SINTESIS SENYAWA EPOKSIDA DARI *p*-HIDROKSIBENZALDEHIDA DAN UJI AKTIVITASNYA SEBAGAI ANTIMALARIA TERHADAP *Plasmodium falciparum*

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INTISARI

Penelitian dengan judul Sintesis Senyawa Epoksida dari *p*-Hidroksibenzaldehida dan Uji Aktivitasnya sebagai Antimalaria terhadap *Plasmodium falciparum* telah dilakukan. Tujuan dari penelitian ini adalah untuk mensintesis senyawa alil turunan benzaldehida dan epoksida turunan benzaldehida dengan bahan dasar *p*-hidroksibenzaldehida. Senyawa epoksida turunan benzaldehida hasil sintesis selanjutnya diuji aktivitas antimalaria terhadap *Plasmodium falciparum* FCR-3.

Sintesis senyawa alil turunan benzaldehida dilakukan dengan mereaksikan *p*-hidroksibenzaldehida dan alil bromida menggunakan basa K_2CO_3 dalam pelarut aseton. Sintesis senyawa epoksida turunan benzaldehida dilakukan dengan mereaksikan alil turunan benzaldehida hasil sintesis dan *m*CPBA selama 24 jam dengan 6 jam pemanasan pada suhu 50 °C dan 18 jam pengadukan pada suhu kamar. Hasil sintesis yang diperoleh dikarakterisasi menggunakan instrumen FT-IR, GC-MS, ^{1}H-NMR dan ^{13}C-NMR. Senyawa epoksida turunan benzaldehida diuji aktivitas antimalaria terhadap parasit *P. falciparum* FCR-3 secara *in vitro*.

Sintesis turunan alil benzaldehida dan epoksida benzaldehida menghasilkan produk dengan persen hasil masing-masing sebesar 86% dan 85%. Hasil uji aktivitas antimalaria senyawa epoksida benzaldehida terhadap *P. falciparum* FCR-3 menghasilkan IC_{50} sebesar 2,309 µM. Berdasarkan nilai IC_{50} yang diperoleh, maka senyawa epoksida benzaldehida digolongkan sebagai senyawa yang memiliki aktivitas antimalaria yang baik.

Kata kunci: antimalaria, benzaldehida, epoksida, plasmodium.

SYNTHESIS OF EPOXIDE COMPOUNDS FROM *p*-HYDROXYBENZALDEHYDE AND THEIR ACTIVITY ASSAY AS ANTIMALARIA AGAINST *Plasmodium falciparum*

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ABSTRACT

Research entitled Synthesis of Epoxide Compounds from *p*-Hydroxybenzaldehyde and Their Activity Assay as Antimalaria against *Plasmodium falciparum* has been conducted. The purpose of this study was to synthesize allyl benzaldehyde derivative compounds and epoxide benzaldehyde derivatives using *p*-hydroxybenzaldehyde as the starting material. The synthesized epoxide benzaldehyde derivative compounds were then tested for antimalarial activity against *Plasmodium falciparum* FCR-3.

The synthesis of allyl benzaldehyde derivative compounds was carried out by reacting *p*-hydroxybenzaldehyde and allyl bromide using K_2CO_3 base in acetone solvent. The synthesis of epoxide benzaldehyde derivative compounds was carried out by reacting allyl benzaldehyde derivatives from the synthesis and *m*CPBA for 24 hours with 6 hours of heating at 50 °C and 18 hours of stirring at room temperature. The synthesized compounds obtained were characterized using FT-IR, GC-MS, ^{1}H-NMR and ^{13}C-NMR instruments. The benzaldehyde derivative epoxide compound was tested for *in vitro* antimalarial activity against *P. falciparum* FCR-3 parasites.

Synthesis of allyl benzaldehyde and benzaldehyde epoxide derivatives produced products with 86% and 85% yield, respectively. The results of the antimalarial activity test of the benzaldehyde epoxide derivative against *P. falciparum* FCR-3 produced an IC_{50} of 2.309 µM. Based on the IC_{50} value obtained, the benzaldehyde epoxide derivative is classified as a compound that has good antimalarial activity.

Keywords: antimalarial, benzaldehyde, epoxide, plasmodium.