COUMARINS OF Seseli krylovii

A. I. Sokolova, Yu. E. Sklyar, and L. I. Sdobnina

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According to TLC on Silufol in the petroleum ether–ethyl acetate (1:1) system, the roots of Seseli krylovii (V. Tichom.) M. Pimen. et Sdobn. contain at least six coumarin derivatives, giving spots with R_f 0.60, 0.52, 0.46, 0.29, 0.04, and 0.00.

The present paper gives the results of an investigation of the coumarins of medium polarity from the roots of S. krylovii collected in the Bashkir ASSR, Zhukova Shishka. The comminuted raw material was extracted successively with petroleum ether, acetone, and methanol. The petroleum ether extract, previously freed from lipids and terpenes by distribution between the phases petroleum ether–methanol (1:1) was chromatographed on silica gel (L 40/100), using as eluting solvents mixtures of carbon tetrachloride with ethyl acetate in which the concentration of the latter was gradually increased.

The coumarins isolated – $C_{21}H_{22}O_4$ with mp 126-127°C, R_f 0.60 (I); $C_{16}H_{14}O_4$ with mp 106-108°C, R_f 0.52 (II); and $C_{19}H_{22}O_3$ with mp 115-116°C, R_f 0.46 (III) – were identified from their IR and NMR spectra and mixed melting points as iselin, isoimperatorin, and ostruthin, respectively. Iselin (I) has been isolated previously from Seseli iliense (Regel et Schmalh.) Lipsky [1].

An acetone extract on standing deposited successively in appreciable amounts ostruthin (III) and a coumarin with the composition $C_{16}H_{14}O_5$, mp 140-141.5°C, R_f 0.29 (IV), identical in its IR and NMR spectra with oxypeucedanin. By chromatography of an acetone extract on silica gel in the carbon tetrachloride–chloroform system in various ratios we obtained an additional small amount of isoimperatorin (II).

The methanolic extract deposited a colorless crystalline substance with mp 166-167°C, which was identified on the basis of the absence of a depression of a mixed melting point as mannitol. Chromatographic separation of the concentrated filtrate on silica gel using chloroform–methanol with increase concentrations of the latter as eluents yielded isoimperatorin (II), ostruthin (III), oxypeucedanin (IV), and a coumarin with the composition $C_{16}H_{16}O_6$, mp 130-132°C, R_f 0.04 (V) which was, according to its IR and NMR spectra, oxypeucedanin hydrate.

LITERATURE CITED

1. L. I. Dukhovlinova, M. E. Perel'son, Yu. E. Sklyar, and M. G. Pimenov, Khim. Prirodn. Soedin., 308 (1974).

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