Composition of the Essential Oils of Thymus leucostomus Hausskn. et Velen var. gypsaceus Jalas and Thymus pubescens Boiss. et Kotschy ex Celak var. cratericola Jalas

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Abstract

Water-distilled oils from herbal parts of *Thymus leucostomus* var. *gypsaceus* and *T. pubescens* var. *cratericola* were analyzed by GC/MS. Forty-seven compounds representing 99.9% of the former oil were identified with thymol (33.2%) and borneol (22.2%) as main constituents. Carvacrol (17.5%), p-cymene (16.4%) and thymol (10.8%) were the major constituents of the latter oil among the 75 constituents characterized which represented 99% of the oil.

Key Word Index

Thymus leucostomus var. *gypsaceus*, *Thymus pubescens* var. *cratericola*, Labiatae, essential oil composition, thymol, carvacrol, borneol, p-cymene.

Plant Name

Thymus leucostomus Hausskn. et Velen var. ***gypsaceus*** Jalas, *Thymus pubescens* Boiss. et Kotschy ex Celak var. *cratericola* Jalas (1).

Source

Herbal parts of the plants were collected from the following localities:

A = *Thymus leucostomus* var. *gypsaceus*: Çankiri: Çalli village in Turkey on June 26, 1997.
B = *Thymus pubescens* var. *cratericola* : Malatya: Arapkir in Turkey on August 2, 1997.

Voucher specimens have been deposited at the Herbarium of the Faculty of Pharmacy, Anadolu University in Eskisehir, Turkey (ESSE 12462 and 12458).

Plant Part

Dried aerial parts.

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Table I. Percentage composition of the oils of *Thymus leucostomus* var. *gypsaceus* and *T. leucostomus* var. *cratericola*

Compounds	A	B	Compounds	A	B
tricyclene	0.2	0.1	aromadendrene	0.1	-
methyl isovalerate	-	0.1	trans-dihydrocarvone	-	0.7
α-pinene	1.9	7.4	myrtenal	-	0.1
α-thujene	0.7	0.6	cis-verbenol	-	0.2
camphene	4.4	1.6	trans-pinocarveol	0.2	0.9
β-pinene	0.5	0.8	p-mentha-1,5-dien-8-ol	-	0.1
sabinene	0.1	0.2	trans-p-mentha-2,8-dien-1-ol	-	<0.01
butyl benzene	-	0.3	δ-terpineol	0.2	0.2
3-heptanone	-	0.1	trans-verbenol	0.2	2.1
myrcene	0.7	1.4	α-humulene	0.1	<0.01
α-terpinene	0.7	0.4	α-terpineol	0.7	0.9
dehydro 1,8-cineole	-	<0.1	borneol	22.2	4.7
limonene	0.9	1.0	verbenone	-	0.1
1,8-cineole	2.9	7.3	germacrene D	0.4	0.1
β-phellandrene	0.1	0.3	trans-p-menth-2-en-1,8-diol	0.1	0.2
γ-terpinene	3.6	2.1	β-bisabolene	-	0.1
5-methyl-3-heptanone	<0.1	7.0	carvone	0.2	0.1
p-cymene	9.4	16.4	bicyclogermacrene	0.4	0.1
terpinolene	0.1	0.1	naphthalene	-	<0.1
3-nonanone	-	0.2	δ-cadinene	0.2	<0.1
3-octanol	0.1	1.1	γ-cadinene	0.1	0.1
nonanal	-	0.1	myrtenol	0.1	0.3
α,p-dimethyl styrene	-	0.1	cuminaldehyde	-	0.1
1-octen-3-ol	0.4	0.6	trans-carveol	-	0.1
(Z)-3-hexenyl butyrate	-	<0.01	p-cymen-8-ol	0.2	0.4
trans-sabinene hydrate	1.4	1.6	thymyl acetate	0.1	-
(Z)-3-hexenyl isovalerate	-	<0.1	carvacryl acetate	<0.1	-
α-campholene aldehyde	-	0.1	4-isopropyl salicylaldehyde	-	0.4
camphor	2.5	0.7	isocaryophyllene oxide	-	0.1
β-bourbonene	0.1	0.1	caryophyllene oxide	0.5	1.8
linalool	-	0.2	humulene epoxide-II	-	<0.1
cis-sabinene hydrate	0.6	0.4	cumin alcohol	0.1	0.2
octanol	-	<0.01	hexahydrofarnesylacetone	-	<0.1
trans-p-ment-2-en-1-ol	-	0.1	spathulenol	0.4	0.3
pinocarvone	-	0.1	T-cadinol	-	0.2
bornyl acetate	0.4	0.2	thymol	33.2	10.8
terpinen-4-ol	0.9	0.9	carvacrol	5.5	17.5
β-caryophyllene	2.2	1.9	caryophylladienol I*	-	0.1
cis-dihydrocarvone	0.2	0.6	caryophyllenol II**	-	0.2

*caryophylla-2(12)-6(13)-dien-5β-ol; **caryophylla-2(12)-6-dien-5β-ol
A = *Thymus leucostomus* var. *gypsaceus*; B = *T. pubescens* var. *cratericola*

Previous Work

None on these taxa. The oil of *Thymus leucostomus* var. *argillaceus* was reported to contain thymol (27%) and carvacrol (22%) as main constituents (2).

Present Work

Dried aerial parts were water distilled using a Clevenger type apparatus. The yields of oils were 0.9% (A) and 0.4% (B). The oils were analyzed by GC/MS using a Hewlett-Packard GC-MSD system. Innowax FSC column (60 m x 0.25 mm) was used with helium as carrier gas. GC oven temperature was kept at 60°C for 10 min and programmed to 220°C at a rate of 4°C/min, and then kept constant at 220°C for 10 min and programmed to 240°C at a rate of 1°C/min. Split flow was adjusted at 50 mL/min. The injector temperature was at 250°C. MS were taken at 70 eV. Mass range was from m/z 35 to 425. Library search was carried out using Wiley GC/MS Library and TBAM Library of Essential Oil Constituents. Relative percentage amounts were calculated from TIC by the computer. The compounds identified in the oils of *T. leucostomus* can be seen in Table I.

References

1. P. H. Davis, *Flora of Turkey and the East Aegean Islands*. Vol. 7, p 374-375, University Press, Edinburgh (1982).
2. K.H.C. Baser, N. Kirimer, T. Özek, M. Kürkcüoglu and G. Tümen, *The essential oil of Thymus leucostomus var. argillaceus*. J. Essent. Oil Res., **4**, 421-422 (1992).