

It is known that the roots of *Phlojodicarpus sibiricus* contain a considerable amount of coumarin derivatives of which only two have been isolated at the present time: dihydrosamidin [1] and visnadin [2]. These substances are the main components of the plant: the amount of visnadin and dihydrosamidin combined ranges between 3 and 6%.

In a further study of the chemical composition of the roots of *Phlojodicarpus sibiricus* by rechromatography on columns of silica gel, from the mother solution after the separation of the technical combined visnadin and dihydrosamidin we have isolated two individual coumarins with the compositions  $C_9H_6O_3$  (I), mp 231-233°C, and  $C_{10}H_8O_4$  (II), mp 201-204°C.

The NMR spectrum ( $CD_3OD$ ; 0 - TMS; 6.15 d, 9.5 Hz, 1 H, 3-H; 7.79, d, 9.5 Hz, 1 H, 4-H; 7.42 d, 8.0 Hz, 1 H, 5-H; 6.68-6.84, m, 2 H, 6-H and 8-H) and the UV spectrum ( $\lambda_{max}^{C_2H_5OH}$ , nm: 216, 244 infl., 254 infl., 300 infl., 324) permit the conclusion that compound (I) is umbelliferone (7-hydroxycoumarin) [3].

Compound (II), according to its NMR spectrum ( $CD_3OD$ , 0 - TMS; 6.18, d, 9.5 Hz, 1 H, 3-H; 7.80, d, 9.5 Hz, 1 H, 4-H; 6.75, s, 1 H, 8-H; 7.07, s, 1 H, 5-H; 3.91, s, 3 H, Ar-OCH<sub>3</sub>), is a coumarin having two substituents, in positions 6 and 7. One of the substituents is a methoxy group and the other a hydroxy group. In order to establish their mutual positions, we obtained the UV spectra of compound (II) in ethanol and in ethanol with the addition of sodium methanolate. On passing from the spectrum in ethanol to the spectrum of the substance with the addition of sodium ethanolate a bathochromic shift of the long-wave band accompanied by an increase in its intensity was observed, which indicates the presence of a hydroxy group in position 7 of the coumarin nucleus [3].

A compound was identified as scopoletin (6-hydroxy-7-methoxycoumarin) [3].

A third substance with the composition  $C_{12}H_{22}O_{11}$ , mp 186-187°C, isolated from an isopropanol extract of the roots after its concentration was identified as sucrose.

## LITERATURE CITED

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2. G. K. Nikonov and V. V. Vandyshev, *Khim. Prir. Soedin.*, 118 (1969).
3. M. E. Perel'son, Yu. N. Sheinker, and A. A. Savina, *The Spectra and Structure of Coumarins, Chromanes, and Xanthenes [in Russian]*, Moscow (1975).