KOMPONEN KIMIA DAN AKTIVITAS BIOLOGI MINYAK ATSIRI DARI KULIT JERUK SIAM (*Citrus nobilis*) YANG DIISOLASI DENGAN DISTILASI UAP AIR DAN MASERASI N-HEKSANA

Oleh

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ABSTRAK

Penelitian ini bertujuan untuk menentukan rendemen, komponen dan kandungan, serta aktivitas biologi (antioksidan, antibakteri, larvasida) pada minyak atsiri kulit jeruk siam (*Citrus nobilis*). Komponen dan kandungan kimia minyak atsiri ditentukan dengan menggunakan *Gas Chromatography-Mass Spectrophotometer*. Aktivitas antioksidan minyak atsiri kulit jeruk siam ditentukan dengan metode DPPH yang diukur dengan spektrofotometri UV-Vis. Aktivitas antibakteri ditentukan dengan metode difusi cakram, aktivitas larvasida ditentukan dengan menggunakan larva nyamuk *Aedes aegyti*. Hasil penelitian menunjukkan rendemen minyak atsiri kulit jeruk siam diisolasi dengan distilasi uap air sebesar 1,015±0,12076% dan maserasi sebesar 2,189±0,04304%. Minyak atsiri hasil distilasi uap air mengandung 48 senyawa dengan komponen utama senyawa d-limonene (22.45%), 3-Carene (8.66%), Linalool (5.28%), Cyclohexene,1-ethenyl-1-methyl-2,4-bis(1-methylethenyl), [1S(1.alpha.,2.beta,4.beta.)]- (5.18%), L.-.alpha.-Terpineol (3.62%) dan Terpinen-4-ol (3.30%) sedangkan maserasi mengandung 73 senyawa dengan komponen utama senyawa d-limonene (13.33%), 9,12,15-Octadecatrienoic acid, (Z,Z,Z) (7.36%),n-Hexadecanoic acid (5.75%), gamma-Terpinene (5.39%), Cyclohexene,1-ethenyl-1-methyl-2,4-bis(1 methylethenyl), [1S(1.alpha.,2.beta, 4.beta.)]- (4.84%), Linalool (3.46%). Untuk nilai IC_{50} dengan metode distilasi uap air didapatkan sebesar 68,702 ppm sedangkan maserasi sebesar 131,045 ppm. Aktivitas antibakteri dengan metode distilasi uap air dan maserasi terhadap bakteri *Staphylococcus aureus* dan bakteri *Escherichia coli* memiliki rata-rata zona hambat dengan kategori sedang. Aktivitas larvasida dengan metode distilasi uap air dan maserasi n-heksana diperoleh masing-masing nilai LC_{50} 12.337 ppm dan 33.433 ppm.

Kata-kata kunci : kulit jeruk siam, rendemen, komponen dan kandungan kimia, antioksidan, antibakteri, larvasida.

CHEMICAL COMPONENTS AND BIOLOGICAL ACTIVITIES OF ESSENTIAL OIL FROM SIAMESE ORANGE (*Citrus nobilis*) PELLISOLATED BY STEAM WATER DISTILLATION AND N-HEXANA MACERATION

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ABSTRACT

This study aims to determine the yield, components and content, as well as biological activity (antioxidant, antibacterial, larvicidal in the essential oil of Siamese orange peel (*Citrus nobilis*). The components and chemical content of essential oils were determined using Gas Chromatography-Mass Spectrophotometer. Antioxidant activity of essential oils. Siamese orange peel was determined by DPPH method measured by UV-Vis spectrophotometry. Antibacterial activity was determined by disc diffusion method, larvicidal activity was determined using *Aedes aegyti* mosquito larvae. The results showed that the essential oil yield of Siamese orange peel was isolated by steam distillation of 1,015± 0,12076% and maceration of 2,189±0,04304%. Essential oil from steam distillation contains 48 compounds with the main components being d-limonene (22.45%), 3-Carene (8.66%), Linalool (5.28%), Cyclohexene,1-ethenyl-1-methyl-2,4-bis(1-methylethenyl), [1S(1.alpha.,2.beta, 4.beta.)]- (5.18%), L.-.alpha.-Terpineo l (3.62%) and Terpinen-4-ol (3.30%) while maceration contained 73 compounds with the main component being d-limonene (13.33%), 9,12,15-Octadecatrienoic acid, (Z,Z,Z) (7.36 %),n-Hexadecanoic acid (5.75%), gamma-Terpinene (5.39%), Cyclohexene,1-ethenyl-1-methyl-2,4-bis(1 methylethenyl), [1S(1.alpha.,2. beta, 4.beta.)]- (4.84%), Linalool (3.46%). The IC_{50} value with the steam water distillation method was obtained at 68,702 ppm while the maceration was 131,045 ppm. Antibacterial activity by steam distillation and maceration methods against *Staphylococcus aureus* and *Escherichia coli* bacteria had an average inhibition zone of medium category. The larvicidal activity using steam water distillation and n-hexane maceration methods obtained LC_{50} values of 12,337 ppm and 33,433 ppm.

Keywords: Siamese orange peel, yield, chemical components and content, antioxidant, antibacterial, larvicide.