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# Essential Oil of *Thymus zygoides* Griseb. var. *zygoides* from Turkey

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## Abstract

Water-distilled essential oil from herbal parts of *Thymus zygoides* subsp. *zygoides* was analyzed by GC/MS. Sixty-three compounds were identified representing 98.8% of the total components detected with linalool (33.7%) and (E)-nerolidol (12.5%) as the major constituents.

## Key Word Index

*Thymus zygoides* var. *zygoides*, Labiatae, essential oil composition, linalool, (E)-nerolidol.

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### Plant Name

*Thymus zygoides* var. *zygoides* Griseb. (1).

### Source

Plant material was collected from Kirklareli: Demirköy in Turkey on 15 July 1995. Voucher specimens are kept at the Herbarium of the Faculty of Pharmacy, Anadolu University in Eskisehir, Turkey (ESSE 12287).

### Plant Part

Dried aerial parts were water distilled for 3 h using a Clevenger-type apparatus to yield 1.12% oil.

### Previous Work

None on this variety. The composition of oils from four chemotypes of *T. zygoides* Griseb. var. *lycaonicus* (Celak) Ronniger was reported earlier (2).

### Present Work

The oil was analyzed by GC/MS using a Hewlett-Packard GCD system. Innovax FSC column (60 m x 0.25 mm) was used with helium as the 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 and detector temperatures were at 250°C. MS were taken at 70 eV. Mass range was from m/z 35 to 425.

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Table I. Chemical composition of *Thymus zygoides* var. *zygoides* oil

| Compound                        | Percentage | Compound                       | Percentage |
|---------------------------------|------------|--------------------------------|------------|
| $\alpha$ -pinene                | 0.2        | pulegone                       | 0.1        |
| camphene                        | 0.6        | aromadendrene                  | 0.1        |
| $\beta$ -pinene                 | 0.1        | citronellyl acetate            | 0.1        |
| sabinene                        | <0.1       | (E)- $\beta$ -farnesene        | 0.1        |
| myrcene                         | 0.1        | $\delta$ -terpineol (impure)   | 0.1        |
| $\alpha$ -terpinene             | <0.1       | $\alpha$ -humulene             | 0.1        |
| limonene                        | 0.5        | neral                          | 6.6        |
| 1,8-cineole                     | 0.7        | $\alpha$ -terpineol            | 0.3        |
| $\gamma$ -terpinene             | 0.2        | $\gamma$ -muurolene            | <0.1       |
| (E)- $\beta$ -ocimene           | 0.1        | borneol                        | 2.5        |
| 5-methyl-3-heptanone            | t          | germacrene D                   | 2.6        |
| p-cymene                        | 0.3        | neryl acetate                  | 3.1        |
| terpinolene                     | t          | $\beta$ -bisabolene + geranial | 13.1       |
| 6-methyl-5-hepten-2-one         | 0.1        | bicyclogermacrene              | 0.7        |
| 3-octanol                       | 0.2        | (E,E)- $\alpha$ -farnesene     | 0.5        |
| unidentified*                   | 0.2        | geranyl acetate                | 1.7        |
| perillen                        | <0.1       | citronellol                    | 0.5        |
| trans-linalool oxide (furanoid) | 0.1        | $\delta$ -cadinene             | 0.1        |
| 1-octen-3-ol                    | 0.8        | (E)- $\alpha$ -bisabolene      | 0.8        |
| trans-sabinene hydrate          | 3.0        | nerol                          | 1.0        |
| cis-linalool oxide (furanoid)   | 0.1        | geraniol                       | 1.3        |
| nerol oxide                     | <0.1       | isocaryophyllene oxide         | 0.1        |
| cis-cis-photocitral**           | <0.1       | caryophyllene oxide            | 0.8        |
| $\alpha$ -copaene               | 0.1        | (E)-nerolidol                  | 12.5       |
| trans-trans-photocitral**       | 0.2        | 1,6-germacradien-5-ol          | 0.1        |
| camphor                         | 3.3        | hexahydrofarnesylacetone       | <0.1       |
| $\beta$ -bourbonene             | 0.3        | spathulenol                    | 1.0        |
| linalool                        | 33.7       | eugenol                        | <0.1       |
| bornyl acetate                  | 0.3        | thymol                         | 0.3        |
| terpinen-4-ol                   | 0.7        | carvacrol                      | 0.7        |
| rosefuran epoxide               | 0.4        | $\alpha$ -cadinol              | 0.1        |
| $\beta$ -caryophyllene          | 1.5        |                                |            |

\*Unidentified monoterpenoid: m/z 150 [M<sup>+</sup>] (100), 135(81), 117(8), 107(25), 105(15), 95(30), 91(38), 82(21), 79(27), 77(17), 41(36), 39(24)

\*\*positions may be interchanged; t = trace (<0.01%)

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 oil are shown in Table I.

## References

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