

PENGARUH JENIS PELARUT TERHADAP AKTIVITAS PEREDAMAN RADIKAL BEBAS DPPH (2,2-diphenyl-1-picrylhydrazyl) EKSTRAK DAUN JERUK NIPIS (*Citrus aurantifolia*)

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INTISARI

Latar Belakang: Jeruk nipis (*Citrus aurantifolia*) merupakan tanaman yang tumbuh subur di daerah beriklim tropis, seperti di Indonesia. Tanaman ini merupakan salah satu jenis jeruk yang memiliki kegunaan lebih banyak dibandingkan jenis jeruk lainnya dalam pengobatan tradisional dan terbukti memiliki aktivitas antioksidan. Aktivitas antioksidan daun jeruk nipis berasal dari senyawa metabolit sekunder flavonoid yaitu kuersetin. Kuersetin merupakan senyawa flavonoid yang bersifat polar, oleh karena itu pelarut polar menjadi pilihan utama dalam ekstraksi daun jeruk nipis.

Tujuan Penelitian: Mengetahui pengaruh jenis pelarut terhadap aktivitas peredaman radikal bebas DPPH (2,2-diphenyl-1-picrylhydrazyl) ekstrak daun jeruk nipis.

Metode Penelitian: Daun jeruk nipis diekstraksi menggunakan metode *Ultrasound Assisted Extraction* (UAE) dengan pelarut etanol 96%, metanol, dan aseton. Uji kualitatif senyawa metabolit sekunder dilakukan dengan skrining fitokimia dan uji Kromatografi Lapis Tipis (KLT). Uji kuantitatif aktivitas antioksidan dilakukan dengan uji aktivitas peredaman radikal bebas DPPH menggunakan spektrofotometri UV-Vis.

Hasil Penelitian: Ekstrak etanol 96%, metanol dan aseton daun jeruk nipis mengandung senyawa alkaloid, fenolik, flavonoid dan tanin. Berdasarkan uji aktivitas peredaman radikal bebas DPPH menunjukkan terdapat perbedaan nilai IC₅₀ pada ekstrak etanol 96%, metanol dan aseton yaitu 56,811 ppm, 67,143 ppm dan 90,331 ppm secara berturut-turut dan dikategorikan kuat.

Kesimpulan: Perbedaan jenis pelarut ekstraksi daun jeruk nipis dapat mempengaruhi aktivitas peredaman radikal bebas DPPH, yang mana pelarut etanol 96% menghasilkan aktivitas peredaman radikal bebas DPPH paling baik dengan nilai IC₅₀ 56,811 ppm.

Kata Kunci: Antioksidan, DPPH, etanol 96%, metanol, aseton, radikal bebas, daun jeruk nipis (*Citrus aurantifolia*).

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EFFECT OF SOLVENT TYPE ON FREE RADICAL SCAVENGING ACTIVITY OF DPPH (2,2-diphenyl-1- picrylhydrazyl) LIME LEAF EXTRACT (*Citrus aurantifolia*)

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ABSTRACT

Background: Lime (*Citrus aurantifolia*) is a plant that thrives in tropical climates, such as in Indonesia. This plant is one type of orange that has more uses than other types of oranges in traditional medicine and is proven to have antioxidant activity. The antioxidant activity of lime leaves comes from the secondary metabolite compound of flavonoids, namely quercetin. Quercetin is a flavonoid compound that is polar, therefore polar solvents are the main choice in lime leaf extraction.

Objective: To determine the effect of solvent type on the free radical scavenging activity of DPPH (2,2-diphenyl-1-picrylhydrazyl) lime leaf extract.

Research Method: Lime leaves were extracted using the Ultrasound Assisted Extraction (UAE) method with a solvent of 96% ethanol, methanol, and acetone. Qualitative tests of secondary metabolite compounds were carried out by phytochemical screening and Thin-Layer Chromatography (TLC) tests. Quantitative tests of antioxidant activity were carried out by testing the free radical reduction activity of DPPH using UV-Vis spectrophotometry.

Research Results: Extract of ethanol 96%, methanol and acetone of lime leaves contains alkaloid compounds, phenolics, flavonoids and tannins. Based on the free radical reduction activity test of DPPH, there was a difference in IC₅₀ values in ethanol extract of 96%, methanol and acetone, which were 56.811 ppm, 67.143 ppm and 90.331 ppm respectively and were categorized as strong.

Conclusion: Different types of lime leaf extraction solvents can affect the free radical reduction activity of DPPH, where 96% ethanol solvent produces the best free radical reduction activity of DPPH with an IC₅₀ value of 56.811 ppm.

Keywords: Antioxidants, DPPH, ethanol 96%, methanol, acetone, free radicals, lime leaf (*Citrus aurantifolia*).

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