TURUNAN KALKON DAN *N*-FENILPIRAZOLINA BERBAHAN DASAR 4-AMINOASETOFENON DAN BENZALDEHIDA; SINTESIS DAN ASSAY ANTIMALARIA

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INTISARI

Sintesis kalkon dan *N*-fenilpirazolina berbahan dasar 4-aminoasetofenon dan benzaldehida serta uji aktivitasnya sebagai antimalaria telah dilakukan. Penelitian diawali dengan sintesis senyawa kalkon dari 4-aminoasetofenon, benzaldehida, dan NaOH 40% dalam pelarut etanol dengan metode sonokimia selama 1 jam. Sintesis senyawa turunan *N*-fenilpirazolina dilakukan dengan cara sikloadisi senyawa kalkon hasil sintesis dengan fenilhidrazina dan penambahan katalis NaOH 40% dengan metode sonokimia selama 5 jam. Untuk membuktikan kebenaran struktur senyawa hasil sintesis, dilakukan elusidasi struktur dengan spektrometer FTIR, GC-MS, ^{1}H- dan ^{13}C-NMR. Senyawa turunan kalkon dan *N*-fenilpirazolina hasil sintesis diuji aktivitasnya sebagai agen antimalaria dengan metode penghambatan polimerisasi heme.

Berdasarkan hasil penelitian diperoleh senyawa kalkon berupa padatan berwarna kuning dengan rendemen 69,5% dan titik leleh 105-108 °C. Senyawa *N*-fenilpirazolina yang diperoleh berupa padatan coklat muda dengan rendemen 74,9% dan titik leleh 136-137 °C. Uji penghambatan polimerisasi heme menghasilkan nilai IC_{50} senyawa kalkon yaitu 16,1 mM dan senyawa *N*-fenilpirazolina yaitu 3,3 mM, sedangkan nilai IC_{50} senyawa klorokuin difosfat sebagai kontrol positif yaitu 6,9 mM. Dapat disimpulkan bahwa kalkon dan *N*-fenilpirazolina merupakan senyawa yang aktif pada penghambatan polimerisasi heme jika dibandingkan dengan kontrol positif.

Kata kunci: antimalaria, *N*-fenilpirazolina, kalkon.

CHALCONE AND *N*-PHENYLPYRAZOLINE DERIVATIVES FROM 4-AMINOACETOPHENONE AND BENZALDEHYDE; SYNTHESIS AND ANTIMALARIAL ASSAY

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ABSTRACT

Synthesis of chalcone and *N*-phenylpyrazoline derivatives from 4-aminoacetophenone and benzaldehyde and the activity assay as an antimalaria have been carried out. First, chalcone was synthesized from 4-aminoacetophenone and benzaldyde using NaOH 40% as a catalyst in ethanol using sonochemical method for 1 h. Second, synthesis of *N*-phenylpirazoline compound was carried out by cycloadition of chalcone with phenylhydrazine and the addition of NaOH 40% as a catalyst by sonochemical method for 5 h. The structure elucidations of products were confirmed by FTIR spectrophotometer, GC-MS, ^{1}H- and ^{13}C-NMR spectrometer. Synthesis of chalcone and *N*-phenylpirazoline derivatives were evaluated *in vitro* for the activity assay as antimalarial by heme polymerization inhibitory assay (HPIA).

Based on the results, the chalcone was obtained as yellow solid in 69.5% yield with melting point 105-108 °C. *N*-phenylpyrazoline was obtained as pale brown solid in 74.9% with melting point of 136-137 °C. The heme polymerization inhibitory assay produced IC_{50} values of chalcone at 16.1 mM and *N*-phenylpyrazoline at 3.3 mM while IC_{50} value of chloroquine diphosphate as positive control at 6.9 mM. These values implied that both of those compounds were active for heme polymerization inhibitory activity if it is compared with chloroquine as positive control.

Keywords: antimalaria, chalcone, *N*-phenylpyrazoline.