COUMARINS OF THE ROOTS OF Seseli Incanum

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Seseli incanum (Steph.) B. Fedtsch. is a perennial monocarpic plant of the family Umbelliferae which is endemic to Eastern Kazakhstan; it belongs to the section Sclerorhiza in which it occupies a somewhat isolated position. The roots of the plants were collected for chemical study in the Semipalatinsk oblast in the stony steppe between the settlement of Kriushi and Zharma, Ayaguz region.

We treated the comminuted roots with carbon tetrachloride, and from the evaporated extract by chromatography on alumina (neutral activity grade II) we obtained a crystalline substance (I), mp 80-86°C, R_f 0.55 [TLC, Silufol; chloroform—ethanol (97:3)] with a yield of 1.4% on the weight of the dry raw material. The NMR spectrum of (I) showed that it was a mixture of two diacyloxydihydropyranocoumarins of the khellactone group in a ratio of approximately 2:1. By repeated crystallization from heptane and then from aqueous methanol we obtained the predominating component of the mixture, with the composition $C_{24}H_{26}O_7$, M^+ 426, mp 108-110°C, $[\alpha]_D^{23}$ + 20.0° (c 1) 0; chloroform), with a yield of 0.3% on the weight of the dry raw material. NMR spectrum (Varian HA-100D; CCl_4; 0 — HMDS (20°C); δ, ppm: H_3 — 5.98 (1H, d, J = 9.5 Hz); H_4 — 7.43 (1H, d, J = 9.5 Hz); H_5 — 7.22 (1H, d, J = 8.5 Hz); H_6 — 6.62 (1H, d, J = 8.5 Hz); $(CH_3)_2$—C—O — 1.34 (6H, s); H_3' — 5.22 (1H, d, J = 5 Hz); H_4' — 6.35 (1H, d, J = 5 Hz); $2(CH_3)_2$—C=CHCO_2 — 1.82 (6 H, s), 2.19 (6H, s); $2(CH_3)_2$—C=C<u>H</u>CO_2— 5.42-5.56 (2H, m).

In its physicochemical properties, elementary analysis, and IR and NMR spectra, the compound isolated corresponds to cis-khellactone disenecioate [1].

Rechromatography of the mother liquor obtained after the separation of the khellactone disenecioate on silica gel L (40/100μ) in the petroleum ether (bp 70-100°C)—ethyl acetate system with an increasing gradient of the latter gave the second component of the mixture which, on the basis of its IR and NMR spectra and the absence of a depression of the melting point in admixture with an authentic sample was identified as anomalin [2].

LITERATURE CITED

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