

SINTESIS 2',4'-DIHIDROKSI-3,4-DIMETOKSIKHALKON DAN 7-HIDROKSI-3',4'-DIMETOKSIFLAVANON SERTA UJI AKTIVITASNYA SEBAGAI TABIR SURYA

BELLA ASYIFA RAHMI
14/364485/PA/16034

INTISARI

Telah dilakukan sintesis senyawa 2',4'-dihidroksi-3,4-dimetoksikhalkon dan 7-hidroksi-3',4'-dimetoksiflavanon serta uji aktivitasnya sebagai tabir surya. Senyawa 2',4'-dihidroksi-3,4-dimetoksikhalkon disintesis melalui reaksi kondensasi Claisen-Schmidt dari bahan dasar 2,4-dihidroksiasetofenon dan veratraldehida dengan pengadukan selama 48 jam menggunakan KOH 40% sebagai katalis. Senyawa 7-hidroksi-3',4'-dimetoksiflavanon disintesis melalui reaksi siklisasi oksidatif senyawa 2',4'-dihidroksi-3,4-dimetoksikhalkon menggunakan refluks selama 24 jam dan garam natrium asetat sebagai katalis. Karakterisasi senyawa 2',4'-dihidroksi-3,4-dimetoksikhalkon dan 7-hidroksi-3',4'-dimetoksiflavanon dilakukan dengan FTIR, MS, TLC *Scanner* dan ¹H-NMR. Uji aktivitas sebagai tabir surya terhadap sinar UV dilakukan secara in vitro menggunakan spektrometer UV-Vis.

Senyawa 2',4'-dihidroksi-3,4-dimetoksikhalkon yang dihasilkan berupa kristal oranye dengan rendemen 57%. Hasil siklisasi oksidatif khalkon yaitu 7-hidroksi-3',4'-dimetoksiflavanon berupa padatan kuning muda dengan rendemen 81,67%. Uji aktivitas sebagai tabir surya menunjukkan bahwa senyawa 2',4'-dihidroksi-3,4-dimetoksikhalkon memiliki nilai SPF sebesar 38,73 dengan kategori proteksi ultra terhadap UV-A pada konsentrasi 25 µg/mL, sedangkan 7-hidroksi-3',4'-dimetoksiflavanon pada konsentrasi yang sama memiliki nilai SPF 4,70 dengan kategori proteksi sedang terhadap UV-B.

Kata kunci : flavanon, khalkon, tabir surya, veratraldehida

SYNTHESIS OF 2',4'-DIHYDROXY-3,4-DIMETHOXYCHALCONE AND 7-HYDROXY- 3',4'-DIMETHOXYFLAVANONE AND THEIR SUNSCREEN ACTIVITY TEST

BELLA ASYIFA RAHMI
14/364485/PA/16034

ABSTRACT

Synthesis of 2',4'-dihydroxy-3,4-dimethoxychalcone and 7-hydroxy- 3',4'-dimethoxyflavanone compound and their activity test as sunscreen have been conducted. The 2',4'-dihydroxy-3,4-dimethoxychalcone was synthesized through Claisen-Schmidt condensation from 2,4-dihydroxyacetophenone and veratraldehyde. The reaction was carried out using KOH 40% as base catalyst for 48 hours in room temperature. The 7-hydroxy- 3',4'-dimethoxyflavanone was synthesized by oxidative cyclization of 2',4'-dihydroxy-3,4-dimethoxychalcone using sodium acetate as catalyst under reflux conditions for 24 hours. The characterization of both compounds were confirmed using FTIR, MS, TLC Scanner and ¹H-NMR. Both chalcone and flavanone activities as sunscreen were tested by using UV-Vis spectrophotometer.

The result showed that 2',4'-dihydroxy-3,4-dimethoxychalcone compound has been successfully synthesized in 57% yield. The oxidative cyclization of 2',4'-dihydroxy-3,4-dimethoxychalcone yielded 7-hydroxy- 3',4'-dimethoxyflavanone in 81,67%. Sunscreen activity test for both compounds showed that 2',4'-dihydroxy-3,4-dimethoxychalcone have SPF value 38,73 with ultra protection category against UV-A at concentration 25 µg/mL, while 7-hydroxy- 3',4'-dimethoxyflavanone at the same concentration have SPF value 4,70 with extra protection category against UV-B

Keywords : chalcone, flavanone, sunscreen, veratraldehyde