

**SINTESIS 2',4'-DIHIDROKSI-3,4-DIMETOKSIKHALKON DAN  
7-HIDROKSI-3',4'-DIMETOKSIFLAVON SERTA UJI AKTIVITASNYA  
SEBAGAI TABIR SURYA *SECARA IN VITRO***

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**INTISARI**

Sintesis 2',4'-dihidroksi-3,4-dimetoksikhalikon dan 7-hidroksi-3',4'-dimetoksiflavon serta uji aktivitasnya sebagai tabir surya secara *in vitro* telah dilakukan. Senyawa 2',4'-dihidroksi-3,4-dimetoksikhalikon telah disintesis dari 2,4-dihidroksiasetofenon dan veratraldehida. Campuran ditambahkan NaOH 50% dan etanol yang diaduk selama 24 jam pada suhu kamar. Senyawa 2',4'-dihidroksi-3,4-dimetoksikhalikon hasil sintesis disiklisasi secara oksidatif menggunakan iodin dalam DMSO, sehingga diperoleh senyawa 7-hidroksi-3',4'-dimetoksiflavon. Senyawa khalkon dan flavon yang dihasilkan diuji aktivitasnya sebagai senyawa tabir surya secara *in vitro* menggunakan spektrofotometer UV-Vis.

Senyawa 2',4'-dihidroksi-3,4-dimetoksikhalikon yang dihasilkan berupa padatan kuning terang dengan randemen 37,33%. Siklisasi senyawa khalkon menghasilkan 7-hidroksi-3',4'-dimetoksiflavon yang berupa padatan kuning gelap dengan randemen 59,91%. Uji aktivitas tabir surya secara *in vitro* terhadap 2',4'-dihidroksi-3,4-dimetoksikhalikon menunjukkan bahwa senyawa tersebut mampu memberikan perlindungan maksimal terhadap radiasi UV-A pada konsentrasi 10 µg/mL, pada konsentrasi yang sama senyawa 7-hidroksi-3',4'-dimetoksi flavon memberikan perlindungan dibawah minimal.

Kata kunci: khalkon, flavon, tabir surya, SPF

**SYNTHESIS OF 2',4'-DIHYDROXY-3,4-DIMETHOXY CHALCONE AND  
7-HYDROXY-3',4'-DIMETHOXY FLAVONE AND THEIR ACTIVITY  
TEST AS SUNSCREEN WITH *IN VITRO* METHOD**

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**ABSTRACT**

Synthesis of 2',4'-dihydroxy-3,4-dimethoxychalcone and 7-hydroxy-3',4'-dimethoxyflavone and their activity test as sunscreen with in vitro method has been done. The 2',4'-dihydroxy-3,4-dimethoxychalcone was synthesized from 2,4-dihydroxyacetophenone and veratraldehyde. The mixture was performed by using NaOH 50% as base and ethanol for 24 hour in room temperature. Furthermore, the 2',4'-dihydroxy-3,4-dimethoxy chalcone has been formed by oxidative cyclization used iodine as catalyst and DMSO as solvent, resulting 7-hydroxy-3',4'-dimethoxy flavone. Both chalcone and flavone activities were tested with in vitro method as sunscreen by using UV-Vis spectrophotometer.

The result showed that 2',4'-dihydroxy-3,4-dimethoxychalcone compound has been successfully synthesized in 34.52 % yield. The oxidative cyclization of chalcone yielded the flavone compound in 59.91 %. Sunscreen activity test with in vitro method shows that chalcone compound have SPF values with maximum protection category against UV-A at concentration 10 µg/mL, while flavone compound at the same concentration have SPF values under minimal protection category.

Keywords: chalcone, flavone, sunscreen, SPF