

SINTESIS SENYAWA 2',4'-DIHIDROKSI-4-METOKSIKHALKON DAN 7-HIDROKSI-4'-METOKSIFLAVANON SERTA UJI AKTIVITASNYA SEBAGAI ANTIBAKTERI

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INTISARI

Telah dilakukan penelitian mengenai sintesis 2',4'-dihidroksi-4-metoksikhalkon dan 7-hidroksi-4'metoksiflavanon untuk mengetahui aktivitasnya sebagai antibakteri. Tahap sintesis senyawa 2',4'-dihidroksi-4-metoksikhalkon melalui reaksi kondensasi Claisen-Schmidt 2,4-dihidroksiasetofenon dengan 4-metoksibenzaldehida dengan KOH 40% sebagai katalis. Reaksi dilakukan dengan pengadukan pada suhu kamar selama 48 jam. Sintesis 7-hidroksi-4'-metoksiflavanon dari reaksi siklisasi oksidatif senyawa khalkon menggunakan natrium asetat trihidrat. Senyawa hasil sintesis dikarakterisasi dan dilakukan identifikasi dengan spektrofotometer FTIR, DI-MS dan ¹H-NMR. Senyawa khalkon dan flavanon diuji aktivitas antibakteri menggunakan metode difusi terhadap bakteri Gram positif *S.aureus* dan bakteri Gram negatif *S.thiphymurium*.

Senyawa 2',4'-dihidroksi-4-metoksikhalkon telah berhasil disintesis dengan rendemen 47,2%, berbentuk padatan berwarna kuning dengan titik lebur 168-170°C. Senyawa 7-hidroksi-4'metoksiflavanon telah berhasil disintesis dengan persen hasil sebesar 71,23%, berupa padatan berwarna kuning pucat dengan titik lebur 157-159 °C. Hasil uji aktivitas antibakteri senyawa ,4'-dihidroksi-4-metoksikhalkon dan 7-hidroksi-4'metoksiflavanon menunjukkan daya hambat terhadap bakteri Gram positif *S.aureus* dan bakteri Gram negatif *S.thiphymurium*. Aktivitas tertinggi ditunjukkan pada konsentrasi 1000 ppm terhadap senyawa khalkon dan flavanon. Diameter zona hambat terhadap bakteri Gram positif senyawa khalkon sebesar 10mm dan 8mm untuk senyawa flavanon. Diameter zona hambat terhadap bakteri Gram negatif senyawa khalkon sebesar 8mm dan 4mm untuk senyawa flavanon.

Kata kunci : khalkon, flavanon, uji aktivitas antibakteri

SYNTHESIS 2',4'-DIHIDROXY-4-METOXYCHALCONE AND 7-HYDROXY-4'-METHOXYFLAVANONE AND THEIR ACTIVITIES AS ANTIBACTERIAL

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ABSTRACT

Synthesis of 2',4'-dihydroxy-4-metoxychalcone and 7-hydroxy-4'-metoxyflavanone and antibacterial activity has been carried out. The step synthesis of 2',4'-dihydroxy-4-metoxychalcone its was synthesized via Claisen-Schmidt condensation reaction of 2,4-dihydroxyacetophenone and 4-methoxybenzaldehyde. The reaction was running in basic condition under stirring at room temperature for 48 hours. The synthesis 7-hydroxy-4'-metoxyflavanone through oxidative cyclization reaction of 2',4'-dihydroxy-4-metoxychalcone using natrium acetate as catalyst. The structure of the products was elucidated by FTIR, DI-MS and ¹H-NMR. The resulted chalcone and flavanone compounds were tested as an antibacterial using diffusion method bacteria of Gram positive *S.aureus* and Gram negative *S.thiphymurium*.

The result showed, 2',4'-dihydroxy-4-metoxychalcone was obtained as a yellow solid in 47.33% yield with its melting point of 168-170 °C. The 7-hydroxy-4'-metoxyflavanone was obtained as pale yellow solid in 71.23% yields with melting point of 157-159 °C. Antibacterial test showed that 2',4'-dihydroxy-4-metoxychalcone and 7-hydroxy-4'-metoxyflavanone was active against both Gram positive *S.aureus* and Gram negative *S.thiphymurium*. The result of antibacterial test showed that the highest activity were active in Gram positive and Gram negative at 1000 ppm. Gram positive for chalcone have an inhibition zone was 10 mm and Gram negative have an inhibition zone 8 mm. Gram positive for flavanone have an inhibition zone was 8 mm and Gram negative have an inhibition zone 4 mm.

Keywords : chalcone, flavanone, antibacterial test