

CONSTITUENTS OF THE ESSENTIAL OIL OF *OCIMUM CANUM*

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Ocimum canum Sims (Labiatae) occurs in the bush of several districts of Somalia. Previous examination (1) of the acetone extract revealed the presence of oleanolic acid, ursolic acid, and the rare flavones salvigenin and nevadensin. Leaves and flowers of *O. canum* give off a sharp odor and yield a faintly yellow essential oil; the present communication deals with the composition of the oil.

During steam distillation, a large quantity of a crystalline product was collected from the distillate: it was

identified as the common (+)camphor by conventional methods. The whole essential oil was shown by glc to contain several components, mainly mono- and sesquiterpenes, whose identification was performed by glc-ms analysis. Components occurring in trace amounts (less than 0.05%) were disregarded. Table 1 reports the qualitative and roughly quantitative (round figures) composition of the essential oil of *O. canum*; the weight of camphor collected as crystalline precipitate from the distillate was,

TABLE 1. Constituents of the essential oil of *Ocimum canum*.

Peak No.	Compound	Percent of total oil
1	α -Pinene	2
2	Camphene	2
3	β -Pinene	0.2
4	Sabinene	less than 0.1
5	α -Phellandrene	0.4
6	Myrcene	2
7	Limonene	13
8	β -Phellandrene or β -Terpinene	0.2
9	1,8-Cineol	0.4
10	γ -Terpinene	3
11	p-Cymene	1
12	Terpinolene	1
13	Diacetonol (artifact)	1
14	1-Octen-3-ol	2
15	Sabinene Hydrate <i>trans</i> (?)	0.2
16	Camphor	60
17	Sabinene Hydrate <i>cis</i> (?)	0.2
18	Caryophyllene	2
19	β -Elemene	0.3
20	Alcohol C ₁₀ H ₁₈ O	0.2
21	Terpinen-4-ol	0.6
22	Humulene	0.1
23	Borneol	0.3
24	β -Selinene	3
25	α -Selinene	3
26	Isoborneol	1
27	Hydrocarbon C ₁₅ H ₂₄	0.1
28	Hydrocarbon C ₁₅ H ₂₄	0.1
29	Myrtenol (?)	0.4

obviously, considered. The percentage numbers were based on the glc-ms analysis and could be considered at the most as semi-quantitative because no calibration was performed and a response factor of one was applied for all components. Furthermore, owing to the exceeding quantity of camphor and the limited dynamic range of the instrumentation, the observed relative abundance of that component could represent a lower limit and thus the camphor/other products ratio (given approximately as 60:40) could have been higher. However, careful glc determinations with fid gave percentage numbers in reasonable agreement with those of glc-ms (i.e. within 5-10% for the minor constituents); for camphor, values ranging from 58% to 62% were found. Therefore, we can accept the previous numbers with reasonable confidence.

The essential oil of *O. canum* differs from that of the botanically related *O. basilicum* by the relatively high percentage of camphor and the absence of the phenylallyl ethers eugenol, methyl eugenol, chavicol, and estragol (2).

EXPERIMENTAL

For the collection and the identification

of the plant as *O. canum*, see (1). Extraction of the dry aerial part with cold acetone and evaporation of the solvent gave an oily residue that was subjected to steam distillation, with a yield of 0.5-0.7% of the weight of fresh plant; identical results were obtained by direct steam distillation of the fresh plant. The glc analyses were carried out on Varian Aerograph 1440 and C. Erba 2161 instruments equipped with splitless injector and FID; a conventional steel column (3 m, 1/8", filled with 5% Carbowax 20M) and a wall coated glass open tubular column (40 m, 0.3 mm i.d., coated with Carbowax 1000) were used: injector temperature 225°, column temperature 50° during first 3 min., temperature program 4° per min. from 50° to 200°. For glc-ms, a Varian MAT 212 instrument (EI-mode with 70 eV electron energy, source temperature of 240° and all-glass glc-ms interface at 220°) and a Finnigan IncoS data system (scan cycle time 1.5 sec) were employed.

Mass spectra were compared with both published and unpublished reference spectra. Peak no. 13 (diacetonolcohol) is an artifact arising from the acetone used for extraction of the plant.

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