

COUMARINS FROM THE ROOTS OF *Platytaenia dasycarpa*

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In ethanolic extracts from the roots of *Platytaenia dasycarpa* (Regl. et Schmalh.) Korov. collected in the valley of the R. Chichkan (Kirghiz SSR), using paper chromatography in the petroleum ether-formamide and chloroform-formamide systems we have found not less than eight derivatives of benzo- α -pyrone. The fact that these compounds belong to the coumarin group was established from the characteristic fluorescence of the spots in UV light before and after the treatment of the chromatograms with an ethanolic solution of alkali, by the azo-coupling reaction, and by the specific reaction with hydrochloric acid in liquid phenol [1].

In the petroleum ether-formamide system we found six coumarin derivatives in the roots investigated with R_f 0.15, 0.20, 0.28, 0.31, 0.67, and 0.76. In another system which is commonly used for the chromatography of polar coumarin compounds (chloroform-formamide) we found two other coumarins with a bright blue fluorescence having R_f 0.45 and 0.55.

The substances with R_f 0.15, 0.45, and 0.55, which had mps 188-191°C, 234-235°C, 204-205°C, were isolated preparatively by chromatography in a thin layer of alumina and on the basis of the absence of depression of the melting points of mixtures with the appropriate authentic samples and a comparison of the UV and IR spectra and R_f values in various systems they were identified as bergapten, umbelliferone, and scopoletin, respectively.

When the combined extracts from the roots of the plant under investigation were subjected to chromatographic separation on a column of alumina, the substance with R_f 0.76 (petroleum ether-formamide system) was isolated in the individual state. This compound had the composition $C_{19}H_{20}O_5$, mp 117-118°C, $[\alpha]_D^{20} + 289$ (c 0.3; ethanol); UV λ_{max} 326, 250, 260 nm (log ϵ 3.87, 3.33, 3.31).

On the basis of a study of the products of alkaline hydrolysis and UV, IR, and NMR spectra, the compound investigated was identified as O-trigloyl-4',5'-dihydrooroselol (zosimin, columbianadin), isolated previously from the fruit of *Zosimia absinthifolia* (Vent.), Link. [2], the roots of *Lomatium columbianum* Mathias et Constance [3, 4], the roots and fruit of *Peucedanum palustre* (L.) Moench. [5, 6], the fruit of *P. grande* [7], the roots of *Angelica laxiflora* Diels. [8], the fruit of *Heracleum ceylonicum* Gardn., and the fruit and roots of *H. sprengelianum* Wight. et Arn. [9].

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