SINTESIS TURUNAN KALKON DAN *N*-FENIL PIRAZOLINA DARI 4-KLOROBENZALDEHIDA DAN 4-KLOROASETOFENON SERTA AKTIVITASNYA SEBAGAI SENYAWA ANTIMALARIA

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INTISARI

Sintesis dan aktivitas antimalaria senyawa kalkon dan *N*-fenil pirazolina dari 4-klorobenzaldehida dan 4-kloroasetofenon telah berhasil dilakukan. Pada tahap awal, sintesis kalkon dari 4-klorobenzaldehida dan 4-kloroasetofenon dilakukan dengan katalis NaOH 40% (b/v) dengan metode pengadukan selama 24 jam pada temperatur ruang. Tahap selanjutnya, senyawa *N*-fenil pirazolina disintesis dari kalkon dan fenil hidrazin dengan cara refluks selama 3 jam. Elusidasi struktur produk dilakukan dengan menggunakan spektrometer FT-IR, GC-MS, ^{1}H- dan ^{13}C-NMR. Uji aktivitas antimalaria dilakukan dengan metode penghambatan polimerisasi *heme*.

Produk sintesis kalkon berupa padatan putih dengan rendemen 83% dan titik leleh 148-150 °C, sedangkan produk *N*-fenil pirazolina berupa padatan cokelat dengan rendemen 70% dan titik leleh 165-167 °C. Nilai IC_{50} kontrol positif (klorokuin difosfat), kalkon, dan *N*-fenil pirazolina secara berurutan sebesar 3,54; 98,66; dan 20,83 mg/mL. Senyawa kalkon dan *N*-fenil pirazolina memiliki aktivitas antimalaria yang lebih rendah dibandingkan dengan kontrol positif (klorokuin difosfat).

Kata kunci: 4-klorobenzaldehida, 4-kloroasetofenon, antimalaria, kalkon, *N*-fenil pirazolina

SYNTHESIS OF CHALCONE AND N-PHENYL PYRAZOLINE DERIVATIVE FROM 4-CHLOROBENZALDEHYDE AND 4-CHLOROACETOPHENONE AND ITS ACTIVITIES AS ANTIMALARIAL COMPOUND

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ABSTRACT

Synthesis and antimalarial activities of chalcone and *N*-phenyl pyrazoline from 4-chlorobenzaldehyde and 4-chloroacetophenone have been carried out. First, chalcone was synthesized from 4-chlorobenzaldehyde and 4-chloroacetophenone using NaOH 40% (w/v) under stirring at room temperature for 24 hours. Second, synthesis of *N*- phenyl pyrazoline was conducted by refluxing the chalcone and phenyl hydrazine for 3 hours. The structure elucidation of an product was performed by FT-IR, GC-MS, ^{1}H- and ^{13}C-NMR spectrometer. Antimalarial activities test were conducted by inhibition of heme polymerization.

The chalcone was yielded as white solid in 83% with melting point 148-150 °C, while *N*-phenyl pyrazoline was yielded in 70% as brown solid with melting point 165-167 °C. The IC_{50} values of positive control (chloroquine diphosphate), chalcone, and *N*-phenyl pyrazoline in a sequence of 3.54; 98.66; dan 20.83 mg/mL. Chalcone and *N*-phenyl pyrazoline compounds have lower antimalarial activity than positive control (chloroquine diphosphate).

Key words: 4-chlorobenzaldehyde, 4-chloroacetophenone, antimalarial, chalcone, *N*-phenyl pyrazoline