

**STUDI O-METILASI PADA SINTESIS SENYAWA 1-METOKSI
NAFTALEN DENGAN VARIASI JUMLAH MOL DIMETIL KARBONAT
(DMC) DAN VARIASI WAKTU REFLUKS BERBASIS *GREEN*
*CHEMISTRY***

INTISARI

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Telah dilakukan sintesis senyawa 1-metoksi naftalen melalui reaksi O-metilasi berbasis *green chemistry* menggunakan dimetil karbonat (DMC) sebagai agen metilasi. Penelitian ini bertujuan untuk mengetahui pengaruh rasio mol reagen dimetil karbonat (DMC) dan waktu refluks terhadap sintesis senyawa 1-metoksi naftalen. Senyawa 1-metoksi naftalen disintesis dengan mereaksikan naftol dan dimetil karbonat (DMC) menggunakan bantuan katalis transfer fasa TBAB dengan metode refluks. Variasi yang dilakukan yaitu variasi jumlah mol DMC sebesar 200 dan 240 mmol serta variasi waktu refluks selama 10 dan 15 jam. Analisis senyawa hasil sintesis dilakukan menggunakan *Gas Chromatography-Mass Spectrometry* (GC-MS) dan *Fourier Transform Infrared* (FTIR). Dalam penelitian ini didapatkan hasil sintesis 1-metoksi naftalen paling optimal yaitu menggunakan perbandingan naftol:DMC:TBAB:Na₂CO₃ sebesar 10:160:6:7,5 mmol dalam waktu refluks selama 15 jam karena memiliki kemurnian 100% dan rendemen sebesar 92,418%. Hal ini didukung dengan bukti karakterisasi FTIR yang memperlihatkan bahwa terdapat serapan gugus eter (C-O) pada bilangan gelombang 1019 cm⁻¹.

Kata Kunci : *green chemistry*, dimetil karbonat, O-metilasi, 1-metoksi naftalen

**STUDY O-METHYLATION ON SYNTHESIS OF 1-METHOXY
NAFTALEN COMPOUNDS WITH VARIATIONS OF THE NUMBER OF
MOL DIMETHYL CARBONATE (DMC) AND VARIATION OF REFLUX
TIME BASED ON GREEN CHEMISTRY**

ABSTRACT

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O-methylation synthesis has been carried out on 1-methoxy naphthalene compounds based on green chemistry using dimethyl carbonate (DMC) as a methylation agent. This study aims to determine the effect of the mole ratio of dimethyl carbonate reagent (DMC) and reflux time on synthesis of 1-methoxy naphthalene compounds. The 1-methoxy naphthalene compound was synthesized by reacting naphthol and dimethyl carbonate (DMC) using the help of TBAB as phase transfer catalyst by the reflux method. There were two variations, variations in the number of DMC moles of 200 and 240 mmol and variations in reflux time for 10 and 15 hours . Analysis of the synthesized compounds was carried out using *Gas Chromatography-Mass Spectrometry* (GC-MS) and *Fourier Transform Infrared* (FTIR). In this study, the optimal results of 1-methoxy naphthalene synthesis were obtained using naphthol:DMC:TBAB:Na₂CO₃ (10:160:6:7,5 mmol) in reflux time during 15 hours because it has 100% purity and 92.418% yield. This is evidenced by FTIR characterization showed that there was an ether (C-O) group absorption at wavenumber 1019 cm⁻¹.

Keywords : green chemistry, dimethyl carbonate, O-methylation, 1-methoxy naphthalene