

## **SINTESIS (E)-7-KLORO-4-(2-METOKSI-4-(PROP-1-EN-1-IL)FENOKSI)KUINOLIN DARI MINYAK DAUN CENGKEH**

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### **INTISARI**

Sintesis turunan senyawa kuinolin berbahan dasar minyak daun cengkeh telah dilakukan. Penelitian diawali dengan mengisolasi eugenol dari minyak daun cengkeh dengan metode ekstraksi pelarut. Senyawa eugenol yang dihasilkan kemudian diubah menjadi senyawa isoeugenol melalui reaksi isomerisasi. Senyawa isoeugenol kemudian direaksikan dengan 4,7-diklorokuinolin melalui reaksi substitusi nukleofilik aromatik. Reaksi substitusi nukleofilik aromatik dilakukan pada suhu 135°C selama 10 jam untuk menghasilkan senyawa turunan kuinolin yaitu (E)-7-kloro-4-(2-metoksi-4-(prop-1-en-1-il)fenoksi)kuinolin. Hasil sintesis dikarakterisasi menggunakan uji titik lebur, analisis spektrometer FTIR, <sup>1</sup>H-NMR dan <sup>13</sup>C-NMR.

Isolasi eugenol dari minyak daun cengkeh menghasilkan cairan berwarna coklat tua dengan rendemen sebesar 76% (berdasarkan minyak daun cengkeh). Reaksi isomerisasi eugenol menghasilkan isoeugenol berupa cairan berwarna coklat dengan persen hasil sebesar 18%. Reaksi substitusi nukleofilik aromatik antara 4,7-diklorokuinolin dengan isoeugenol menghasilkan senyawa (E)-7-kloro-4-(2-metoksi-4-(prop-1-en-1-il)fenoksi)kuinolin berupa padatan berwarna putih dengan titik lebur 112-115 °C dan persen hasil 32%.

Kata kunci: eugenol, isoeugenol, minyak daun cengkeh, reaksi substitusi nukleofilik aromatik, turunan kuinolin.

## **SYNTHESIS OF (E)-7-CHLORO-4-(2-METHOXY-4-(PROP-1-EN-1-YL)PHENOXY)QUINOLINE FROM CLOVE LEAF OIL**

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### **ABSTRACT**

The synthesis of quinoline derivatives from clove leaf oil has been carried out. The research was started by isolating eugenol from clove leaf oil using the solvent extraction method. Conversion of eugenol to isoeugenol was conducted through the isomerization reaction. Isoeugenol compound was then reacted with 4,7-dichloroquinoline through the aromatic nucleophilic substitution reaction at 135 °C for 10 hours to produce (E)-7-chloro-4- (2-methoxy-4- (prop-1-en-1-yl) phenoxy)quinoline. The final product was characterized using the melting point test, and FTIR, GC-MS, <sup>1</sup>H-NMR, as well as <sup>13</sup>C-NMR spectrometers.

Isolation of eugenol from clove leaf oil produces the dark brown liquid with the yield of 76% (based on clove leaf oil). The isomerization reaction towards eugenol gives isoeugenol as brown liquid with in 18% yield. The aromatic nucleophilic substitution reaction between 4,7-dichloroquinoline and isoeugenol produces the (E)-7-chloro-4- (2-methoxy-4- (prop-1-en-1-yl) phenoxy)quinoline as white solid with melting point of 112- 115 °C in 32% yield.

Key words: clove leaf oil, eugenol, isoeugenol, nucleophilic substitution reaction, quinoline derivative.