SINTESIS KALKON DARI TURUNAN METOKSIASETOFENON DAN ISOMER PIRIDINKARBALDEHIDA SERTA UJI AKTIVITASNYA SEBAGAI SENYAWA ANTIMALARIA

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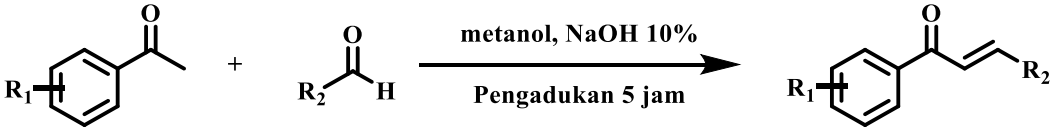
INTISARI

Sintesis kalkon dari turunan metoksiasetofenon yaitu 2-metoksiasetofenon, 3-metoksiasetofenon, dan 4-metoksiasetofenon dan isomer piridinkarbaldehida dalam bentuk 2-, 3-, dan 4-piridinkarbaldehida serta uji aktivitasnya sebagai senyawa antimalaria telah dilakukan. Semua kalkon disintesis menggunakan metode pengadukan selama 5 jam pada temperatur rendah (0-10 °C) dengan NaOH sebagai katalis dan metanol sebagai pelarut. Elusidasi struktur terhadap produk hasil sintesis dilakukan dengan spektrometer FTIR, GC-MS, ^{1}H- dan ^{13}C-NMR. Kalkon hasil sintesis diuji aktivitasnya sebagai senyawa antimalaria secara *in vitro* terhadap *P. falciparum* 3D7 dan FCR3.

Berdasar hasil penelitian diperoleh kalkon **A, B, C, D, E,** dan **F** berupa padatan berwarna kekuningan dengan rendemen masing-masing sebesar 53,74%; 78,01%; 57,12%; 71,65%; 75,23%; dan 86,37%. Uji antimalaria kalkon **A, B, C, D, E,** dan **F** terhadap *P. falciparum* 3D7 dan FCR3 menunjukkan bahwa semua kalkon aktif sebagai agen antimalaria dengan kisaran nilai IC_{50} 1-20 µM. Kalkon **A** merupakan senyawa yang paling aktif dengan nilai IC_{50} 2,02 dan 1,31 µM terhadap *P. falciparum* 3D7 dan FCR3.

Kata kunci: antimalaria, kalkon, metoksiasetofenon, piridinkarbaldehida



Kalkon	R_1	R_2
A	2-Metoksi	Piridin-2-il
B	2-Metoksi	Piridin-3-il
C	3-Metoksi	Piridin-3-il
D	4-Metoksi	Piridin-2-il
E	4-Metoksi	Piridin-3-il
F	4-Metoksi	Piridin-4-il

SYNTHESIS OF CHALCONE FROM METHOXYACETOPHENONE DERIVATIVES AND ISOMERS OF PYRIDINECARBALDEHYDE AND THEIR ACTIVITIES TEST AS ANTIMALARIAL AGENTS

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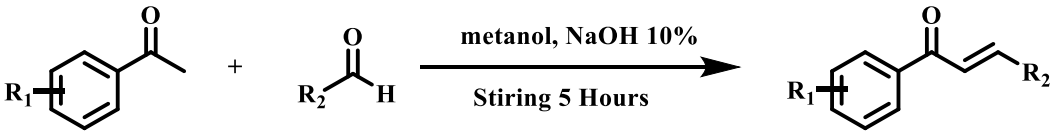
ABSTRACT

Synthesis of chalcones from methoxyacetophenone derivatives, i.e., 2-methoxyacetophenone, 3-methoxyacetophenone, and 4-methoxyacetophenone and pyridinecarbaldehyde isomers in the form of 2-, 3-, and 4-pyridinecarbaldehyd, and their activity test as antimalarial compounds has been conducted. All chalcones were synthesized under the stirring method for 5 hours at low temperature (0-10 °C) using NaOH as a catalyst in methanol as solvent. Structure elucidations of the synthesized products were carried out using FTIR, GC-MS, ^{1}H- and ^{13}C-NMR spectrometers. The synthesized chalcones were tested for their activity as an antimalarial compound *in vitro* against *P. falciparum* 3D7 and FCR3.

The results showed that chalcone **A**, **B**, **C**, **D**, **E**, and **F** were obtained as a yellowish solid in 53.74%; 78.01%; 57.12%; 71.65%; 75.23%; and 86.3% yield, respectively. The antimalarial assays of chalcone **A**, **B**, **C**, **D**, **E**, and **F** against *P. falciparum* 3D7 and FCR3 showed that all chalcones were active as antimalarial agents with IC_{50} values between 1-20 µM. Chalcone **A** appeared as the most active compound with IC_{50} values of 2.02 and 1.31 µM for *P. falciparum* 3D7 and FCR3, respectively.

Keywords: antimalarial, chalcone, methoxyacetophenone, pyridinecarbaldehyde



Chalcone	R_1	R_2
A	2-Methoxy	Pyridin-2-yl
B	2-Methoxy	Pyridin-3-yl
C	3-Methoxy	Pyridin-3-yl
D	4-Methoxy	Pyridin-2-yl
E	4-Methoxy	Pyridin-3-yl
F	4-Methoxy	Pyridin-4-yl