

A STUDY OF THE COMPONENTS OF THE ROOTS
OF *Seseli tschuense*

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We have found a number of coumarins and chromones in the roots of *Seseli tschuense* E. Nik. sp. novo [1], family Umbelliferae collected in the mountains of Ak-Kapchigai (Central Tien-Shan, valley of the R. Chu). The roots (3 kg) were treated with methanol and the extract was evaporated, diluted with water, and extracted with ether. The ethereal extract was washed with 5% Na₂CO₃ solution and then with water, and the solvent was evaporated off to dryness.

The residue (40 g) was chromatographed on a column of KSK silica gel and the α - and γ -pyrones were eluted with petroleum ether-ethyl acetate with gradually increasing concentrations of the latter, 0.6-liter fractions being collected.

Fractions 13-20 yielded two substances with the compositions C₂₄H₂₆O₇, mp 175-176.5°C (from methanol) and C₁₉H₂₀O₆S with mp 194-195°C (from methanol), $[\alpha]_D^{25}$ -177.7° (c 0.9; chloroform), M⁺ 376. On the basis of its UV and IR spectra and a mixed melting point, the first compound was identified as the coumarin anomalin [2] and the second as the chromone seselirin [3].

Fractions 21-28 (10% ethyl acetate in petroleum ether) gave the new coumarin, C₂₂H₁₈O₇, mp 212-213°C (from ethanol), $[\alpha]_D^{26}$ -225° (c 0.2; ethanol), which we have called chuin. The UV spectrum [maxima at 227, 260, and 320 nm (log ϵ 4.32, 3.94, and 4.55)] and its IR (Fig. 1) and NMR spectra show that chuin is an acylated dihydrofurocoumarin.

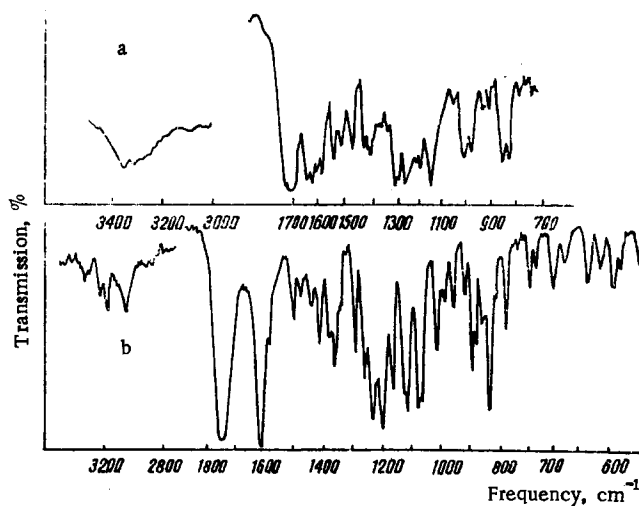


Fig. 1. IR spectra of chuin (a) and sechulin (b).

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Fractions 29-38 (15% ethyl acetate in petroleum ether) gave a new sulfur-containing coumarin, $C_{18}H_{16}O_5S$ with mp 245-246.5°C (from methanol), $[\alpha]_D^{20} + 833.3^\circ$ (c 0.6; chloroform), which we have called sechulin. Its UV spectrum has a maximum at 310 nm ($\log \epsilon$ 4.2) and its IR spectrum a broadened carbonyl band. On titration with NaOH, sechulin consumed 2 moles of alkali and, on subsequent acidification of the solution, it was liberated in the unchanged state. This behavior and also the spectral characteristics permit the conclusion that sechulin is a dilactone.

In addition to coumarins, β -sitosterol and mannitol (about 1%), identified by mixed melting points, have been isolated from the herb.

LITERATURE CITED

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