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Composition of the Essential Oil of *Sideritis congesta* P.H.Davis et Hub.-Mor.

N. Kirimer, N. Tabanca and K.H.C. Baser*

Anadolu University, Medicinal and Aromatic Plant and Drug Research Centre (TBAM), 26470 Eskisehir, Turkey

G. Tümen

Balikesir University, Faculty of Education, 10100 Balikesir, Turkey

Abstract

Water-distilled essential oils from the aerial parts of two collections of *Sideritis congesta*, an endemic plant of Turkey growing in Southern Anatolia, were analyzed by GC and GC/MS. Thirty-nine components were characterized in each oil representing 85-90% of the total components detected with β -pinene (34-35%) and α -pinene (24-25%) as major constituents.

Key Word Index

Sideritis congesta, Labiatae, essential oil composition, α -pinene, β -pinene.

Plant Name

Sideritis congesta P.H.Davis et Hub.-Mor. (1).

Source

Plant materials were collected from the following localities. Voucher specimens are kept the herbarium of Faculty of Pharmacy Anadolu University in Eskisehir, Turkey (ESSE).

A: Antalya: Alanya, Sapadere, Beldibi-Basköy in July 1991 (ESSE 9562),

B: İçel: Anamur, Kas yaylasi in July 1991 (ESSE 9192).

Plant Part

Dried inflorescences were subjected to water distillation for 3 h using a Clevenger-type apparatus to yield 0.45% and 0.42% oil for A and B, respectively.

Previous Work

Composition of the oil of *Sideritis congesta* was previously reported to contain α - and β -pinene as major components (2).

Present Work

GC: The GC analysis was carried out using Shimadzu GC-9A with C-R4A integrator. A polar Thermon 600 T fused silica capillary column (50 m x 0.25 mm ϕ) was used. The carrier gas was nitrogen. The oven temperature was kept at 70°C for 10 min and programmed to 180°C at a rate of 2°C/min, and then kept constant at 180°C for 30 min. The injector and detector (FID) temperatures were at 250°C.

GC/MS: The GC/MS analysis was carried out using Shimadzu GC/MS QP 2000A. A Thermon 600 T fused silica capillary column (50 m x 0.25 mm ϕ) was used with Helium as carrier gas and MS were taken at 70 eV. The scanning speed was 2 scans/sec from m/z 10 to 400. The same temperature programming as above was applied. Library search was carried out using LSS-30 Library Search Software from the NBS/NIH/EPA Library, The Wiley/NBS Registry of Mass Spectral Data and TBAM Library of Essential Oil Constituents. The compounds identified in the oils are shown in Table I.

References

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2. N. Ezer, R. Villa, S. Canigüeral and T. Adzet, *Essential oil composition of four Turkish species of Sideritis*. *Phytochemistry*, 41, 203-205 (1996).

*Address for correspondence

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Sideritis congesta

Table I. Percentage composition of *Sideritis congesta* oils

Compound	A	B	Compound	A	B
α -pinene	24.6	23.5	pinocarvone	0.4	0.2
camphene	0.2	0.2	bornyl acetate	0.3	0.3
β -pinene	34.6	33.8	β -caryophyllene	0.6	0.7
sabinene	0.6	2.5	myrtenal	0.4	0.2
δ -3-carene	1.1	0.2	<i>trans</i> -pinocarveol	0.5	0.2
myrcene	0.4	0.3	Calacorene*	0.5	0.3
α -phellandrene	0.5	0.4	<i>trans</i> -verbenol	0.4	0.2
limonene	0.9	1.1	α -terpineol+borneol	0.3	0.4
β -phellandrene	0.3	0.3	germacrene D	2.7	1.8
(E)-2-hexenal	0.1	0.1	δ -cadinene	3.6	2.3
γ -terpinene	0.1	0.3	myrtenol	0.4	0.2
p-cymene	0.4	0.3	calamenene	0.4	0.3
hexanol	<0.1	<0.1	epi-cubebol	7.1	6.3
1-octen-3-ol	0.2	0.2	cubebol	2.3	1.8
α -cubebene	0.6	0.6	caryophyllene oxide	0.2	0.1
α -copaene	0.7	<0.1	ledol	0.3	0.1
β -bourbonene	0.6	0.5	(E)-nerolidol	0.1	0.2
α -gurjunene	0.4	0.3	globulol	0.9	0.6
β -cubebene	0.3	0.4	carvacrol	0.1	<0.1
linalool	1.8	3.5			

A: Antalya: Alanya, Sapadere, Beldibi-Basköy; B: İçel: Anamur, Kas Yaylasi; * = correct isomer not identified