SESQUITERPENE LACTONES FROM Talassia transiliensis

O. A. Konovalova, K. S. Rybalko, and M. G. Pimenov

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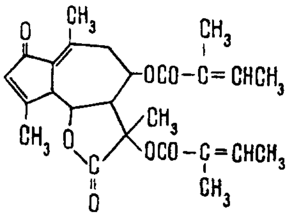
The isolation from the roots of Talassia transiliensis (Herd.) Korov. of a new sesquiterpene lactone, which was called talassin, has been reported previously [1].

Continuing a study of this substance, we have established that talassin is a mixture of two substances difficult to separate (on TLC in various adsorbents, a single spot was obtained). As a result of repeated rechromatography on silica gel (elution with a mixture of petroleum ether and ether) the two substances were obtained almost in the pure state (each contaminated with 4-8% of the other): $C_{25}H_{30}O_7$, mp 189-191°C, and $C_{24}H_{30}O_7$, mp 206-208°C (from petroleum ether–ether); we have called them talassin A and talassin B.

The IR spectra of talassins A and B show the absorption bands of a γ-lactone bound to a unsaturated ester group (1790-1800 cm^{-1}) and of a dienone grouping (1717, 1690, 1645 cm^{-1}). The UV spectra have maxima at 248 and 251 nm, respectively (ε 24,000 and 26,000), which are characteristic for dienone groups. In the mass spectrum of talassin A there are peaks with m/e 442 M^+ (100%), 430 M^+ (4%), 360 (13%), 342 (15%), 260 (4%), 259 (5%), 243 (56%), 242 (90%), 227 (7%), 224 (11%), 214 (18%), 199 (22%), 186 (15%), 152 (2%), 158 (12%), 146 (9%), 129 (7%), 105 (6%), 91 (12%), 83 (360%) – the main peak – and 55 (153%).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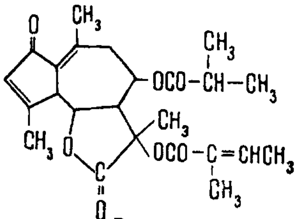
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In the mass spectrum of talassin B, in addition to the molecular peak at 430, there are strong peaks with m/e 342, 242, 71 (108%), and 43 (210%), which indicates the presence in talassin B, unlike talassin A, of an acyl fragment with m/e 71, while the increase in the magnitude of the peak with m/e 43 shows the presence of an isopropyl fragment. In the NMR spectrum of talassin B (in deuterobenzene) there are two doublets (3 H each) at 0.98 and 1.05 ppm, a singlet at 1.35 ppm (3 H), two broadened singlets at 1.75 and 2.0 ppm (6 H each), quartets in the 3.30 and 3.90-ppm region; multiplet at 5.20 ppm, broadened signal at 5.55 ppm, and singlet at 5.85 ppm.

The NMR spectrum of talassin A (in deuterobenzene) showed a singlet at 1.32 ppm, three broadened singlets (18 H) at 1.75, 1.85, and 2.0 ppm, two quartets at 3.30 and 3.90 ppm (one proton each), a sextet at 5.20 ppm, a multiplet (2 H) at 5.56 ppm, and a broadened singlet at 5.85 ppm.

The dehydrogenation of talassin A and talassin B gave chamazulene. The facts given permit structure I to be put forward for talassin A and structure II for talassin B.

The study of these substances is continuing.

Thus, we have not confirmed literature information [2] according to which this plant contains the furocoumarin peucedanin. The absence of coumarins and the presence of sesquiterpene lactones in the

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plant species that we have studied fundamentally distinguishes it from other representatives of the genus Peucedanum L. in which it has been described [3, 4]. The results of the chemical investigation confirm the point of view of E. P. Korovin, who separated out the species considered as a special genus Talassi Korov, close to Ferula L. [5].

LITERATURE CITED

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