

A comparison of the IR and UV spectra of the substance under investigation with those of an authentic sample of scopoletin showed their similarity. A mixture of the substance with an authentic sample of scopoletin gave no depression of the melting point [3].

The column was then eluted with petroleum ether-ether (1:1). The second substance eluted had mp 271°C (methanol); yield 0.12 g. In the systems mentioned above, the substance showed R_f 0.00, and in the benzene-ethyl acetate (2:1) system R_f 0.05. A comparison of its UV and IR spectra with the spectra of an authentic sample of esculetin showed that they were similar. A mixture with an authentic sample of esculetin gave no depression of the melting point.

LITERATURE CITED

1. L. P. Sergievskaya, The Flora of Transbaikalia [in Russian], Izd. TGU (1972).
2. M. E. Perel'son, "A study of the IR spectra of a series of coumarins and furocoumarins," Zh. Obshch. Khim., 33, No. 3, 952, (1963).
3. G. A. Kuznetsova, Natural Coumarins and Furocoumarins [in Russian], Leningrad (1967).

COUMARINS OF *Koelpinia linearis*

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The epigeal part of *Koelpinia linearis* Pall. — an annual plant belonging to the subfamily Cichoriodeae Kitam., family Asteraceae — was collected in Azerbaidzhan on the semibarren hills of Kyurovdag near the town of Ali-Bairamly in May, 1974.

The air-dry raw material (leaves and flowers, 0.5 kg each, separately) were comminuted and extracted with ethanol. According to paper chromatography, the concentrated and purified combined phenolic compounds numbered eight in the flowers and more than 30 in the leaves of the plant. By fractional and column chromatography of the combined phenolic compounds from the leaves, three individual substances were isolated.

Substance I, $C_{15}H_{16}O_3$ — transparent needles with mp 212–215°C (from aqueous C_2H_5OH), $[\alpha]^{21}_D - 104.5^\circ$ (c 0.01; C_2H_5OH) — was identified as esculetin 7- β -D-glucopyranoside (cichorin).

Substance (II), $C_{15}H_{16}O_9 \cdot 2H_2O$, with mp 158–160°C, was characterized as esculetin 6- β -D-glucopyranoside (esculin).

Substance (III), $C_9H_6O_4$, with mp 268–270°C, is 6,7-dihydroxycoumarin or esculetin.

This is the first time that these coumarins have been isolated from *K. linearis*, and their structures were shown by chemical reactions, by comparison with authentic samples, and by structural methods of analysis [1, 2].

LITERATURE CITED

1. G. A. Kuznetsova, Natural Coumarins and Furocoumarins [in Russian], Leningrad (1967), p. 72.
2. M. G. Pimenov, List of Plant Sources of Coumarin Compounds [in Russian], Leningrad (1971), p. 129.

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