the creation of polymer inclusion membranes (PIMs). Furthermore Co-EDAF 8 % compounds were characterized using the Fourier-Transform Infrared Spectroscopy (FTIR) and phenol transport tests were carried out using the PIM method with some parameter among them are source phase pH, receiving phase concentration, the thickness of membrane that used in this research, time transport, and test metal transport. Membrane characterization is carried out using *Scanning Electron Microscopy* (SEM) to know the membrane surface morphology and FTIR to know functional groups. The synthesis product result was an orange powder which dissolves with chloroform, diethyl ether and tetrahydrofuran. The results by FTIR showed the loss of vinyl and allyl groups at wave number 995.27 cm^{-1} and 1636 cm^{-1} respectively. Transport phenol study showed that the PIM using an Co-EDAF 8% as a carrier compound was able to transport phenols up to 82.42% at pH 5.5 in the source, the concentration of 0.1 M NaOH in the receiver with a membrane thickness 0,27 (type membrane t_{54}) with time transport until 48 hours. Transport phenol test in synthetic wastes showed that PIM membrane was selective for the recovery of phenol.

Keywords: Co-EDAF, Diallyl Phthalate, Phenol, PIM