

**UJI AKTIVITAS ANTIOKSIDAN EKSTRAK DAUN JARAK PAGAR
(*Jatropha curcas* L.) DENGAN METODE DPPH SERTA
PENETAPAN KADAR TOTAL FENOLIK**

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ABSTRAK

Latar Belakang : Daun jarak pagar (*Jatropha curcas* L.) merupakan tanaman di Indonesia yang memiliki sifat antioksidan. Tanaman ini mengandung berbagai senyawa metabolit sekunder seperti flavanoid, saponin, steroid, terpenoid, fenol, tanin dan alkaloid, yang semuanya berpotensi memberikan aktivitas antioksidan. Untuk menguji aktivitas antioksidan, digunakan metode DPPH (*2,2-difenil-1-1-pikrilhidrazil*) yang melibatkan pengukuran penurunan absorbansi pada spektrofotometri UV-Vis pada panjang gelombang 516 nm. Hasil uji menunjukkan bahwa vitamin C memiliki IC₅₀ sebesar 9,38 µg/mL, yang menandakan bahwa antioksidan sangat kuat. Sebaliknya ekstrak daun jarak pagar memiliki IC₅₀ sebesar 104,70 µg/mL, menunjukkan bahwa aktivitas antioksidannya tergolong rendah dibandingkan vitamin C. Selain itu, kadar total fenolik dalam ekstrak daun jarak pagar adalah 6,780 GAE/g dengan presentase kadar 6,78%. Senyawa fenolik ini berkontribusi terhadap aktivitas antioksidan ekstrak tersebut. Faktor-faktor seperti lingkungan, jenis pelarut, dan metode ekstraksi dapat memengaruhi hasil penelitian, karena masing-masing faktor ini dapat mempengaruhi stabilitas, efektifitas ekstraksi, dan kualitas senyawa antioksidan yang dihasilkan.

Tujuan : Penelitian ini bertujuan untuk mengukur kadar total fenolik dan aktivitas antioksidan ekstrak daun jarak pagar.

Metode : Penentuan kadar total fenolik menggunakan spektrofotometri UV-Vis dan aktivitas antioksidan ekstrak daun jarak pagar dilakukan dengan menggunakan teknik penangkapan radikal bebas DPPH (*1,1-difenil-2-pikrilhidrazil hidrat*).

Hasil : Ekstrak daun jarak pagar memiliki kadar total fenolik 6,780 GAE/g dengan presentase kadar 6,78% serta nilai aktivitas antioksidan 104,70 µg/mL yang tergolong antioksidan lemah

Kesimpulan : ekstrak etanol 96% daun jarak pagar memiliki senyawa metabolit sekunder, dan menunjukkan kadar total fenolik 6,780 dengan presentase 6,78% serta memiliki aktivitas antioksidan 104,70 µg/mL yang dapat menghambat 50 persen radikal bebas, dan termasuk antioksidan kuat.

Kata Kunci : *Jatropha curcas*, Kadar total fenolik, DPPH, Antioksidan.

**ANTIOXIDANT ACTIVITY TEST OF (*Jatropha curcas* L.) LEAVES
EXTRACT BY DPPH METHODS AND DETERMINATION OF TOTAL
PHENOLIC CONTENT**

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ABSTRACT

Introduction : *Jatropha curcas* leaf (*Jatropha curcas* L.) is a plant in Indonesia that has antioxidant properties. This plant contains various secondary metabolite compounds such as flavanoids, saponins, steroids, terpenoids, phenols, tannins and alkaloids, all of which have the potential to provide antioxidant activity. To test antioxidant activity, the DPPH (2,2-diphenyl-1-picrylhydrazyl) method was used which involves measuring the decrease in absorbance in UV-Vis spectrophotometry at a wavelength of 516 nm. The test results showed that vitamin C had an IC₅₀ of 9.38 µg/mL, indicating that it is a very strong antioxidant. In contrast, *Jatropha curcas* leaf extract has an IC₅₀ of 104.70 µg/mL, indicating that its antioxidant activity is relatively low compared to vitamin C. In addition, the total phenolic content in *Jatropha* leaf extract was 6.780 GAE/g with a percentage content of 6.78%. These phenolic compounds contribute to the antioxidant activity of the extract. Factors such as the environment, type of solvent, and extraction method can influence the results of the study, as each of these factors can affect the stability, extraction effectiveness, and quality of the antioxidant compounds produced.

Aim : The research was carried out to measure the total phenolic levels and antioxidant activity of the extracts of fence leaves.

Methods : The determination of total phenolic levels using UV-Vis spectral photometry and the antioxidant activity of fence leaf extracts was done using the DPPH free radical capture method. (1,1-diphenyl-2-picrylhydrazyl hydrate).

Result : *Jatropha curcas* leaf extract has a total phenolic content of 6.780 GAE/g with a percentage content of 6.78% and an antioxidant activity value of 104.70 µg/mL which is classified as a weak antioxidant.

Conclusion : The 96% ethanol extract of *Jatropha* leaves has secondary metabolite compounds, and shows a total phenolic content of 6.780 with a percentage of 6.78% and has an antioxidant activity of 104.70 µg/mL which can inhibit 50 per cent of free radicals, and is a strong antioxidant.

Keywords : *Jatropha curcas*, Total phenolic content, DPPH, Antioxidants