ANALISIS METABOLIT SEKUNDER PADA AKAR DAN DAUN TANAMAN BAYAM (*Amaranthus viridis* L. dan *Amaranthus tricolor* L.) MENGGUNAKAN GC-MS

SKRIPSI

diajukan sebagai salah satu syarat untuk memperoleh gelar Sarjana Sains Program Studi Biologi Departemen Pendidikan Biologi

oleh

Hilma Adila Indriani

NIM. 1801053

PROGRAM STUDI BIOLOGI

DEPARTEMEN PENDIDIKAN BIOLOGI

FAKULTAS PENDIDIKAN MATEMATIKA DAN ILMU PENGETAHUAN ALAM

UNIVERSITAS PENDIDIKAN INDONESIA

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Oleh
Hilma Adila Indriani

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HILMA ADILA INDRIANI
1801053

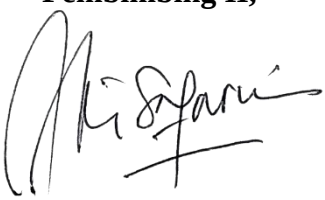
Disetujui dan disahkan oleh:

Pembimbing I,

Dr. R. Kusdianti, M.Si.

NIP. 19640226198032004

Pembimbing II,

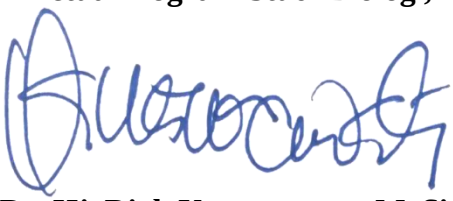


Hj. Tina Safaria Nilawati, M.Si.

NIP. 197303172001122002

Mengetahui,

Ketua Program Studi Biologi,



Dr. Hj. Diah Kusumawaty, M. Si.

NIP. 197008112001122001

PERNYATAAN

Dengan ini saya menyatakan bahwa skripsi dengan judul **"ANALISIS METABOLIT SEKUNDER PADA AKAR DAN DAUN TANAMAN BAYAM (*Amaranthus viridis* L. dan *Amaranthus tricolor* L.) MENGGUNAKAN GC-MS"** beserta seluruh isinya merupakan karya saya sendiri. Saya tidak melakukan pengutipan atau penjiplakan dengan cara-cara yang tidak sesuai dengan etika ilmu yang berlaku di dalam lingkungan masyarakat keilmuan. Atas pernyataan ini saya siap menanggung sanksi apabila di kemudian hari ditemukan adanya pelanggaran terhadap etika keilmuan atau adanya klaim dari pihak lain terhadap keaslian karya saya ini.

Bandung, Agustus 2022

Pembuat Pernyataan

Hilma Adila Indriani

NIM. 1801053

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Hilma Adila Indriani

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ABSTRAK

Pemanfaatan bayam di Indonesia masih terbatas hanya sebagai bahan makanan dan bahan dasar obat tradisional dalam jumlah yang sangat rendah. Tujuan dari penelitian ini untuk mendapatkan metabolit sekunder yang terdapat pada akar dan daun *Amaranthus viridis* L. (bayam liar) dan *Amaranthus tricolor* L. (bayam cabut). Sampel bayam diambil dari Kecamatan Ciamis, Kabupaten Ciamis, Jawa Barat. Sampel diekstraksi dengan menggunakan metode maserasi dengan pelarut etanol 96%. Data hasil GC-MS diidentifikasi dengan melihat indeks kesamaannya (*quality index)* ≥ 80% dengan pustaka *National Institute of Standards and Technology* (NIST). Hasil penelitian ini menunjukkan bahwa akar bayam liar mengandung 11 senyawa metabolit sekunder, sedangkan akar bayam cabut mengandung 8 senyawa metabolit sekunder. Kedua akar bayam mengandung tiga senyawa metabolit sekunder yang sama yaitu koniferil alkohol, 2-metoksi-4-vinilfenol, dan indol. Daun bayam liar mengandung 10 senyawa metabolit sekunder, sedangkan daun bayam cabut mengandung 14 senyawa metabolit sekunder. Kedua daun bayam mengandung tiga senyawa metabolit sekunder yang sama yaitu terdapat siklohеptasiloksan, tetradekametil, 2-metoksi-4-vinilfenol, dan indol. Akar dan daun bayam liar dan bayam cabut memiliki kandungan metabolit sekunder yang berbeda. Terdapat dua senyawa metabolit sekunder yang ditemukan pada keempatnya dengan konsentrasi yang berbeda, yaitu 2-metoksi-4-vinilfenol dan indol.

Kata kunci: *Amaranthus viridis* L., *Amaranthus tricolor* L., akar, daun, kromatografi gas spektofotometri massa (GC-MS), metabolit sekunder

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ANALYSIS OF SECONDARY METABOLITES IN ROOTS AND LEAVES (*Amaranthus viridis* L. and *Amaranthus tricolor* L.) USING GC-MS

ABSTRACT

The use of spinach in Indonesia is still limited only as a food ingredient and the basic ingredients of traditional medicine in very low quantities. The purpose of this study was to obtain secondary metabolites found in the roots and leaves of *Amaranthus viridis* L. (wild spinach) and *Amaranthus tricolor* L. (pulled spinach). Spinach samples were taken from Ciamis District, Ciamis Regency, West Java. Samples were extracted using maceration method with 96% ethanol as solvent. The GC-MS data were identified by looking at the (*quality index*) 80% with the *National Institute of Standards and Technology* (NIST) literature. The results of this study showed that the roots of wild spinach contained 11 secondary metabolites, while the roots of pulled spinach contained 8 secondary metabolites. Both spinach roots contain the same three secondary metabolites, namely coniferyl alcohol, 2-methoxy-4-vinylphenol, and indole. Wild spinach leaves contain 10 secondary metabolites, while pulled spinach leaves contain 14 secondary metabolites. Both spinach leaves contain the same three secondary metabolites, namely cycloheptasiloxane, tetradekamethyl, 2-methoxy-4-vinylphenol, and indole. The roots and leaves of wild spinach and pulled spinach contain different secondary metabolites. There were two secondary metabolites found in the four with different concentrations, namely 2-methoxy-4-vinylphenol and indole.

Keywords: *Amaranthus viridis* L., *Amaranthus tricolor* L., gas chromatography mass spectrophotometry (GC-MS), leaves, roots, secondary metabolites

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