UNIVERSITAS
GADJAH MADA
Pengaruh Kondisi Daun dan Metode Distilasi Terhadap Rendemen dan Kualitas Minyak Atsiri Daun Cengkih (Syzygium aromaticum L.)
Muhammad Fitrah, Ir. Rini Pujiarti, S.Hut., M.Agr., Ph.D., IPM
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

PENGARUH KONDISI DAUN DAN METODE DISTILASI TERHADAP RENDEMEN DAN KUALITAS MINYAK ATSIRI DAUN CENGKIH (*Syzigium aromaticum* L.)

Muhammad Fitrah[1] dan Rini Pujiarti[2]

INTISARI

Minyak atsiri daun cengkih (*Syzygium aromaticum*) merupakan komoditas bernilai ekonomi tinggi dengan berbagai manfaat, sehingga kualitas dan rendemen menjadi parameter penting dalam menentukan keberhasilan produksi. Kualitas minyak atsiri daun cengkih ditentukan melalui pengujian komposisi kimia dan sifat fisiko-kimia, yang dipengaruhi oleh beberapa faktor seperti kondisi daun dan metode distilasi. Oleh karena itu, penelitian ini bertujuan untuk menganalisis pengaruh kondisi daun dan metode distilasi terhadap rendemen, komposisi kimia, dan sifat fisiko-kimia pada minyak atsiri daun cengkih.

Penelitian ini menggunakan *Completely Randomized Design* (CRD) dengan dua faktor, yaitu faktor kondisi daun (segar, layu, dan kering) dan faktor metode distilasi (rebus dan kukus) dengan tiga ulangan pada setiap perlakuan. Analisis meliputi rendemen, komposisi kimia, serta sifat fisiko-kimia yang meliputi warna, bau, bobot jenis, indeks bias, dan kelarutan dalam etanol 70% yang mengacu pada SNI 06-2387-2006. Hasil yang diperoleh kemudian diuji menggunakan *Analysis of Variance* (ANOVA) dan jika nilai signifikansi dibawah 0,05 maka, dilanjutkan dengan uji *Honestly Significant Difference* (HSD).

Hasil penelitian menunjukkan bahwa rendemen yang diperoleh berkisar antara 0,87%–1,61%, dengan tiga komposisi kimia utama: eugenol 56,49%–71,78*%, β-caryophyllene* 12,48%–24,90%, dan *eugenyl acetate* 0,10%–2,43%. Rendemen tertinggi diperoleh pada perlakuan kondisi daun kering metode distilasi rebus, sedangkan persentase komposisi kimia tertinggi diperoleh pada perlakuan kondisi daun layu metode distilasi rebus. Sifat fisiko-kimia yang diperoleh pada penelitian ini menunjukkan warna kuning, aroma khas minyak daun cengkih, bobot jenis 1,021–1,038, indeks bias 1,525–1,531, dan kelarutan dalam etanol 70% memiliki nilai perbandingan 1:2. Analisis HSD menunjukkan bahwa kondisi daun berpengaruh signifikan terhadap rendemen, bobot jenis, dan indeks bias, sedangkan metode distilasi tidak berpengaruh signifikan.

Kata kunci: kondisi daun, distilasi, rendemen, komposisi kimia, sifat fisiko-kimia.

[1]Mahasiswa Fakultas Kehutanan UGM
[2]Staff Pengajar Fakultas Kehutanan UGM

UNIVERSITAS
GADJAH MADA
Pengaruh Kondisi Daun dan Metode Distilasi Terhadap Rendemen dan Kualitas Minyak Atsiri Daun Cengkih (Syzygium aromaticum L.)
Muhammad Fitrah, Ir. Rini Pujiarti, S.Hut., M.Agr., Ph.D., IPM
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

EFFECT OF LEAF CONDITION AND DISTILLATION METHOD ON YIELD AND QUALITY OF CLOVE (*Syzygium aromaticum* L.) LEAF ESSENTIAL OIL

Muhammad Fitrah[1] dan Rini Pujiarti[2]

ABSTRACT

Clove (*Syzygium aromaticum*) leaf essential oil is a valuable commodity with various applications, making quality and yield important parameters in determining production success. The quality of clove leaf essential oil is determined through analysis of chemical composition and physico-chemical properties, which are influenced by several factors such as leaf condition and the distillation method. Therefore, this study aims to analyze the effect of leaf condition and distillation method on the yield, chemical composition, and physico-chemical properties of clove leaf essential oil.

This research employed a Completely Randomized Design (CRD) with two factors, namely leaf condition (fresh, wilted, and dry) and distillation method (steam and water-steam), with three replications for each treatment. The analysis included yield, chemical composition, and physico-chemical property testing, including color, odor, specific gravity, refractive index, and solubility in 70% ethanol, based on SNI 06-2387-2006. The data were analyzed using Analysis of Variance (ANOVA) and if the significance value was below 0,05, it was continued with Honestly Significant Difference (HSD) test.

The results showed that the yield ranged between 0.87%-1.61%, with three main chemical composition: eugenol 56.49%–71.78%, β-caryophyllene 12.48%–24.90%, and eugenyl acetate 0.10%–2.43%. The highest yield was obtained from the treatment dried leaves with the steam distillation method, whereas the highest percentage of the major chemical compound was obtained from the treatment wilted leaves with the steam distillation method. The physico-chemical properties obtained in this study showed a yellow color, the characteristic aroma of clove leaf oil, specific gravity ranging between 1.021-1.038, a refractive index 1.525-1.531, and solubility in 70% ethanol at 1:2 ratio. HSD analysis showed that leaf condition significantly affected yield, specific gravity, and refractive index, while the distillation method had no significant effect.

Keywords: leaf condition, distillation, yield, chemical composition, physico-chemical properties.

[1]Student of Faculty of Forestry UGM
[2]Lecturer of Faculty of Forestry UGM