ABSTRAK

Radikal bebas menyebabkan stres oksidatif yang memicu penyakit degeneratif, sehingga antioksidan alami dari tanaman seperti kopasanda (*Chromolaena odorata L.*) semakin dibutuhkan mengingat risiko efek samping antioksidan sintetis. Penelitian ini bertujuan menganalisis metabolit sekunder daun kopasanda melalui isolasi KLT dan mengukur aktivitas antioksidannya dengan metode DPPH. Penelitian eksperimental kuantitatif ini menggunakan sampel 5 kg daun segar dari perkebunan karet Tarutung Panjang, Mandailing Natal, Sumatera Utara, diekstrak etanol 96%. Instrumen meliputi rotary evaporator, spektofotometer UV-Vis, dan plat KLT; analisis data mencakup skrining fitokimia, pengukuran Rf, serta regresi linier IC50. Hasil menunjukkan alkaloid, flavonoid, tanin, dan terpenoid/steroid terdeteksi (Rf 0,2-0,86), saponin negatif fitokimia. Ekstrak etanol memiliki IC50 0,003833 ppm (sangat kuat), lebih baik dari vitamin C (0,4654 ppm), dengan r^2 0,9444. Daun kopasanda berpotensi sebagai antioksidan alami unggul untuk suplemen dan pangan fungsional.

Kata Kunci: Antioksidan, Chromolaena Odorata, DPPH, Metabolit Sekunder, TLC

Free radicals cause oxidative stress that triggers degenerative diseases, making natural antioxidants from plants such as kopasanda (*Chromolaena odorata L.*) increasingly necessary given the risk of side effects from synthetic antioxidants. This study aims to analyze the secondary metabolites of kopasanda leaves through TLC isolation and measure their antioxidant activity using the DPPH method. This quantitative experimental study used 5 kg of fresh leaf samples from the Tarutung Panjang rubber plantation, Mandailing Natal, North Sumatra, extracted with 96% ethanol. The instruments included a rotary evaporator, UV-Vis spectrophotometer, and TLC plate; data analysis included phytochemical screening, Rf measurement, and IC50 linear regression. Results showed alkaloids, flavonoids, tannins, and terpenoids/steroids detected (Rf 0.2-0.86), phytochemical saponins negative. Ethanol extract had an IC50 of 0.003833 ppm (very strong), better than vitamin C (0.4654 ppm), with r^2 0.9444. Kopasanda leaves have the potential as superior natural antioxidants for supplements and functional foods.

Keywords: Antioxidants, Chromolaena odorata L., DPPH, Secondary Metabolites, TLC