

COUMARINS OF THE ROOTS OF *Seseli abolinii*, *S. korovinni*,  
and *S. giganteum*

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UDC 547.9:582.89

The present paper gives the results of a chemical investigation of the roots of two species of the section *Sclerorhiza* of the genus *Seseli* L. — *S. abolinii* (Korov.) Schischk. and *A. korovinii* (Korov.) Schischk., and also the species *S. giganteum* Lipsky, which is close to this section. The roots of *S. abolinii* were collected in the Altyn-Emel' pass in the Dzhungarian Ala-Tau (Kazakhstan), the *S. korovinni* in the Kusavli-sai gorge, Turkestan range (Tadzhikistan), and the *S. giganteum* in the valley of the R. Kasan-sai, Chatkal range (Kirghizia).

The comminuted roots were extracted with acetone, and the evaporated extract was distributed between petroleum ether and aqueous methanol. The methanolic phase, containing the coumarins, was chromatographed on silica gel L 40/100  $\mu$  in the petroleum ether-ethyl acetate system with an increasing gradient of the latter.

All three species of *Seseli* yielded bergapten, and *S. abolinii* also yielded isoimperatorin, while *S. korovinii* yielded the chromone hamaudol and hamaudol acetate [1], identical with authentic samples according to their IR spectra and mixed melting points.

From *S. giganteum* we isolated a substance with mp 119°C not fluorescing in UV light and giving a yellow coloration with a diazonium reagent. It follows from the NMR spectrum of this compound (Varian HA-100D, 0 — HMDS, 20°C, CDCl<sub>3</sub>) that it is based on the chromone nucleus: a two-proton singlet at 6.24 ppm is due to the protons at C<sub>6</sub> and C<sub>8</sub>, a broadened singlet at 5.95 ppm to the proton at C<sub>3</sub> interacting with the 2-CH<sub>3</sub> group (2.28 ppm, s, 3H). A one-proton singlet at 12.64 ppm showed the presence of a phenolic hydroxyl at C<sub>5</sub> connected by a hydrogen bond with the keto group in position 4. Position 7 of the chromone nucleus is occupied by a -OCH<sub>3</sub> group (3.76 ppm, s, 3H). On the basis of the facts given, the substance has been identified as 5-hydroxy-7-methoxy-2-methylchromone (eugenin). According to the literature, mp 119°C [2].

LITERATURE CITED

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2. T. M. Meijer and H. Schmid., *Helv. Chim. Acta*, 31, 1603 (1948).

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All-Union Scientific-Research Institute of Medicinal Plants. Botanical Garden of the M. V. Lomonosov Moscow State University. Translated from *Khimiya Prirodnykh Soedinenii*, No. 4, pp. 512, July-August, 1975. Original article submitted April 4, 1975.

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