

UJI AKTIVITAS PEREDAMAN RADIKAL BEBAS DPPH EKSTRAK ETANOL DAUN JERUK NIPIS (*Citrus aurantifolia* (Christm) Swingle)

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INTISARI

Latar Belakang: Radikal bebas adalah molekul reaktif penyebab stres oksidatif dan penyakit degeneratif. Antioksidan mencegah kerusakan sel dengan mendonorkan elektron. Daun jeruk nipis (*Citrus aurantifolia* (Christm) Swingle) mengandung flavonoid, seperti kuersetin, yang beraktivitas antioksidan kuat. Kandungan dan aktivitasnya dipengaruhi metode ekstraksi dan pelarut, di mana UAE dengan etanol 96% efektif mengekstrak flavonoid.

Tujuan Penelitian: Mengetahui aktivitas peredaman radikal bebas DPPH dari ekstrak etanol daun jeruk nipis yang diekstraksi menggunakan metode UAE berdasarkan nilai IC₅₀.

Metode Penelitian: Daun jeruk nipis diekstraksi menggunakan metode UAE menggunakan pelarut etanol 96% dengan perbandingan 1:10. Hasil ekstraksi diuji secara organoleptik, dilakukan penapisan fitokimia, dan diuji peredaman radikal bebas DPPH dan kuersetin sebagai standar. Aktivitas peredaman radikal bebas DPPH dinyatakan sebagai nilai *inhibition concentration* 50% (IC₅₀). Data nilai IC₅₀ ekstrak dan standar dianalisis secara statistik dengan SPSS menggunakan uji *T-test Independent* dengan taraf kepercayaan 95%.

Hasil penelitian: Hasil ekstraksi daun jeruk nipis diperoleh nilai randemen 5,4%, uji organoleptik dengan karakteristik warna hijau kehitaman, bau khas daun jeruk nipis dengan tekstur kental. Penapisan fitokimia ekstrak etanol daun jeruk nipis mengandung senyawa alkaloid, flavonoid, fenolik dan tanin. Aktivitas peredaman radikal bebas kuersetin menghasilkan nilai IC₅₀ sebesar 2,212 ppm dan ekstrak etanol daun jeruk nipis menghasilkan nilai IC₅₀ sebesar 69,402 ppm.

Kesimpulan: Ekstrak etanol daun jeruk nipis memiliki aktivitas peredaman radikal bebas yang kuat terhadap DPPH.

Kata Kunci: Antioksidan, *Citrus aurantifolia* (Christm) Swingle, DPPH (2,2-diphenyl-1-picrylhydrazyl), IC₅₀, UAE

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DPPH FREE RADICAL SCAVENGING ACTIVITY OF ETHANOL EXTRACT OF *Citrus aurantifolia* (Christm) Swingle LEAVES

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ABSTRACT

Background: Free radicals are reactive molecules that cause oxidative stress and degenerative diseases. Antioxidants prevent cell damage by donating electrons. Lime leaves (*Citrus aurantifolia* (Christm) Swingle) contain flavonoids, such as quercetin, with strong antioxidant activity. Their content and activity are influenced by the extraction method and solvent, with UAE using 96% ethanol being effective in extracting flavonoids.

Research Objective: To determine the DPPH free radical scavenging activity of ethanol extract of lime leaves obtained using the UAE method based on IC₅₀ values.

Research Method: Lime leaves were extracted using the UAE method with 96% ethanol as the solvent at a ratio of 1:10. The extract was tested organoleptically, subjected to phytochemical screening, and evaluated for DPPH radical scavenging activity using quercetin as a standard. The DPPH radical scavenging activity was expressed as the 50% inhibition concentration (IC₅₀). The IC₅₀ values of the extract and standard were statistically analyzed using SPSS with an Independent T-test at a 95% confidence level.

Research Results: The extraction of lime leaves yielded 5.4%, with organoleptic characteristics of dark green color, distinctive lime leaf odor, and thick texture. Phytochemical screening of the ethanol extract of lime leaves revealed the presence of alkaloids, flavonoids, phenolics, and tannins. The free radical scavenging activity of quercetin showed an IC₅₀ value of 2.212 ppm, while the ethanol extract of lime leaves showed an IC₅₀ value of 69.402 ppm.

Conclusion: The ethanol extract of lime (*Citrus aurantifolia* (Christm) Swingle) leaves exhibits strong free radical scavenging activity against DPPH.

Keywords: Antioxidant, *Citrus aurantifolia* (Christm) Swingle , DPPH (2,2-diphenyl-1-picrylhydrazyl), IC₅₀, UAE

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