



SINTESIS 2',4'-DIHIDROKSI-4-KLOROKHALKON DAN UJI AKTIVITASNYA SEBAGAI ANTIOKSIDAN

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INTISARI

Telah dilakukan sintesis 2',4'-dihidroksi-4-klorokhalkon dan uji aktivitasnya sebagai antioksidan. Penelitian ini dilakukan melalui tiga tahap, yaitu sintesis 2,4-dihidroksiasetofenon, sintesis 2',4'-dihidroksi-4-klorokhalkon, dan uji aktivitas antioksidan 2',4'-dihidroksi-4-klorokhalkon. Sintesis 2,4-dihidroksiasetofenon dilakukan dengan melarutkan resorsinol dengan asam asetat glasial menggunakan katalis $ZnCl_2$ menggunakan metode refluks selama 1 jam. Sintesis 2',4'-dihidroksi-4-klorokhalkon dilakukan dengan metode refluks selama 24 jam dengan penambahan katalis basa KOH 60% pada suhu 64 °C dengan pelarut metanol. Elusidasi struktur 2,4-dihidroksiasetofenon dilakukan menggunakan spektrometer FT-IR dan GC-MS. Sedangkan 2',4'-dihidroksi-4-klorokhalkon menggunakan spektrometer FT-IR, DI-MS, TLC *Scanner*, 1H -NMR, dan ^{13}C -NMR. Senyawa 2',4'-dihidroksi-4-klorokhalkon diuji aktivitas antioksidannya menggunakan metode DPPH.

Sintesis 2,4-dihidroksiasetofenon menghasilkan persentase hasil sebesar 48,80% dan titik leleh 140-141 °C. Sedangkan sintesis 2',4'-dihidroksi-4-klorokhalkon menghasilkan persentase hasil sebesar 75,96% dan titik leleh 120-122 °C. Hasil uji aktivitas antioksidan 2',4'-dihidroksi-4-klorokhalkon menunjukkan nilai IC_{50} sebesar 19,34 $\mu g/mL$ yang menunjukkan potensi sebagai agen antioksidan yang kuat.

Kata kunci: 2,4-dihidroksiasetofenon, antioksidan, DPPH, khalkon.



SYNTHESIS OF 2',4'-DIHYDROXY-4-CHLOROCHALCONE AND IT'S ACTIVITY TEST AS ANTIOXIDANT

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ABSTRACT

The synthesis of 2',4'-dihydroxy-4-chlorochalcone compound and its activity test as antioxidant had been carried out. The research was carried out through three steps, i.e., the synthesis of 2,4-dihydroxyacetophenone, synthesis of 2',4'-dihydroxy-4-chlorochalcone, and antioxidant test of 2',4'-dihydroxy-4-chlorochalcone. Synthesis of 2,4-dihydroxyacetophenone was carried out by dissolving resorcinol with acetic acid glacial using $ZnCl_2$ catalyst with reflux method for an hour. The synthesis of 2',4'-dihydroxy-4-chlorochalcone was performed by reflux method for 24 hours with the addition of KOH 60% base catalyst method at temperature of 64 °C with methanol as the solvent. Elucidation structures of 2,4-dihydroxyacetophenone were carried out using FT-IR and GC-MS. Meanwhile, 2',4'-dihydroxy-4-chlorochalcone using FT-IR, DI-MS, TLC *Scanner*, 1H -NMR and ^{13}C -NMR spectrometers. 2',4'-Dihydroxy-4-chlorochalcone were tested for antioxidant activity by DPPH methods.

Synthesis of 2,4-dihydroxyacetophenone produced of 48.80% yields and a melting point of 140-141 °C. While synthesis 2',4'-dihydroxy-4-chlorochalcone produced of 75.96% yields and melting point of 120-122 °C. The results of the antioxidant activity assay of 2',4'-dihydroxy-4-chlorochalcone showed IC_{50} values of 19.34 $\mu g/mL$ which showed potential as powerful antioxidant agents.

Keywords: 2,4-dihydroxyacetophenone, antioxidant, chalcone, DPPH.