

VOLATILE OILS OF *THYMUS KOTSCHYANUS* VAR. *GLABRESCENS* AND
THYMUS FEDTSCHENKOI VAR. *HANDELI*

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About 40 *Thymus* species grow wild in Turkey; 14 of them are endemic plants (1). *Thymus* species with thymol-carvacrol odor are widely used in folk-medicine and exported to other countries. Volatile oils of some Turkish thymes were examined by glc and reported previously (2-6). In this research volatile oils of *Thymus kotschyanus* Boiss. et Hohen. var. *glabrescens* Boiss. and *Thymus fedtschenkoi* Ronniger var. *handelii* (Ronniger) Jalas (endemic) have been examined by glc.

Dried aerial parts of *T. kotschyanus* with white-pale pink flowers were found to contain 2.3% volatile oil and *T. fedtschenkoi* with purple-pink flowers 1.1%. In the volatile oil of *T. kotschyanus* tricyclene (1.0%), α -pinene (3.2%), camphene (4.1%), (+)-limonene (2.7%), α -terpinene (2.1%), terpinolene (0.9%), *p*-cymene (0.9%), *cis*-hexanol (1.1%), linalool (4.5%), β -caryophyllene (1.1%), borneol (0.5%), thymol (0.7%), and carvacrol (44.2%) were determined.

α -Pinene (2.6%), camphene (4.5%), β -pinene (2.5%), (+)-limonene (0.8%), γ -terpinene (0.7%), terpinolene (0.6%), *p*-cymene (4.1%), 1-8 cineol (5.1%), *cis*-hexanol (1.5%), α -thujone (2.1%), β -thujone (1.4%), linalool (17.2%), terpinene 4-ol (2.8%), bornylacetate (9.1%), β -caryophyllene (2.1%), β -terpineole (1.7%), borneol (10.4%), thymol (9.1%), and carvacrol (7.6%) were also determined in *T. fedtschenkoi* volatile oil.

EXPERIMENTAL

PLANT MATERIAL.—*T. kotschyanus* var. *glabrescens* and *T. fedtschenkoi* var. *handelii* were collected from the Ararat Mountains in Kars in July 1984. Voucher specimens are deposited in the Herbarium of the Faculty of Pharmacy, Ankara University (AEF).

DISTILLATION AND GLC ANALYSIS.—The volatile oils were obtained by hydrodistillation in a Clevenger apparatus for 3 h. Monoterpene hydrocarbons of volatile oils were separated by *n*-pentane elution on a silica gel column. The oxygenated compounds were then eluted by using EtOAc (7). After evaporation these two fractions were analyzed by glc (Gas-chromatograph Packard 419 equipped with FID detector). Monoterpene hydrocarbons were determined on Carbowax 20 M and ODPN stationary phases. Oxygenated compounds were determined using Carbowax 20 M and SF-96 columns. After acetylation and saponification, volatile oils were also analyzed on the same columns.

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