

SINTESIS DAN UJI AKTIVITAS TURUNAN KALKON BERBAHAN DASAR 2,4-DIMETOKSIASETOFENON SEBAGAI SENYAWA ANTIMALARIA

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INTISARI

Telah dilakukan sintesis senyawa turunan kalkon dari 2,4-dimetoksiasetofenon serta uji aktivitasnya sebagai senyawa antimalaria. Sintesis kalkon **A**, **B** dan **C** dilakukan dengan mereaksikan senyawa 2,4-dimetoksiasetofenon dengan senyawa turunan benzaldehida, yaitu 2-metoksibenzaldehida, 2,4-dimetoksibenzaldehida dan 2,5-dimetoksibenzaldehida. Reaksi ini dilakukan dengan metode pengadukan dalam pelarut etanol dan NaOH 20% selama 24 jam pada suhu kamar. Struktur senyawa hasil sintesis dielusidasi menggunakan spektrometer FTIR, GC-MS, ^1H - dan ^{13}C -NMR. Produk hasil sintesis diuji aktivitasnya sebagai senyawa antimalaria secara *in vitro* terhadap parasit *P. falciparum* galur 3D7.

Hasil penelitian menunjukkan bahwa senyawa kalkon **A**, **B** dan **C** memiliki karakteristik berupa padatan berwarna kuning, kuning terang dan kuning pekat dengan titik leleh secara berurutan sebesar 102,7-103,6, 127,3-129,8 dan 87,9-88,6 °C. Rendemen yang diperoleh untuk kalkon **A**, **B** dan **C** sebesar 79,78, 60,22 dan 79,59%. Uji aktivitas antimalaria senyawa kalkon **A**, **B** dan **C** menghasilkan nilai IC_{50} berturut-turut sebesar 7,26, 4,05 dan 4,13 μM sehingga semua kalkon dikategorikan sebagai senyawa yang aktif sebagai antimalaria.

Kata kunci: 2,4-dimetoksiasetofenon, antimalaria, kalkon, *P. falciparum* 3D7

SYNTHESIS AND ACTIVITY ASSAY OF CHALCONE DERIVATIVES FROM 2,4-DIMETHOXYACETOPHENONE AS ANTIMALARIAL AGENTS

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ABSTRACT

Synthesis of chalcone derivatives from 2,4-dimethoxyacetophenone and their activity as antimalarial agents have been carried out. The synthesis of chalcones **A**, **B**, and **C** were performed by reacting 2,4-dimethoxyacetophenone with benzaldehyde derivatives, namely 2-methoxybenzaldehyde, 2,4-dimethoxybenzaldehyde, and 2,5-dimethoxybenzaldehyde. This reaction was done in ethanol with the presence of NaOH 20% by stirring method for 24 hours at room temperature. The structure of all products was elucidated using FTIR, GC-MS, ^1H -, and ^{13}C -NMR spectrometers. The synthesized product was tested for its activity as antimalarial agents by *in vitro* assay against *P. falciparum* 3D7.

The results showed that chalcones **A**, **B**, and **C** had characteristics as yellow, light yellow and deep yellow solids with melting points of 102.7-103.6, 127.3-129.8, and 87.9-88.6 °C, respectively. The yield obtained for chalcones **A**, **B**, and **C** were 79.78, 60.22, and 79.59%. The antimalarial activity test of chalcone **A**, **B**, and **C** resulted in IC_{50} values of 7.26, 4.05, and 4.13 μM , respectively; therefore, all chalcones were categorized as active antimalarial compounds.

Keywords: 2,4-dimethoxyacetophenone, antimalarial agent, chalcone, *P. falciparum* 3D7