

Chemical Composition of Patchouli Oil from Vietnam

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Abstract

The essential oil of *Pogostemon cablin* (Blanco) Benth. grown in Vietnam, was analyzed by capillary gas chromatography and mass spectrometry. Patchouli alcohol accounted for about 32-38% of the patchouli oil. Ten more compounds were identified, of which α -bulnesene and α -guaiene were the main components.

Key Word Index

Pogostemon cablin, Labiatae, essential oil composition, patchouli oil, patchouli alcohol, sesquiterpenes.

Plant Name

Pogostemon cablin(Blanco) Benth. – Labiatae (Lamiaceae).

Source

Cultivated plants from Hanoi Nghia Do district Vietnam.

Plant Part

Fresh, air-dried leaves. Oil yield, after steam distillation, 0.4-5.5%.

Previous Work

Reports on the occurrence of patchouli alcohol (1) and the composition of the essential oils from Brazil, Indonesia (Java, Sumatra), Singapore and China have been summarized (2). A review (3) also included analyses of Indian Patchouli oil (4), while the oil from Singapore was further investigated recently (5).

Present Work

The essential oils were analyzed by capillary GC and GC/MS. A 25 m x 0.25 mm I.D. fused silica OV-1 column was used with nitrogen carrier gas at a flowrate of 1.2 mL/min. The oven was programmed from 60° to 190°C at 5°/min, with a final hold time of 10 min. The samples were injected using the split technique, split ratio 1:80.

The quantitative composition of the oil samples was computed from the GC peak areas, without using FID response correction factors. GC/MS analyses were carried out with a

Finnigan 4000 quadrupole instrument. A similar column was used, with helium carrier gas. 70 eV electron ionization mass spectra were acquired at a rate of 2/s.

Oils obtained from various areas in Vietnam contained between 32-38% of patchouli alcohol. The compounds were identified by library searching with the obtained mass spectra. By injection of authentic standard substances and verifying their retention times, the identity of all compounds (except seychellene, δ -cadinene and pogostol) could be established with certainty.

The composition of the Vietnamese patchouli oil was found to be:

β -patchoulene (3.2%)	α -bulnesene (δ -guaiene) (14.7%)
β -elemene (0.7%)	δ -cadinene (1.2%)
β -caryophyllene (2.8%)	pogostol (2.4%)
α -guaiene (13.4%)	patchouli alcohol (37.8%)
seychellene (7.5%)	other compounds (8.3%)
α -patchoulene (8.0%)	

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