

INTISARI

Radikal bebas merupakan salah satu penyebab penyakit membahayakan apabila tubuh terpapar dalam jumlah berlebihan, seperti alzheimer, tekanan darah tinggi, dan kanker. Selain itu, radikal bebas juga berperan besar dalam mempercepat penuaan dini pada kulit. Senyawa fenolik merupakan salah satu senyawa yang memiliki aktivitas penangkapan radikal bebas, dengan daun-daun jeruk seperti jeruk nipis (*Citrus x aurantiifolia* (Christm.) Swingle), jeruk purut (*Citrus hystrix* DC), jeruk bali (*Citrus grandis*), dan jeruk lemon (*Citrus x limon* (L.) Osbeck) diketahui kaya akan kandungan senyawa fenolik dan sebelumnya sudah sering digunakan sebagai herba untuk memperlambat penuaan kulit dan anti-peradangan yang berkaitan dengan penghambatan aktivitas radikal bebas. Oleh karena itu, tujuan dilakukan penelitian ini adalah untuk menetapkan profil metabolit sekunder, kadar fenolik total, dan aktivitas penangkapan radikal bebas dari ekstrak keempat sampel daun jeruk tersebut. Rangkaian penelitian akan dilakukan dengan metode uji profil metabolit sekunder dengan metode kromatografi lapis tipis, uji kadar fenolik total dengan reagen Folin-Ciocalteu, dan uji aktivitas penangkapan radikal bebas dengan reagen DPPH.

Semua sampel daun jeruk diketahui mengandung senyawa terpenoid, flavonoid, fenolik, dan alkaloid. Urutan kadar fenolik dari yang tertinggi, yaitu daun jeruk purut 89,37 mg GAE/g ekstrak, daun jeruk nipis 78,69 mg GAE/g ekstrak, daun jeruk lemon 69,17 mg GAE/g ekstrak, dan daun jeruk bali 37,97 mg GAE/g ekstrak. Untuk urutan aktivitas penangkapan radikal bebas yang paling kuat, yang ditunjukkan dengan nilai IC_{50} yang paling kecil, yaitu daun jeruk purut 89,29 ppm, daun jeruk nipis 94,36 ppm, daun jeruk lemon 105,33 ppm, dan daun jeruk bali 153,86 ppm. Sementara itu, hubungan antara kadar fenolik total dengan nilai IC_{50} DPPH sampel mempunyai korelasi negatif dengan koefisien korelasi sebesar -0,986.

Kata kunci : Daun jeruk, DPPH, Fenolik, KLT, Radikal bebas.

ABSTRACT

Free radicals are one of the main causes of harmful diseases when the body is exposed to them in excessive amounts, such as Alzheimer's, high blood pressure, and cancer. Additionally, free radicals play a significant role in accelerating premature skin aging. Phenolic compounds are one of the compounds that have free radical scavenging activity, with leaves from the citrus family being one of the herbs containing a high total phenolic content, making them useful as free radical scavengers. Citrus leaves such as lime (*Citrus x aurantiifolia* (Christm.) Swingle), kaffir lime (*Citrus hystrix* DC), pomelo (*Citrus grandis*), and lemon (*Citrus x limon* (L.) Osbeck) have shown to be rich in phenolic compounds and have long been used as herbs to slow down skin aging and act as anti-inflammatory agents related to the inhibition of free radical activity. Therefore, this study aims to identify the profile of secondary metabolites, total phenolic content, and DPPH free radical scavenging activity of citrus leaves extracts. The research consists of Thin layer chromatography to identify the secondary metabolites, total phenolic content quantification with Folin-Ciocalteu reagent and free radical scavenging assay with DPPH.

All samples were shown containing all terpenoid, flavonoid, phenolic and alkaloid compounds. The highest phenolic content was found in kaffir lime leaves with 89,37 mg GAE/g extract, followed by lime leaves 78,69 mg GAE/g extract, lemon leaves 69,17 mg GAE/g extract and lastly pomelo leaves 37,97 mg GAE/g extract. The strongest free radical scavenging activity, which also has the lowest IC₅₀ value, was found in kaffir lime leaves with 89,29 ppm, followed by lime leaves 94,36 ppm, lemon leaves 105,33 ppm and eventually pomelo leaves 105,33 ppm. A very strong negative correlation was also found between the total phenolic contents and IC₅₀ DPPH value of samples, which was shown by a correlation coefficient value of -0,986.

Key words: Citrus leaves, DPPH, free radicals, phenolic, TLC