

The location of the hydroxy groups in the flavonoids was confirmed by measuring their absorption spectra with complex-forming and ionizing additives [3, 4].

The flavonoids were determined quantitatively by the spectrophotometric method from the maximum density of the spots directly on the chromatograms after staining with aluminum chloride. The measurements were carried out on a SF-4A spectrophotometer.

Found, %: quercetin 0.05, isoquercitrin 0.11, and hyperoside 0.03.

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Kirov Kazakh State University

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OXYGEN-CONTAINING FRACTIONS OF THE ESSENTIAL OIL OF LIBANOTIS TRANSCAUCAZICA. II

G. V. Pigulevskii and L. A. Bakina

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We have continued our investigation [1] of the essential oils of Libanotis transcaucasica Schischk collected at various growth sites.

The essential oil of the fruit of this plant growing in the South Ossetin Autonomous Region (constants of the oil $[\alpha]_D^{20} +2.6^\circ$, $n_D^{20} 1.4860$, $d_4^{20} 0.8940$, ester No. 36.0) [2], after saponification and elimination of the low-boiling fraction and the sesquiterpene hydrocarbons, was subjected to chromatography on Al_2O_3 (activity grade III). By repeated chromatography, three compounds were isolated. The first of them, isolated in small amount, consisted of an aldehyde ($[\alpha]_D^{20} -20.0^\circ$, $n_D^{20} 1.4890$) the IR spectrum of which had a frequency at 1728 cm^{-1} . The second compound was acorenone ($[\alpha]_D^{20} -18.0^\circ$, $n_D^{20} 1.5040$, $d_4^{20} 0.9568$). Its 2,4-dinitrophenylhydrazone was prepared (mp 149°C from ethanol). The third compound amounted to about 50% of the oxygen-containing fraction of the essential oil. Its constants were: bp 134°C/3mm, $[\alpha]_D^{20} +53.0^\circ$, $n_D^{20} 0.9232$, IR spectrum identical with that of bisabolol. The essential oil from the fruit of Libanotis collected in the foothills of the Elbrus had constants extremely similar to those of the oil mentioned above ($[\alpha]_D^{20} 0^\circ$, $n_D^{20} 1.5540$, $d_4^{20} 1.0764$).

After similar treatment, from the oxygen-containing fraction of the essential oil we isolated isoelemicin (picrate, mp 68°C, from ethanol), which amounted to about 40% of this fraction.

The isoelemicin found in the ethereal oil after its saponification with ethanolic alkali is apparently a product of secondary origin, i.e., it is formed as a result of the isomerization of elemicin [1].

The oxygen-containing fraction also includes two sesquiterpene alcohols; farnesol and bisabolol, the presence of which was shown on the basis of their characteristic constants and IR spectra.

The essential oil from the fruit of Libanotis collected in the Stavropol region (village of Kardonikskaya) contained farnesol, bisabolol, acorenone, elemicin, and 3,4,5-trimethoxybenzaldehyde. The presence of these compounds was shown by the same methods of investigation as in the preceding case.

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Komarov Botanical Institute, AS USSR