

Characterization of Volatile Oil of Patchouli Stem (*Pogostemon Cablin Benth*) by using Chromatography-Mass Spectrometry

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Abstract. Background Patchouli (*Pogostemon cablin Benth.*) is one kind of the plants producing essential oil that can be used in the treatment because the content of the patchouli oil is a sesquiterpene, cytotoxic chalcones, and antimutagenic. This study aimed to establish the standardization of crude drugs and characterization of essential oil of patchouli stem by GC-MS. Methodology The research carried out includes the determination of specific and non-specific parameters, as well as the characterization of essential oil by GC-MS. Results Table. Components of patchouli stem essential oil as a result of GC-MS No Compounds Retention time (minute) Molecular formula Molecular weight Area curve (%) 1 Benzaldehyde, 2,4-dimethyl 5,103 C₉H₁₀O 134 12,98 2 Phenol, 2,4-Bis(1,1-Dimethylethyl) 8,809 C₁₄H₂₂O 206 8,36 3 1,6-Methanonaphthalen-1(2H)-Ol, Octahydro-4,8A,9,9-Tetramethyl 11,126 C₁₅H₂₆O 222 4,72 4 Octadecanoic acid, Ethyl ester 17,922 C₂₀H₄₀O₂ 312 3,06 5 Hexadecanoic acid, Ethyl ester 14,988 C₁₈H₃₆O₂ 284 2,25 Discussion The standardization result includes the non-specific parameters including identity test, that is, patchouli stem botanicals, botanical organoleptic test forming dry powder, khaki, distinctive smell, bitter taste, water-soluble extract content of 5,9891%, levels of ethanol-soluble extract of 8,0578% and positive compounds identification containing alkaloids, flavonoids, terpenoids, essential oils as well as specific parameters, that is, drying shrinkage of 0,8281%, moisture content of 1,7968%, total ash content of 5,7730%, and acid insoluble ash content of 0,3459%. Conclusion The result of GC-MS characterization of essential oils derived from patchouli stem by stahl distillation shows five main components, namely benzaldehyde, 2,4-dimethyl, phenol, 2,4-Bis(1,1-Dimethylethyl), 1,6-Methanonaphthalen-1(2H)-OL, Octahydro-4,8A,9,9-Tetramethyl, octadecanoic acid, ethyl ester and hexadecanoic acid, ethyl ester.

Keyword: standardization, patchouli stem, *pogostemon cablin benth*.