

**SINTESIS SENYAWA ALIL 4-METILFENIL ETER EPOKSIDA DAN UJI
AKTIVITASNYA SEBAGAI ANTIMALARIA TERHADAP
*Plasmodium falciparum***

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INTISARI

Pada penelitian ini dilakukan sintesis senyawa alil 4-metilfenil eter epoksida dan uji aktivitasnya terhadap *Plasmodium falciparum*. Penelitian ini bertujuan untuk sintesis senyawa epoksida turunan metilfenol. Senyawa alil 4-metilfenil eter disintesis melalui reaksi antara metilfenol dan alil bromida dalam pelarut DMF dengan basa K_2CO_3 . Reaksi dilakukan pada suhu ruang selama 48 jam. Senyawa alil 4-metilfenil eter epoksida disintesis melalui reaksi epoksidasi antara alil 4-metilfenil eter dengan *m*CPBA dalam pelarut kloroform. Reaksi dilakukan dengan metode refluks pada suhu 65 °C dan dilanjutkan pengadukan suhu ruang selama 18 jam. Karakterisasi GC-MS, FTIR, 1H -NMR, dan ^{13}C -NMR dilakukan pada senyawa alil 4-metilfenil eter dan alil 4-metilfenil eter epoksida. Uji aktivitas antimalaria dari senyawa alil 4-metilfenil eter epoksida dilakukan dengan metode *in vitro* terhadap *Plasmodium falciparum* FCR-3.

Sintesis alil 4-metilfenil eter menghasilkan produk dengan persen hasil 91% dan alil 4-metilfenil eter epoksida menghasilkan persen hasil 52,6%. Hasil pengujian aktivitas antimalaria terhadap *Plasmodium falciparum* FCR-3 menghasilkan nilai IC_{50} sebesar 5,71 $\mu g/mL$. Berdasarkan nilai IC_{50} yang diperoleh, maka alil 4-metilfenil eter epoksida digolongkan sebagai senyawa dengan aktivitas antimalaria yang baik.

Kata kunci: alil 4-metilfenil eter epoksida, antimalaria, epoksida, metilfenol, *Plasmodium falciparum*

***SYNTHESIS OF THE COMPOUND ALLYL 4-METHYLPHENYL EPOXIDE
AND ITS ACTIVITY TEST AS AN ANTIMALARIA AGAINST
Plasmodium falciparum***

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ABSTRACT

In this study, the synthesis of allyl 4-methylphenyl ether epoxide and its antimalarial activity tests against *Plasmodium falciparum* were carried out. This study aims to synthesize methylphenol derivative epoxide compounds. Allyl 4-methylphenyl ether was synthesized through reaction between methylphenol and allyl bromide in DMF solvent with K_2CO_3 base. The reaction was carried out at room temperature for 48 hours. Allyl 4-methylphenyl ether epoxide was synthesized through an epoxidation reaction between allyl 4-methylphenyl ether and *m*CPBA in chloroform solvent. The reaction was carried out by refluxing at 65 °C and continued stirring at room temperature for 18 hours. GC-MS, FTIR, 1H -NMR, and ^{13}C -NMR characterization were performed on the allyl 4-methylphenyl ether and allyl 4-methylphenyl ether epoxide compounds. The antimalarial activity of the allyl 4-methylphenyl ether epoxide was tested *in vitro* against *Plasmodium falciparum* FCR-3.

The synthesis of allyl 4-methylphenyl ether produced a yield of 91%, while that of allyl 4-methylphenyl ether epoxide produced a yield of 52.6%. Antimalarial activity testing against *Plasmodium falciparum* FCR-3 resulted in an IC_{50} value of 5.71 $\mu g/mL$. Based on the IC_{50} value obtained, allyl 4-methylphenyl ether epoxide is classified as a compound with good antimalarial activity.

Keywords: allyl 4-methylphenyl ether epoxide, antimalarial, epoxide, methylphenol, *Plasmodium falciparum*