Penentuan Kandungan Flavonoid, Fenolik, dan Aktivitas Antioksidan Total dari Daun, Batang, serta Akar Empat Jenis Tanaman *Tradescantia*

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INTISARI

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Berbagai jenis penyakit seperti kanker, diabetes, dan penyakit neurodegeneratif disebabkan karena adanya radikal bebas di dalam tubuh manusia. Radikal merupakan molekul yang memiliki salah satu elektron yang tidak berpasangan. Salah satu senyawa yang dapat menangkal radikal bebas yaitu antioksidan. Salah satu sumber antioksidan yaitu dari bahan alami seperti tanaman genus *Tradescantia*. Bagian daun dari *Tradescantia* banyak digunakan sebagai obat kanker, penyakit kelamin, batuk, wasir, dan anti tumor hal ini dikarenakan daun *Tradescantia* mengandung senyawa metabolit sekunder seperti saponin, tanin, terpenoid, flavonoid, alkaloid, dan kumarin. Minimnya informasi mengenai kandungan flavonoid, fenolik total, dan aktivitas antioksidan menggunakan metode DPPH dan MPM pada bagian daun, batang, serta akar *Tradescantia,* maka dari itu tujuan dari penelitian yaitu menentukan kandungan flavonoid, fenolik total, dan aktivitas antioksidan dari daun, batang, serta akar empat jenis tanaman *Tradescantia* dan korelasinya. Setiap bagian tanaman yang telah dipisahkan diekstrak dengan metode infundansi menggunakan pelarut akuades. Penentuan kandungan flavonoid total menggunakan metode aluminium klorida ($AlCl_3$) dan kandungan fenolik total menggunakan metode *Folin-Ciocalteau.* Penentuan aktivitas antioksidan menggunakan metode 2,2-*diphenyl*-1-*picrylhydrazyl* (DPPH) dan *Modified Phenantroline Method* (MPM). Kandungan flavonoid total tertinggi diperoleh pada bagian akar *Tradescantia zebrina* yaitu sebesar 4,807±0,149 mg QE/g FW. Sementara itu, kandungan fenolik tertinggi diperoleh pada bagian batang *Tradescantia spathacea* sebesar 2,071±0,166 mg GAE/g FW*.* Aktivitas antioksidan tertinggi didapatkan pada bagian daun *T.zebrina* sebesar 5,184±0,165 mg AAE/g FW. Berdasarkan uji ANOVA didapatkan kandungan fenolik, flavonoid, serta aktivitas antioksidan total terhadap bagian tanaman dan jenis tanaman berbeda nyata. Kandungan fenolik dan flavonoid total pada bagian batang setiap tanaman *Tradescantia* menunjukkan korelasi cukup kuat dengan r=0,5909. Aktivitas antioksidan total pada bagian batang tanaman *Tradescantia* berkorelasi sangat kuat terhadap kandungan fenolik total dengan r=0,9924. Korelasi kuat juga didapati pada aktivitas antioksidan total antara metode DPPH dan MPM pada bagian daun tanaman *Tradescantia*.

Kata kunci: Flavonoid total, fenolik total, *Tradescantia*, MPM, DPPH.

ABSTRACT

Determination of Flavonoid Content , Phenolic , and Total Antioxidant Activity of Leaves, Stems, and Roots of Four *Tradescantia* Plant Species

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Various diseases such as cancer, diabetes, and neurodegenerative diseases are caused by the presence of free radicals in the human body. Radicals are molecules that have one unpaired electron. One of the compounds that can counteract free radicals is antioxidants. One source of antioxidants is from natural materials such as plants of the genus Tradescantia. The leaves of Tradescantia are widely used as a cure for cancer, venereal disease, cough, hemorrhoids, and anti-tumor because Tradescantia leaves contain secondary metabolite compounds such as saponins, tannins, terpenoids, flavonoids, alkaloids, and coumarins. The lack of information on flavonoid content, total phenolic, and antioxidant activity using DPPH and MPM methods in the leaves, stems, and roots of Tradescantia, therefore the purpose of the study was to determine the flavonoid content, total phenolic, and antioxidant activity of the leaves, stems, and roots of four types of Tradescantia plants and their correlation. Each part of the plant that has been separated is extracted by the infundancy method using distilled water solvent. Determination of total flavonoid content using aluminum chloride (AlCl3) method and total phenolic content using Folin-Ciocalteau method. Determination of antioxidant activity using 2,2-diphenyl-1-picrylhydrazyl (DPPH) and Modified Phenantroline Method (MPM). The highest total flavonoid content was obtained from the roots of Tradescantia zebrina, which amounted to 4,807 ± 0,149 mg QE/g FW. Meanwhile, the highest phenolic content was obtained in the stem of Tradescantia spathacea at 2.071 ± 0.166 mg GAE/g FW. The highest antioxidant activity was obtained in the leaves of T. zebrina at 5.184 ± 0.165 mg AAE/g FW. Based on ANOVA test, the content of phenolics, flavonoids, and total antioxidant activity of plant parts and plant species were significantly different. Total phenolic and flavonoid content in the stem of each Tradescantia plant showed a strong correlation with r=0.5909. The total antioxidant activity in the stem part of Tradescantia plants was strongly correlated to the total phenolic content with r=0.9924. A strong correlation was also found in the total antioxidant activity between DPPH and MPM methods on the leaves of Tradescantia plants.

Key words: Total flavonoids, total phenolics, Tradescantia, MPM, DPPH.