

A STUDY OF THE ESSENTIAL OIL OF ZIZIPHORA PEDICELLATA

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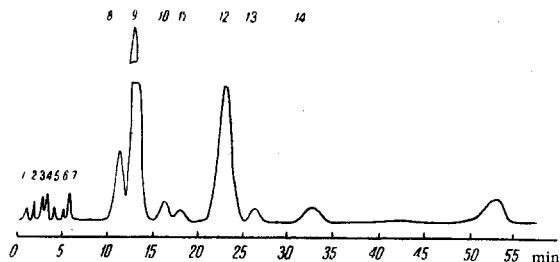
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We obtained the essential oil of Ziziphora pedicellata from the fresh herb collected in the flowering/fruit-bearing period (Tashkent region, village of Khumsan).

The oil consists of a clear yellow liquid with an odor resembling that of mint; it has the following physicochemical constants: d_{20}^{20} 0.9370; n_D^{20} 1.4820 [α] $_D^{20}$ 6.78; acid no. 4.5; ester no. 12.94; sap. no. 18.26; ester no. after acetylation 66.7.

The analysis of the essential oil was carried out by gas-liquid chromatography on a KhROM-2 instrument with a flame ionization detector. The carrier gas was nitrogen and its rate of flow 25 ml/min. The best separation of the essential oil took place in a copper column [1.6 m x 0.4 cm, stationary liquid phase poly(ethylene glycol sebacate) deposited on Celite 545 (30-60 mesh) in an amount of 20%]. When the analysis was carried out in this column (127° C), all the terpene hydrocarbons were separated satisfactorily, and menthone, isomenthone, neomenthone, and menthol particularly well. To obtain a clear picture of the higher-boiling components of the essential oil, the analyses were repeated at 148° C. An almost 90% yield of all the components of the essential oil was achieved. The quantitative yield of the essential oil was determined after the introduction of fenchone as internal standard. The method of performing the analysis with the internal standard was the same as in the determination of the quantitative composition of the components of the essential oil of mint [1].



Chromatogram of the essential oil of Ziziphora pedicellata:

- 1) α -pinene; 2) β -pinene; 3) myrcene; 4) limonene; 5) α -terpinene; 6) p-cymene; 7) terpinolene; 8) menthone;
- 9) isomenthone; 10) neomenthol; 11) menthol; 12) isopulegone;
- 13) pulegone; 14) piperitone; 15) thymol.

Identification was performed by comparing the retention times of known substances with the retention times of the components of our essential oil. The quantitative composition was determined by the normalization method. As a result of the investigation we found the following composition (%) of the essential oil of Z. pedicellata (figure): α -pinene, 0.3; β -pinene, 0.6; myrcene, 0.6; limonene, 0.7; α -terpinene, 0.8; p-cymene, 0.7; terpinolene, 1.0; menthone, 8.7; isomenthone, 39.5; neomenthol, 4.2; menthol, 2.0; isopulegone, 21.6; pulegone, 1.5; piperitone, 4.8; and thymol, 9.5.

REFERENCE

1. M. I. Goryaev, F. S. Sharipova, L. K. Tikhonova, and L. A. El'chibekova, Maslo-zhirovaya promyshlennost, 9, 27, 1967.

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