ANALISIS METABOLIT SEKUNDER DARI AKAR DAN DAUN HANJELI (*Coix lacryma-jobi L.*) KETAN DAN HANJELI PUTIH MENGGUNAKAN GC-MS

SKRIPSI

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

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Sebuah skripsi yang diajukan untuk memenuhi salah satu syarat memperoleh gelar Sarjana Sains pada Departemen Pendidikan Biologi Fakultas Pendidikan Matematika dan Ilmu Pengetahuan Alam

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PERNYATAAN

Dengan ini saya menyatakan bahwa skripsi dengan judul "**Analisis Metabolit Sekunder dari Akar dan Daun Hanjeli (*Coix lacryma-Jobi* L.) Ketan dan Hanjeli Putih Menggunakan GC-MS**" 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.

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ABSTRAK

Hanjeli (*Coix lacryma-jobi* L.) digunakan sebagai obat tradisional di berbagai negara dan telah diketahui mengandung metabolit sekunder yang berbeda di setiap daerah. Di Indonesia, pemanfaatan hanjeli masih terbatas pada organ biji dalam jumlah yang sangat kecil, sedangkan organ akar dan daun seringkali tidak dimanfaatkan lebih lanjut. Penelitian ini bertujuan untuk menganalisis kandungan metabolit sekunder pada akar dan daun tanaman hanjeli ketan dan hanjeli putih sehingga diharapkan mampu meningkatkan pemanfaatan tanaman hanjeli di Indonesia. Sampel tanaman diambil dari Desa Cikadut, Kecamatan Cimenyan, Kabupaten Bandung, Jawa Barat. Sampel diekstrak menggunakan metode maserasi dengan pelarut etanol 96%. Analisis kandungan metabolit sekunder dilakukan menggunakan metode GC-MS. Data hasil GC-MS diidentifikasi dengan melihat indeks kesamaannya dengan data di pustaka *National Institute of Standards and Technology* (NIST). Hasil penelitian ini menunjukkan bahwa akar hanjeli ketan megandung 19 senyawa, sedangkan akar hanjeli putih mengandung 18 senyawa. Kedua akar hanjeli mengandung coixol dengan konsentrasi tinggi dan banyak mengandung senyawa fenolik. Daun hanjeli ketan mengandung 9 senyawa dengan senyawa dominan 5-hidroksimetilfurfural, sedangkan daun hanjeli putih mengandung 15 senyawa dengan senyawa dominan asam palmitat. Terdapat empat senyawa yang sama dengan konsentrasi yang berbeda, yaitu coixol, asam palmitat, 2-metoksi-4-vinilfenol, dan asam ferulat. Akar dan daun hanjeli ketan dan hanjeli putih memiliki kandungan metabolit sekunder yang berbeda.

Kata kunci: akar, daun, GC-MS, hanjeli, metabolit sekunder

ANALYSIS OF SECONDARY METABOLITE FROM ROOTS AND LEAVES OF HANJELI (Coix lacryma-jobi L.) KETAN AND HANJELI PUTIH USING GC-MS

ABSTRACT

Hanjeli (Coix lacryma-jobi L.) is used as traditional medicine in various countries and has been known to contain different secondary metabolites in each location. In Indonesia, the use of hanjeli is still limited to seeds in very small quantities, while roots and leaves are often not utilized further. This study aims to analyze the content of secondary metabolites in the roots and leaves of hanjeli ketan and hanjeli putih to increase the utilization of hanjeli in Indonesia. Plant samples were taken from Cikadut Village, Cimenyan District, Bandung Regency, West Java. Samples were extracted using the maceration method with 96% ethanol as solvent. The secondary metabolite content analysis was carried out using the GC-MS method. The GC-MS data were identified by looking at their similarity index with the National Institute of Standards and Technology (NIST) library data. The results of this study showed that the root of hanjeli ketan contained 19 compounds, while the root of hanjeli putih contained 18 compounds. Both hanjeli roots contain high concentrations of coixol and contain many phenolic compounds. Hanjeli ketan leaves contain 9 compounds with the dominant compound 5 hydroxymethylfurfural, while hanjeli putih leaves contain 15 compounds with the dominant compound palmitic acid. There are four of the same compounds with different concentrations, namely coixol, palmitic acid, 2-methoxy-4-vinylphenol, and ferulic acid. The roots and leaves of hanjeli ketan and hanjeli putih contain different secondary metabolites.

Keywords: roots, leaves, GC-MS, hanjeli, secondary metabolites

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