

though, as mentioned above, it is the dominating acid in the oil. This is probably due to the fact that in the biosynthesis of the phospholipids the inclusion of the 18:3 acid in the synthesis is hindered. We exclude the possibility of its decomposition in the production cycle, since in this case a high yield of lyso products would have been observed, which contradicts the results obtained for the total phospholipids.

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TERPENOID COUMARINS OF *Ferula atchisonii*

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Ferula atchisonii K.-Pol. is a narrowly endemic species of eastern Fergana which is found in thinned-out pistachio woodlands on the multicolored foothills of the Fergan range. The plant collected close to the classical site in the Kulagantau mountains near the town of Suzak (Oshhsk Province, Kirghiz SSR) was investigated. In the taxonomic respect this species is close to *F. karatavica* Regel et Schmalh.

Chromatography of an acetone extract of the roots on a column of silica gel L 40/100 in petroleum ether-ethyl acetate yielded four terpenoid coumarins: (I), $C_{24}H_{30}O_3$, mp 56-58°C, M^+ 366; (II), $C_{23}H_{26}O_4$, mp 143-144°C, M^+ 366; (III), $C_{24}H_{28}O_5$, mp 104-106°C, M^+ 396; and (IV), $C_{24}H_{32}O_5$, mp 74-76°C, M^+ 400. According to IR and PMR spectroscopy and their physicochemical constants, substances (I), (II), and (III) are umbelliprenin [1], tavicone [2], and karatavic acid [3, 4], respectively. The PMR spectrum of (IV) (Varian HA-100D, ppm, $CDCl_3$, 0-TMS), also an umbelliferone derivative, shows the following main structural elements of the C_{15} -terpenoid moiety: $-CH_2-OAr$ (4.59 ppm, d, $J = 7$ Hz, 2 H); 4 $CH_2-C=C$ (2.09 ppm, u.s., 8 H); 2 $CH=C$ (5.16 ppm, u.s., $W_{1/2} = 14$ Hz, 1 H, and 5.45 ppm, t, $J = 12$ Hz, 1 H); $(CH_3)_2C-$ (1.18 ppm, s, 3 H, and 1.14 ppm, s, 3 H); 2 $CH_3-C=C$ (1.6 ppm, s, 3 H, and 1.72 ppm, s, 3 H); $H-C-OH$ (3.35 ppm, q, $J_1 = 3$ Hz, $J_2 = 10$ Hz, 1 H); and 2 OH (2.95 ppm u.s., $W_{1/2} = 10$ Hz, 2 H). The presence of two hydroxy groups in the terpenoid moiety is also shown by the acetylation of (IV), leading to a monoacetate with the composition $C_{25}H_{34}O_6$, mp 72-74°C. PMR spectrum: CH_3COO- (1.90 ppm, s, 3 H); $H-C-OCOCH_3$ (4.82 ppm, q, 1 H). IR spectrum: 3510 cm^{-1} (OH). These facts permit the suggestion for substance (IV) of the structure of karatavicinol. A comparison of the PMR spectrum of (IV) with that of karatavicinol showed their identity, but the melting point of substance (IV) (72-74°C, Kofler) differed from that given in the literature (52-53°C) [5].

To identify substance (IV) we obtained its acetonide, $C_{27}H_{36}O_5$, mp 53-55°C, the PMR spectrum of which was completely identical with that of karatavicinol acetonide kindly given to us by V. Yu. Bagirov. Thus *F. atchisonii* contains the same main components as *F. karatavica*, which confirms the closeness of these species in the taxonomic respect.

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