

microlobidene was oxidized with chromium trioxide in acetone, a ketone was obtained which proved to be identical with the dehydration product (III) of galbanic acid.

Thus, it has been established that microlobidene has the structure (I) with a new type of terpenoid skeleton [7-(3'-hydroxy-4',4',7',8'-tetramethyl- $\Delta^{10'}$ (5')-decalin-8'-ylmethyleneoxy]coumarin.

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#### COUMARINS OF *Seseli peucedanoides*

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Two substances have been obtained by column chromatography on alumina ( $Al_2O_3$ , activity grade IV,  $80 \times 4$  cm) of 3 g of an extract obtained by three steepings with acetone at room temperature of 400 g of the roots of *Seseli peucedanoides* (Bieb.) K.-Pol., collected in the Nakhichevan ASSR. Fractions 155-159, eluted with petroleum ether-chloroform (5:1) yielded substance (I) with the composition  $C_{19}H_{20}O_5$ , mp 137-139°C (from petroleum ether-chloroform).

In the region of characteristic frequencies, the IR spectrum of substance (I) contains absorption bands of the carbonyl groups of a  $\delta$ -lactone and of an  $\alpha,\beta$ -unsaturated ester ( $1718\text{ cm}^{-1}$ ), of an aliphatic double bond ( $1657\text{ cm}^{-1}$ ), of a benzene ring ( $1630, 1675\text{ cm}^{-1}$ ), and of a gem-dimethyl grouping ( $1390, 1370, \text{cm}^{-1}$ ). The presence and nature of an ester group were elucidated by the saponification of substance (I). This gave a hydroxydihydrofurocoumarin with the composition  $C_{14}H_{14}O_4$ , mp 189-191.5°C, and an acid with composition  $C_5H_8O_2$ , mp 68°C, which was identified by a comparison of IR spectra [1] as senecioic. The IR spectrum of the saponified product had the bands characteristic for oxydihydrofurocoumarins ( $3470, 1710, 1630, 1575\text{ cm}^{-1}$ ). The results of a comparison of the IR spectra of substance (I) and its saponified product with the spectra of pranchimgin [1] and of marmesin, respectively, showed their identity.

Fractions 169-179, eluted with the same mixture of petroleum ether and chloroform (5:1) yielded substance (II) with the composition  $C_{19}H_{20}O_5$ , mp 104-105°C (petroleum ether-chloroform). The IR spectrum of (II) showed absorption bands at ( $\text{cm}^{-1}$ ) 1730 (CO of a  $\delta$ -lactone ring), 1718 (CO of an  $\alpha,\beta$ -unsaturated ester), 1630, 1572 (dihydrofurocoumarin system), 1387, 1370 (gem-dimethyl grouping). Saponification of the substance by the usual method [2] led to an oxydihydrofurocoumarin with the composition  $C_{14}H_{14}O_4$ , mp 189-191.5°C ( $\nu_{\text{max}}$  3470, 1710, 1630,  $1575\text{ cm}^{-1}$ ) and an acid with the composition  $C_5H_8O_2$ , mp 44-45°C, which were identified by a comparison of IR spectra as marmesin and angelic acid [1]. Consequently, substance (II) was deltoin. The IR spectra of the compounds compared coincided completely.

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