PROFIL METABOLIT SERTA AKTIVITAS ANTIOKSIDAN PADA AKAR DAN DAUN TANAMAN HANJELI (*Coix lacryma-jobi* L.) DESA WISATA HANJELI SUKABUMI

SKRIPSI

Diajukan untuk memenuhi sebagian syarat memperoleh gelar Sarjana Sains
Program Studi Biologi

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PROGRAM STUDI BIOLOGI
FAKULTAS PENDIDIKAN MATEMATIKA DAN ILMU PENGETAHUAN ALAM
UNIVERSITAS PENDIDIKAN INDONESIA
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Skripsi yang diajukan untuk memenuhi sebagian syarat memperoleh gelar Sarjana Sains pada Program Studi Biologi Fakultas Pendidikan Matematika dan Ilmu Pengetahuan Alam

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PERNYATAAN

Dengan ini saya menyatakan bahwa skripsi dengan judul "**Profil Metabolit serta Aktivitas Antioksidan pada Akar dan Daun Tanaman Hanjeli *(Coix lacryma-jobi* L.) Desa Wisata Hanjeli Sukabumi"** ini beserta seluruh isinya merupakan karya saya sendiri. Saya tidak melakukan penjiplakan atau pengutipan dengan cara-cara yang tidak sesuai dengan etika ilmu yang berlaku dalam masyarakat keilmuan. Atas pernyataan ini, saya siap menanggung risiko/sanksi apabila di kemudian hari ditemukan adanya pelanggaran etika keilmuan atau ada klaim dari pihak lain terhadap keaslian karya saya ini.

Bandung, Agustus 2023

Pembuat Pernyataan

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Profil Metabolit serta Aktivitas Antioksidan pada Akar dan Daun Tanaman Hanjeli *(Coix lacryma-jobi* L.) Desa Wisata Hanjeli Sukabumi

ABSTRAK

Hanjeli (*Coix lacryma-jobi* L.) telah banyak digunakan sebagai obat tradisional di berbagai negara. Tanaman ini diketahui mengandung metabolit yang beragam di setiap daerah. Desa Wisata Hanjeli Kabupaten Sukabumi merupakan tempat eduwisata yang bergerak di bidang budidaya tanaman lokal hanjeli. Penelitian ini bertujuan untuk mendapatkan profil metabolit yang terkandung pada akar dan daun hanjeli kultivar ketan dan batok serta aktivitas antioksidan dalam akar dan daun hanjeli batok. Sampel akar dan daun diambil dari Desa Wisata Hanjeli, Kabupaten Sukabumi. Sampel diekstrak mengunakan metode maserasi dengan pelarut etanol p.a. 70%. Kandungan metabolit akar dan daun hanjeli dianalisis menggunakan *Gas Chromatography-Mass Spectrometry* (GC-MS) dan diidentifikasi menggunakan pustaka WILLEY09TH. Hasil penelitian menunjukkan akar hanjeli ketan mengandung 9 senyawa, sedangkan akar hanjeli batok mengandung 5 senyawa. Kedua akar hanjeli didominasi oleh senyawa 4-vinilfenol (Akar hanjeli ketan = 24.40%, akar hanjeli batok = 35.12%) yang termasuk ke dalam golongan fenolik. Daun hanjeli ketan mengandung 8 senyawa yang didominasi oleh senyawa metil linoleat (17.78%) yang termasuk ke dalam golongan asam lemak, sedangkan daun hanjeli batok mengandung 9 senyawa yang didominasi oleh senyawa metil linolelaidat (12.49%) yang termasuk golongan asam lemak. Nilai IC_{50} ekstrak akar (315,72 ppm) dan daun (390,64 ppm) hanjeli batok menunjukkan aktivitas antioksidan yang tergolong kategori lemah. Penelitian ini menunjukkan adanya perbedaan kandungan metabolit pada akar dan daun hanjeli dalam kultivar yang berbeda. Aktivitas antioksidan ekstrak akar lebih tinggi dibanding ekstrak daun hanjeli batok.

Kata kunci: Akar hanjeli, aktivitas antioksidan, daun hanjeli, Desa Wisata Hanjeli, *Gas Chromatography-Mass Spectrometry* (GC-MS), metabolit

Profile of Metabolites and Antioxidant Activity of Roots and Leaves of Hanjeli (*Coix lacryma-jobi* L.) Desa Wisata Hanjeli Sukabumi

ABSTRACT

Hanjeli (*Coix lacryma-jobi* L.) has been widely used as a traditional medicine in various countries. This plant is known to contain metabolites that vary in each region. Desa Wisata Hanjeli, Sukabumi Regency, is an educational destination engaged in the cultivation of local hanjeli plants. The pupose of the study to obtain profiles of metabolites contained in the roots and leaves and leaves of hanjeli cultivars of ketan and batok as well as antioxidant activity in the roots and leaves of hanjeli batok. Samples of roots and leaves were taken from Desa Wisata Hanjeli, Sukabumi Regency. Samples were extracted using the maceration method with ethanol p.a as solvent. 70%. The metabolites of hanjeli roots and leaves were analyzed using *Gas Chromatography-Mass Spectrometry* (GC-MS) and identified using the WILLEY09TH library. The results showed that the root of the hanjeli ketan contains 9 compounds, while the root of the hanjeli batok contains 5 compounds. Both hanjeli roots are dominated by 4-vinylphenol compounds (hanjeli ketan roots = 24.40%, hanjeli batok roots = 35.12%) which belong to the phenolic group. Hanjeli ketan leaves contain 8 compounds which are dominated by methyl linoleic compounds (17.78%) which belong to the fatty acid group, while hanjeli batok leaves contain 9 compounds which are dominated by methyl linoleic acid compounds (12.49%) which belong to the fatty acid group. The IC_{50} value of the root extract (315.72 ppm) and leaves (390.64 ppm) of hanjeli batok showed antioxidant activity which was classified as a weak category.This study showed that there were differences in the content of metabolites in the roots and leaves of hanjeli in different cultivars. The antioxidant activity of the root was higher than that of the hanjeli batok leaf.

Keywords: Hanjeli roots, antioxidant activity, hanjeli leaves, *Gas Chromatography – Mass Spectophotometry* (GC-MS), metabolite

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