

KOMPONEN KIMIA GETAH KEMENYAN (*Styrax* spp.) DARI HUTAN RAKYAT POLUNG KABUPATEN HASUNDUTAN SUMATERA UTARA

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ABSTRAK

Kemenyan merupakan salah satu hasil hutan non kayu potensial yang digunakan sebagai obat dan juga erat dengan nilai sosial, budaya dan ekonomi. Getah kemenyan merupakan hasil hutan non kayu terbesar dari Sumatera Utara. Getah kemenyan diketahui memiliki komposisi kimia berupa asam sinamat dan turunannya. Namun, data komposisi kimia getah kemenyan terbatas hanya pada salah satu komponen (asam sinamat). Penelitian ini dilakukan untuk menganalisa komposisi kimia getah kemenyan dalam jumlah individu pohon yang banyak, mengelompokkan individu pohon berdasarkan kedekatan sifat tiap individu pohon dan mengetahui hubungan antara diameter pohon terhadap komposisi getah kimia kemenyan.

Bahan penelitian berasal dari hutan rakyat Polung Kabupaten Hasundutan, Sumatra Utara. Getah kemenyan disadap dari pohon berumur 10 tahun dengan diameter pohon antara 9 - 35 cm. Untuk mengetahui komponen kimia dalam getah kemenyan, sampel getah dilarutkan dengan benzena dan langsung diinjeksi dalam GC-MS. Komponen kimia yang terdeteksi pada analisis GC-MS diidentifikasi dengan membandingkan pola retakan dengan komponen standar dan studi pustaka. Analisis klaster dilakukan untuk mengelompokkan individu pohon berdasarkan kedekatan sifat tiap individu pohon. Korelasi Pearson dilakukan untuk mempelajari hubungan antara diameter dengan komposisi kimia getah kemenyan.

Dari 30 getah kemenyan, komponen dominan yang terdeteksi oleh GC-MS adalah asam sinamat (51,48%) dan sinamil sinamat (62,56%), diikuti asam benzoat (1,94%), chavicol (5,18%), benzil sinamat (7,8%), atropic acid (9,84%), dan vanilin (1,47%). Sampel diklasifikasi dalam klaster I - III berdasarkan rata - rata komponen kimianya. Klaster I memiliki persentase asam benzoat sebesar (1,19%), chavicol (3,95%), asam sinamat (23,30%) dan sinamil sinamat (6,93%). Klaster II memiliki persentase asam benzoat sebesar (0,43%), chavicol (2,75%), asam sinamat (14,50%) dengan sinamil sinamat tinggi (36,43%). Klaster III memiliki persentase asam benzoat sebesar (0,96%), chavicol (3,74%), dengan asam sinamat tinggi (45,25%) dan sinamil sinamat (7,66%). Korelasi antara diameter dengan komposisi kimia diuji dengan menggunakan korelasi Pearson menunjukkan tidak ada korelasi yang signifikan antara diameter dengan komposisi kimia getah kemenyan.

Kata kunci : getah kemenyan, komponen kimia, diameter, GC-MS, analisis klaster

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CHEMICAL COMPONENT OF GUM BENZOIN (*Styrax* spp.) FROM THE COMMUNITY FOREST, POLUNG HASUNDUTAN REGENCY NORTH SUMATERA

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ABSTRACT

Benzoin is one of the potential non-timber forest products that has been used for medicinal and also is closely linked to social, cultural and economic values. Gum benzoin is the largest non-timber production in North Sumatra. This gum contains chemical compounds such as cinnamic acid and its derivatives. However, the data of the chemical composition of gum benzoin is limited to only one of its component (cinnamic acid). This research was conducted to analyze the chemical composition of gum benzoin from large number of individual trees, to group individual trees based on the similarity of each individual tree as well as to determine the relationship between tree diameter and the chemical composition of the gum benzoin.

The sample of gum benzoin was collected from the community forest of Polung Hasundutan Regency, North Sumatra. The gum benzoin was tapped from 10-year-old benzoin trees with a diameter tree between 9 - 35 cm. To detect the gum benzoin constituents, the sample was dissolved using benzene and injected to GC-MS tools. The chemical components that detected in the GC-MS was verified by comparing the ion fragmentations of samples with standard components and literature studies. Cluster analysis was made to classify individual trees based on the close nature of each individual tree. Pearson's correlation was performed to study the correlation between the diameter and chemical composition of gum benzoin.

From 30 gum benzoin samples, the dominant compounds detected by GC-MS were cinnamic acid and cinnamyl cinnamate, followed by benzoic acid, chavicol, benzyl cinnamate, atropic acid, and vanillin. Their contents were 51.48%, 62.56%, 1.94%, 5.18%, 7.8%, 9.84%, and 1.47% respectively. The samples were classified into cluster I-III based on the average of chemicals constituents. Cluster I was classified with percentage of benzoic acid, chavicol, and cinnamic acid and their concentrations were 1.19%, 3.95%, and 23.30%, respectively with a low percentage of cinnamyl cinnamate (6.93%). Cluster II was classified with percentage of benzoic acid, chavicol, and cinnamic acid were 0.43%, 2.75%, and 14.50%, respectively with a high percentage of cinnamyl cinnamate (36.43%). Cluster III was classified with percentage of benzoic acid, chavicol, and cinnamyl cinnamate were 0.96%, 3.74%, and 17.66%, respectively with a high percentage of cinnamic acid (45.25%). The correlation between diameter and chemical composition of gum benzoin was tested by using Pearson's correlation. It showed that there is no correlation between diameter and the level of chemical components of the gum benzoin.

keyword : gum benzoin, chemical component, diameter, GC-MS, cluster analysis

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