SINTESIS TURUNAN *N*-FENIL PIRAZOLINA BERBAHAN DASAR 4-KLOROBENZALDEHIDA SEBAGAI SENYAWA ANTIINFLAMASI

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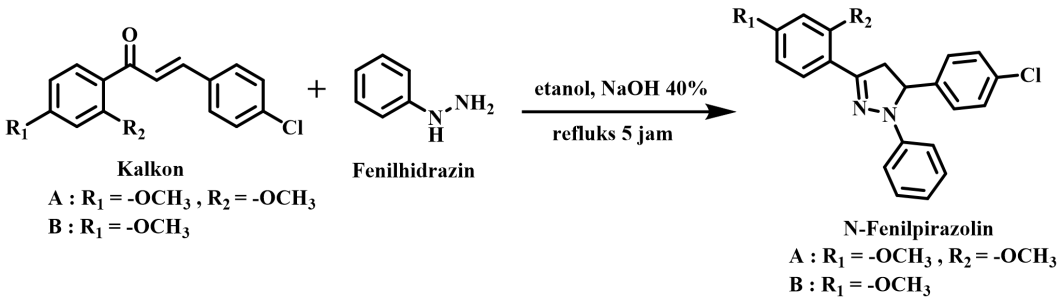
INTISARI

Sintesis turunan N-fenil pirazolina berbahan dasar 4-klorobenzaldehida sebagai senyawa antiinflamasi telah dilakukan. Penelitian diawali dengan sintesis kalkon melalui reaksi kondensasi *Claisen-Schmidt* dari turunan keton yaitu 2,4-dimetoksiasetofenon dan 4-metoksiasetofenon dengan 4-klorobenzaldehida menggunakan katalis NaOH pada metode pengadukan selama 24 jam menghasilkan kalkon **A** dan **B.** Tahap selanjutnya, sintesis senyawa N-fenilpirazolina dilakukan dengan mereaksikan kalkon dan fenilhidrazin dengan katalis NaOH menggunakan metode refluks selama 5 jam menghasilkan pirazolina **B**. Elusidasi struktur senyawa hasil sintesis dilakukan dengan menggunakan spektrometer FT-IR, GC- MS, ^{1}H- dan ^{13}C-NMR. Uji aktivitas antiinflamasi kalkon dan pirazolina dilakukan dengan metode *in vivo* yaitu pembuatan udema pada kaki tikus menggunakan karagenan dengan variasi dosis untuk mengetahui nilai ED_{50}.

Hasil penelitian menunjukkan bahwa kalkon **A** dan **B** telah berhasil disintesis dengan *yield* sebesar 90,62% dan 89,26%. Senyawa pirazolina **B** juga berhasil disintesis dengan *yield* sebesar 43,94%. Uji aktivitas antiinflamasi senyawa kalkon **A**, kalkon **B** dan pirazolina **B** memiliki nilai rata-rata %DAI masing-masing 41,66%, 36,34% dan 45,41%. Memiliki nilai ANOVA dengan signifikansi $p > 0,05$ maka H0 diterima. Pada penelitian ini, senyawa pirazolina **B** dosis 50mg/KgBB yang paling efektif karena memiliki %DAI sebesar 50,82% yang mendekati kontrol positif natrium diklofenak 51,42% dengan nilai ED_{50} yaitu 42,07 mg/KgBB.



Kalkon
A : R_1 = -OCH_3 , R_2 = -OCH_3
B : R_1 = -OCH_3

Fenilhidrazin

N-Fenilpirazolin
A : R_1 = -OCH_3 , R_2 = -OCH_3
B : R_1 = -OCH_3

Kata kunci : Sintesis, Kalkon, Pirazolina, Antiinflamasi

SYNTHESIS OF N-PHENYL PYRAZOLINE DERIVATIVES BASED ON 4-CHLOROBENZALDEHYDE AS ANTI-INFLAMMATORY COMPOUNDS

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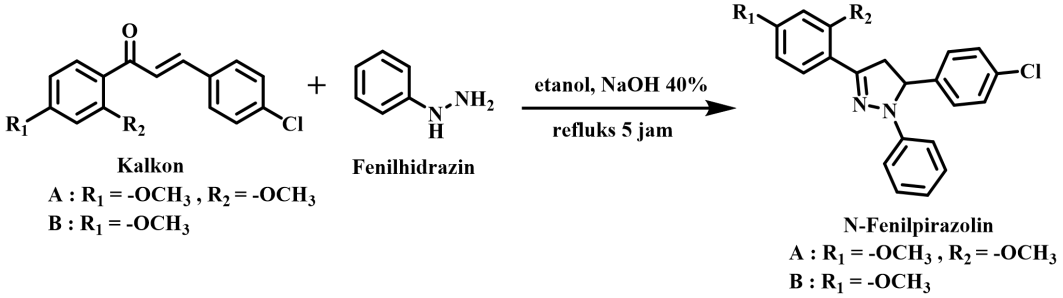
ABSTRACT

Synthesis of N-phenyl pyrazoline derivatives based on 4-chlorobenzaldehyde as anti-inflammatory compounds has been carried out. The research begun with the synthesis of chalcones through the Claisen-Schmidt condensation reaction from ketone derivatives namely 2,4-dimethoxyacetophenone and 4-methoxyacetophenone with 4-chlorobenzaldehyde with NaOH catalyst using the stirring method for 24 hours to produce chalcones **A** and **B**. Synthesis of N-Phenyl pyrazoline compounds was carried out by reacting chalcone and phenylhydrazine with NaOH catalyst using reflux method for 5 hours to produce pyrazoline **B.** Structural of the synthesized compounds has been carried out using FT-IR, GC-MS, ^{1}H- and ^{13}C-NMR spectrometers. The anti-inflammatory activity test of chalcone and pyrazoline was carried out using in vivo method, namely the production of edema on rat feet using carrageenan with various doses to determine the ED_{50} value.

The results showed that chalcones A and B had been successfully synthesized with yields of 90.62% and 89.26%, respectively. Pyrazoline B compound was also successfully synthesized with a yield of 43.94%. The anti-inflammatory activity test for chalcone A, chalcone B and pyrazoline B compounds had an average % DAI value of 41.66%, 36.34% and 45.41%, respectively. Having an ANOVA value with a significance of $p > 0.05$ then H0 is accepted. In this study, the pyrazoline B compound dose of 50 mg/KgBW was the most effective because it had a %DAI of 50.82% which was close to the positive control of diclofenac sodium 51.42% with an ED_{50} value of 42.07 mg/KgBW.



Kalkon
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Keyword : Synthesis, Chalcone, Pyrazoline, Anti-Inflammator