Pengaruh Lokasi Asal Bahan dan Cara Distilasi terhadap Rendemen, Kualitas, dan Aktivitas Antioksidan Minyak Daun Cengkeh (*Syzygium aromaticum* L.)

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Abstrak

Tanaman cengkeh merupakan salah satu tanaman tahunan dimana bagian daunnya dapat dimanfaatkan untuk menghasilkan minyak atsiri. Kualitas minyak atsiri daun cengkeh dapat dipengaruhi oleh lokasi tanaman dan cara ekstraksinya. Penelitian ini bertujuan untuk mengetahui pengaruh asal bahan dan cara distilasi terhadap rendemen, kualitas (sifat fisiko-kimia, komposisi kimia) dan antioksidan minyak daun cengkeh dari tiga lokasi.

Penelitian ini menggunakan Rancangan Acak Lengkap yang diatur secara faktorial. Faktor yang digunakan adalah faktor lokasi asal bahan yang terdiri dari tiga aras yaitu Ungaran, Ciamis dan Kulon Progo serta faktor metode distilasi yang terdiri dari dua aras yaitu perebusan dan pengukusan. Sifat fisiko-kimia diuji berdasarkan Standar Nasional Indonesia 06-2387-2006. Komposisi kimia dianalisis menggunakan *GC-MS* yang disajikan secara deskriptif. Sedangkan untuk uji antioksidan menggunakan metode DPPH.

Hasil penelitian menunjukkan metode distilasi kukus menghasilkan rendemen yang lebih tinggi dibandingkan metode distilasi rebus. Besarnya rendemen basah yang diperoleh berkisar 0,7% sampai 2,3% dengan rendemen kering berkisar 0,8% sampai 2,5%. Komponen utama minyak daun cengkeh dari ketiga lokasi adalah *Eugenol* ($C_{10}H_{12}O_2$), *Caryophyllene* ($C_{15}H_{24}$), dan *Humulene* ($C_{15}H_{24}$). Uji fisiko-kimia minyak sesuai dengan standar SNI 06-2387-2006 kecuali kadar *eugenol* berada di bawah 78% yaitu berkisar antara 54,48-72,23%. Sedangkan pengujian antioksidan minyak daun cengkeh dengan metode DPPH *scavenging assay* menunjukkan nilai IC_{50} (mg/ml) berkisar antara 16,04-34,73 dan aktivitas antioksidan terbaik yaitu sampel dari Ciamis yang didistilasi dengan metode rebus.

Kata kunci: *Syzygium aromaticum*, asal bahan, metode distilasi, rendemen, kualitas, komposisi kimia, antioksidan.

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Effect of Plant Location and Distillation Method on Yield, Quality, and Antioxidant Activity of Clove (*Syzygium aromaticum* L.) Leaves Oil

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Abstract

The clove is an annual crop which the leaves can be used to produce essential oils. Essential oils quality of clove leaves can be influenced by the location and extraction methods. The aims of this study were to determine the effect of locations of the material source and distillation method on yield, quality (physicochemical properties, chemical composition), and antioxidants property of clove leaf oil.

This study used a Completely Randomized Design arranged in the factorial. The factors used were locations and distillation method. The locations were derived from Ungaran, Ciamis, and Kulon Progo and kinds of distillation method were water distillation and water-steam distillation. The physicochemical properties were tested based on Indonesian National Standards (SNI) 06-2387-2006. Chemical composition was analyzed using *GC-MS* which was presented descriptively. The DPPH method was used to analyse antioxidant activity.

The results showed that water-steam distillation method produced a higher yield than that of water distillation method. The number of wet yields obtained ranged from 0,7% to 2,3% with the dry yield ranged from 0,8% to 2,5%. The main components of clove leaf oil from the three locations were *Eugenol* ($C_{10}H_{12}O_2$), *Caryophyllene* ($C_{15}H_{24}$), and *Humulene* ($C_{15}H_{24}$). The physicochemical test of clove leaf oil was in accordance to SNI 06-2387-2006 standards except that eugenol levels were less than 78%, ranging from 54,48 to 72,23%. The antioxidant ranged from 16,04-34,73 with the best antioxidant activity found in the essential oil of the Ciamis sample using water distillation method.

Keywords: *Syzygium aromaticum*, material source, distillation method, yield, quality, chemical composition, antioxidant.

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