ABSTRAK

STUDI TRANSPOR *MALACHITE GREEN* MENGGUNAKAN METODE *POLYMER INCLUSION MEMBRANE* (PIM) DENGAN *COPOLY*-EUGENOL DIVINIL BENZENA (Co-EDVB) 2% SEBAGAI SENYAWA PEMBAWA

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Penelitian mengenai studi transpor malachite green telah dilakukan menggunakan metode *polymer inclusion membrane* (PIM) dengan *copoly*-eugenol divinil benzena (Co-EDVB) 2% sebagai senyawa pembawa. Penelitian ini bertujuan untuk mengetahui optimasi PIM dengan senyawa pembawa Co-EDVB 2% dengan mempelajari pengaruh pH *malachite green* pada fasa sumber, konsentrasi HNO_3 pada fasa penerima, ketebalan membran, konsentrasi senyawa pembawa dan waktu transpor *malachite green*, serta mempelajari kompetisi transpor *malachite green* pada limbah buatan. Membran dipreparasi dengan melarutakan senyawa pembawa Co-EDVB 2%, polivinil klorida dan dibenzil eter ke dalam pelarut tetrahidrofuran (THF). Konsentrasi *malachite green* setelah transpor ditentukan dengan metode spektrofotometri UV-Vis dan absorbansinya diukur pada panjang gelombang λ=613 nm. Hasil penelitian menunjukkan bahwa membran PIM dengan senyawa pembawa Co-EDVB 2% mampu mentranspor *malachite green* secara efektif sebesar 93,28% pada kondisi optimum: pH fasa sumber 7, konsentrasi fasa penerima 0,50 M, ketebalan membran PIM T_{54}, dan waktu transpor 18 jam. Membran PIM sebelum dan setelah transpor dikarakterisasi menggunakan FTIR dan SEM. Transpor *malachite green* dengan logam Pb(II) dan Cu(II) menghasilkan konsentrasi *malachite green* yang tetranspor lebih kecil dibandingkan transpor *malachite green* tanpa logam sebesar 80,79%. Keberadaan logam kompetitor mengakibatkan adanya gangguan terhadap proses transpor *malachite green* dari fasa sumber ke fasa penerima.

Kata kunci : Co-EDVB, *malachite green*, PIM.

ABSTRACT

TRANSPORT STUDY OF MALACHITE GREEN USING POLYMER INCLUSION MEMBRANE (PIM) METHOD WITH COPOLY-EUGENOL DIVINYL BENZENE (Co-EDVB) 2% AS CARRIER COMPOUNDS

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Research on the transport of malachite green has been carried out using the polymer inclusion membrane (PIM) method with copoly-eugenol divinil benzene (Co-EDVB) 2% as a carrier. The study was aimed to determine the optimization of PIM with Co-EDVB 2% by studying the effect of malachite green pH on source phase, HNO_3 concentration on receiving phase, membrane thickness, carrier concentration, malachite green transport time, and the transport competition on artificial waste. The membrane was prepared by dissolving Co-EDVB 2%, polyvinyl chloride and dibenzyl ether into tetrahydrofuran. The concentration of malachite green was determined by UV-Vis spectrophotometry and its absorbance was measured at 613 nm. The results showed that the PIM with Co-EDVB 2% as a carrier was effectively able to transport malachite green by 93.28% under several optimum conditions: source phase pH 7, receiver phase concentration 0.50 M, T_{54} type of PIM thickness, and the transport time 18 hours. The PIM membrane transports were characterized using FTIR and SEM. The transport of malachite green with Pb(II) and Cu(II) metals resulted a smaller concentration of malachite green (80.79%) than the transport without metals. The presence of competitor metals resulted an inhibition of malachite green transport process from source to receiver phase.

Keywords : Co-EDVB, malachite green, PIM