

RENDEMEN DAN KUALITAS MINYAK ATSIRI DARI BEBERAPA BAGIAN TANAMAN CENGKEH (*Syzygium aromaticum* L.) DENGAN PEMBIAKAN SAMBUNG DAN BIJI

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INTISARI

Cengkeh merupakan salah satu tanaman aromatik sebagai penghasil minyak atsiri. Bagian tanaman cengkeh yang mengandung minyak atsiri antara lain bunga, tangkai bunga, dan daun. Salah satu inovasi pembiakan tanaman cengkeh untuk optimalisasi hasil berupa sistem sambung susuan. Tanaman bawah yang dapat digunakan untuk penyambungan seperti banji (*Syzygium syzygioides*). Penelitian terkait rendemen dan kualitas minyak atsiri cengkeh dari hasil pembiakan sambung dan biji belum tersedia. Penelitian ini dilakukan dengan tujuan untuk mengetahui pengaruh bagian tanaman terhadap rendemen, komposisi kimia, dan sifat fisiko-kimia minyak cengkeh yang berasal dari tanaman hasil pembiakan sambung dan biji.

Rancangan percobaan yang digunakan yaitu rancangan acak lengkap dengan dua faktor yaitu bagian tanaman dan jenis pembiakan. Bahan yang digunakan dalam penelitian ini adalah bunga, tangkai bunga, dan daun cengkeh dari tanaman hasil pembiakan sambung dan biji umur 4 tahun. Sampel dari ketiga bagian tanaman cengkeh didistilasi menggunakan metode rebus. Identifikasi komposisi kimia menggunakan GC-MS dan pengujian sifat fisiko-kimia yang meliputi bobot jenis, indeks bias, dan kelarutan dalam etanol menggunakan SNI 06-4267-1996 dan SNI 06-2387-2006.

Hasil penelitian menunjukkan bahwa bagian tanaman dan jenis pembiakan berpengaruh terhadap rendemen, komposisi kimia, dan sifat fisiko kimia. Rendemen minyak cengkeh dari ketiga bagian tanaman pembiakan biji (bunga 1,09%, tangkai bunga 0,55%, dan daun 1,06%) lebih tinggi dibanding pembiakan sambung (bunga 0,84%, tangkai bunga 0,44%, dan daun 0,66%). Sifat fisiko kimia minyak cengkeh dari tanaman pembiakan biji lebih baik. Komponen kimia utama dalam minyak cengkeh yang dihasilkan ketiga bagian tanaman yaitu *eugenol* dengan persentase berturut-turut dihasilkan oleh bunga, tangkai bunga, dan daun dari pembiakan biji sebesar 61,5%, 42,5%, dan 37,3%. Minyak dari bagian tanaman yaitu daun cengkeh pada pembiakan biji memenuhi standar parameter pengujian.

Kata kunci : bagian tanaman; jenis pembiakan; minyak cengkeh; rendemen; fisiko-kimia; komposisi kimia

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***YIELD AND QUALITY OF ESSENTIAL OIL FROM VARIOUS PLANT
PARTS OF CLOVE (*Syzygium aromaticum* L.) BY GRAFTING AND SEED
PROPAGATION***

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ABSTRACT

Clove is an aromatic plant which produce essential oil. The plant parts of clove that contain essential oils are flowers, flower stalks, and leaves. For optimizing its yields, propagation technique has been developed including grafting technique using banji (*Syzygium syzygioides*) as rootstock. Studies related to the yield and quality of clove essential oils by grafting and seed propagation are still limited. This research aimed to know the effect of plant parts on yield, chemical composition, and physico-chemical properties of clove essential oils derived from plants propagated by grafting (vegetative) and seeds (generative).

This study used a completely randomized design with two factors of treatments: plant parts and type of propagation. Each factor consisted of three (flower buds, flower stalks, and clove leaves) and two (generative and vegetative propagation) levels, respectively, with three replications. Samples were collected from trees at age 4 years at three plant parts. They were distilled by water distilled method. The chemical compositions were identified using GC-MS and the physico-chemical property tests including specific gravity, refractive index, and solubility in ethanol were carried out and justified following the SNI 06-4267-1996 and SNI 06-2387-2006.

The results showed that plant parts and propagation type affected on yield, chemical composition, and physico-chemical properties of vlove oil. By seed propagation, the yield of oil produced from all plant parts (flower 1.09%, flower stalk 0.55%, leaves 1.06%) was higher than the grafting (flower 0.84%, flower stalk 0.44%, leaves 0.66%). A similar trend was observed on the physico-chemical properties of the oil which showed better results on the seed propagation. Eugenol is the main chemical component in clove oil produced from all plant parts. The percentage of eugenol produced in flowers, flower stalks, and leaves from grafting were 61.5%, 42.5%, 37.3%, respectively. The oil produced from leaves of the seed propagated plant has met almost all tested parameters.

Keywords: plant parts; type of propagation; clove essential oils; yield; physico-chemistry; chemical composition

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