

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

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INTISARI

Sintesis senyawa 2',4'-dihidroksi-4-klorokhalkon dan 7-hidroksi-4'-kloroflavanon serta uji aktivitasnya sebagai antibakteri telah dilakukan. Sintesis senyawa khalkon dilakukan melalui reaksi Claisen-Schmidt dari bahan awal 2,4-dihidroksiasetofenondan 4-klorobenzaldehida menggunakan katalis basa NaOH 40%. Senyawa khalkon yang diperoleh kemudian digunakan untuk sintesis senyawa senyawa flavanon. Sintesis senyawa 7-hidroksi-4'-kloroflavanon dilakukan dengan reaksi siklisasi oksidatif dengan mereaksikan senyawa 2',4'-dihidroksi-4-klorokhalkon dengan natrium asetat dalam pelarut etanol:air 10:3. Senyawa 2',4'-dihidroksi-4-klorokhalkon dan 7-hidroksi-4'-kloroflavanon dilakukan elusidasi struktur dengan menggunakan spektrometer FT-IR, DI-MS, TLC *Scanner* dan ¹H-NMR. Senyawa hasil sintesis diuji aktivitas antibakterinya menggunakan metode difusi sumuran terhadap bakteri *Staphylococcus aureus* dan *Salmonella thypimurium*.

Hasil sintesis khalkon diperoleh rendemen sebesar 24,58%, berwujud padatan berwarna kuning muda dan titik lebur sebesar 141-144 °C. Hasil sintesis flavanon diperoleh rendemen sebesar 69,34%, berwujud padatan berwarna kuning tua dengan titik lebur sebesar 160-163 °C. Hasil uji antibakteri terhadap senyawa khalkon dan flavanon memiliki aktivitas untuk bakteri Gram positif maupun bakteri Gram negatif. Senyawa khalkon memiliki aktivitas tertinggi pada konsentrasi 1000 ppm memiliki diameter zona hambat untuk bakteri Gram positif 18 mm dan bakteri Gram negatif 6 mm. Senyawa flavanon memiliki aktivitas tertinggi pada 1000 ppm memiliki diameter zona hambat untuk bakteri Gram positif 16 mm dan bakteri Gram negatif 6 mm.

Kata kunci: flavanon, khalkon, uji aktivitas antibakteri

SYNTHESIS OF 2',4'-DIHYDROXY-4-CHLOROCHALCONE AND 7-HYDROXY-4'-CHLOROFLAVONE AND THEIR ACTIVITY TEST FOR ANTIBACTERIAL AGENTS

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ABSTRACT

Synthesis of 2',4'-dihydroxy-4-chlorochalcone and 7-hydroxy-4'-chloroflavanone compound with activity test for antibacterial agents have been carried out. Synthesis of 2',4'-dihydroxy-4-chlorochalcone carried out by react some 4-chlorobenzaldehyde and 2,4-dihydroxyacetophenone with NaOH 40% as base catalyst. The chalcone that produced from the reaction was used for synthesis some flavanone. The synthesis of 7-hydroxy-4'-chloroflavanone was carried out by react 2',4'-dihydroxy-4-chlorochalcone with sodium acetate in ethanol: aquadest (10:3) with oxidative cyclization method. Structure elucidation of 2',4'-dihydroxy-4-chlorochalcone and 7-hydroxy-4'-chloroflavanone that obtained were confirm by FT-IR, DI-MS, TLC *Scanner* and ¹H-NMR spectrometers. The produced compound was determine their antibacterial activity by well diffusion methods against some bacteria as *Staphylococcus aureus* and *Salmonella thypimurium*.

Compound 2',4'-dihydroxy-4-chlorochalcone was successfully synthesized with a yield of 24.58%, the compound had bright yellow solid and melting point of 141-144 °C. The compound 7-hydroxy-4'-chloroflavanone was successfully synthesized with a yield of 69.34%, the compound has dark yellow solid with a melting point of 160-163 °C. Antibacterial test result on chalcone and flavanone, both of the compound have activity of antibacterial agent for Gram positive and Gram negative bacteria. For Gram positive bacteria *Staphylococcus aureus* chalcone compound has the highest activity at 1000 ppm 18 mm and for Gram negative *Salmonella thypimurium* at 1000 ppm 6 mm. Flavanone compound has the highest activity for positive bacteria *Staphylococcus aureus* at 1000 ppm 16 mm and Gram negative *Salmonella thypimurium* at 1000 ppm 6 mm.

Keywords: antibacterial activity test, chalcone, flavanone