fractions were, respectively: for the essential oil of oriental arbovitae 64.6%, 8.2%, and 10.3%; and for the essential oil of pyramidal cupressus 73.2%, 10.2%, and 9.8%.

By gas-liquid chromatography (GLC) using four stationary phases (polyethylene glycol-400, poly (ethylene glycol adipate), silicon grease, and diethylene glycol succinate) it was found that the monoterpene fraction of the oil of oriental arbovitae contained α-pinene, β-pinene, and myrcene, and the same fraction of the essential oil of pyramidal cupressus contained the same terpenes, as well as limonene [1]. The presence of α-pinene and limonene was confirmed by the method of adding the authentic compounds in GLC, and also by the results of spectroscopy. The presence of myrcene was shown conclusively by the IR spectrum and the production from an adduct of myrcene of an acid with mp 121°–122° C [2, 3]. In both fractions, the α-pinene was the main constituent.

According to the results of GLC, the sesquiterpene hydrocarbon fraction of the oil of oriental arbovitae contained four components, three of which were identified after chromatographic separation from elemental analysis, physicochemical constants, and IR spectra as caryophyllene, β-bisabolene, and farnesene [2, 3]. According to GLC, there were five sesquiterpene hydrocarbons in the oil of pyramidal cupressus. Elemental analysis, the physicochemical constants, the relative retention volumes calculated with respect to caryophyllene, and the IR spectra of the substances isolated by means of adsorption chromatography corresponded to δ-cadinene, caryophyllene, β-bisabolene, and farnesene [2, 3]. One sesquiterpene could not be identified.

From the oxygen-compound fractions of the two essential oils we isolated cedrol $C_{15}H_{26}O$, with mp 85°–86° C, identified on the basis of the elemental analysis, IR spectrum, and the melting points of derivatives (phenylurethane with mp 106° C, chromate with mp 113°–114° C). Bisabolol $C_{15}H_{26}O$ was identified in the essential oil of oriental arbovitae from the elemental analysis, physicochemical constants, and IR spectrum [2, 3]. From the essential oil of pyramidal cupressus was isolated a compound with mp 65° C having strong absorption in the 1745 cm^{-1} region (C=O group). It was impossible to identify the substance because of its low concentration in the oil.

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4 April 1967

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UDC 547.913.5 + 547.473.2

LACTONES OF THE FRUIT OF ARCTIUM LEIOSPERMUM

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Khimiya Prirodnykh Soedinenii, Vol. 3, No. 5, p. 350, 1967

It has been established that the leaves, flowers, and roots of Arctium leiospermum Juz. et Serg., family Compositae, which grows in Uzbekistan, contain 0.006–0.04% of a sesquiterpene lactone. From the fruit of the same plant by three extractions with hot water (45 min each) with heating, followed by treatment with chloroform and precipitation with ethanol, up to 3.4% of the lactone was isolated. After appropriate purification, a white substance was obtained with the composition $C_{15}H_{18}O_6$, mp 98°–100° C, mol. wt. (Rast) about 300. The chromatography of the substance confirmed its individuality, R_f 0.85 in the 1-butanol–acetic–water (4:1:5) system.

The IR spectrum of the sesquiterpene lactone had adsorption bands in the following regions: 3400 cm^{-1} (OH group), 2925, 2850, 1465 (CH_2), 1760 (carbonyl group of a γ-lactone, which is characteristic for sesquiterpene lactones), 1595 and 1520 (presence of a conjugated system), 1000–1300 cm^{-1} (bands corresponding to the vibrations of ordinary carbon-oxygen bonds). The presence of a lactone ring in the substance obtained was shown by its solubility in alkalis on heating.

The lactone formed an acetyl derivative with mp 65°–67° C. No information on this sesquiterpene lactone, which we have called arctin, has been found in the literature.

5 May 1967

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