

ABSTRAK

Daun jeruk manis (*Citrus sinensis* L.) diketahui mengandung berbagai senyawa bioaktif yang berpotensi dikembangkan sebagai sumber antioksidan alami serta agen penghambat enzim tirosinase dalam upaya mencegah penuaan dini dan hiperpigmentasi kulit. Penelitian ini bertujuan untuk mengkaji kandungan fitokimia, aktivitas antioksidan, serta kemampuan inhibisi terhadap enzim tirosinase dari ekstrak etanol daun jeruk manis.

Proses ekstraksi dilakukan dengan metode ultrasonikasi menggunakan pelarut etanol 70%. Hasil skrining fitokimia menunjukkan adanya kandungan flavonoid, tanin, alkaloid, dan steroid, sedangkan senyawa saponin tidak terdeteksi. Aktivitas antioksidan diuji menggunakan metode DPPH pada rentang konsentrasi 200–500 ppm dan menunjukkan peningkatan nilai inhibisi seiring bertambahnya konsentrasi, yaitu sebesar 76,46% (200 ppm), 78,61% (300 ppm), 82,32% (400 ppm), dan 84,43% (500 ppm), yang mengindikasikan aktivitas antioksidan dalam kategori kuat.

Pengujian aktivitas penghambatan enzim tirosinase menggunakan substrat L-DOPA menunjukkan persentase inhibisi sebesar 51,13% dan 51,01%, yang menunjukkan kemampuan penghambatan enzim yang cukup baik.

Berdasarkan hasil penelitian, ekstrak etanol daun jeruk manis memiliki potensi sebagai sumber bahan alami dengan aktivitas antioksidan dan kemampuan menghambat enzim tirosinase, sehingga berpeluang dikembangkan lebih lanjut dalam bidang farmasi dan kosmetik, khususnya sebagai agen anti-aging dan antihiperpigmentasi.

Kata kunci: skrining fitokimia, aktivitas antioksidan, DPPH, inhibisi tirosinase, daun jeruk manis, *Citrus sinensis* L.

Abstract

Sweet orange leaves (*Citrus sinensis* L.) are known to contain various bioactive compounds with potential applications as natural antioxidants and tyrosinase inhibitors for preventing premature skin aging and hyperpigmentation. This study aimed to evaluate the phytochemical constituents, antioxidant activity, and tyrosinase inhibitory potential of the ethanol extract of sweet orange leaves.

The extraction process was carried out using an ultrasonic-assisted method with 70% ethanol as the solvent. Phytochemical screening revealed the presence of flavonoids, tannins, alkaloids, and steroids, while saponins were not detected. Antioxidant activity was assessed using the DPPH method at concentrations ranging from 200 to 500 ppm, showing a concentration-dependent increase in inhibition values of 76.46% (200 ppm), 78.61% (300 ppm), 82.32% (400 ppm), and 84.43% (500 ppm), indicating strong antioxidant activity.

The tyrosinase inhibitory assay, using L-DOPA as the substrate, demonstrated inhibition percentages of 51.13% and 51.01%, indicating moderate to good inhibitory activity.

In conclusion, the ethanol extract of sweet orange leaves exhibits promising antioxidant and tyrosinase inhibitory properties, suggesting its potential for further development in pharmaceutical and cosmetic applications, particularly as an anti-aging and antihyperpigmentation agent.

Keywords: phytochemical screening, antioxidant activity, DPPH, tyrosinase inhibition, sweet orange leaves, *Citrus sinensis* L.