Substance (IV) was identified by its physicochemical and spectral characteristics as apigenin [1, 3, 5].

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C-GLYCOSIDES OF SPECIES OF DIPSACACEAE. III

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We have previously reported the presence of C-glycosides in species of the family Dipsacaceae [1, 2]. Further investigations of the epigeal part (flowers and leaves) of representatives of the genera Scabiosa L., Cephalaria Schrad., Dipsacus L., Pterocephalus Vaill., and Knautia L. have shown the presence of swertisin and swertiajaponin. We have not studied samples collected during the flowering period in the region of the Caucasian Mineral'nye Vody of Knautia montana (M.B.) DC., Scabiosa caucasica M. B., Sc. olgae Albov., Dipsacus strigosus Willd., Cephalaria gigantea (Ldb.) Bobr., C. transsylvanica (L.) Schrad., C. coriaceae Willd., C. balkharica E. Busch., and C. uralensis (Murr.) Schrad., and in the Crimea Scabiosa atropurpurea, Sc. ucranica L., Pterocephalus plumosus (L.) Coult., Knautia arvensis (L.) Coult., and Scabiosa argentea L.

The air-dry raw material was extracted three times with methanol at its boiling point, the combined extracts were concentrated, and the residue was treated with an equal amount of water and then with chloroform. After the mixture had stood for ten days, a precipitate separated out at the boundary between the layers, and this was removed and was treated for three hours with 5% sulfuric acid (to hydrolyze the O-glycosides). The hydrolyzate was chromatographed in a thin layer of silica gel with 5% acetic acid to separate the flavonoid aglycones of the O-glycosides (which remained at the start) and the C-glycoside. The latter were separated by repeated preparative chromatography in 15% acetic acid after the starting line had first been removed from the chromatogram. Substance (I), from its melting point (263-264°C), UV spectra (CH_3OH: 244, 260, 348 nm; CH_3COONa: 268, 406 nm; $CH_3COONa + H_3BO_3$ 268, 400 nm; $AlCl_3$: 276, 304, 334, 428 nm), the results of chromatographic analysis (colored orange under the action of basic lead acetate), and the products of acid hydrolysis (7-methoxyluteolin) consisted of 7-O-methyluteolin 6-C-β-D-glucopyranoside (swertiajaponin) [3]. It was detected in Knautia montana (M. B.) DC., Cephalaria uralensis, and Pterocephalus plumosus.

Substance (II), from the results of UV spectroscopy (CH_3OH: 270, 335 nm; CH_3COONa: 268, 335 nm; $H_3BO_3 + CH_3COONa$: 270, 336 nm; $AlCl_3$: 380 nm; CH_3ONa: 398 nm), chromatographic analysis, and the products of acid cleavage (7-O-methylapigenin or genkwanin) was identified as genkwanin 6-C-β-D-glucopyranoside (swertisin). This compound was detected in Knautia montana (M. B.) DC. Cephalaria gigantea, Cephalaria coriaceae, Pterocephalus plumosus, (flowers), Scabiosa atropurpurea and Sc. olgae (herbage).

At the present time, the following C-glycosides have been found in various species of the family Dipsacaceae: orientin, vitexin, isoorientin, saponaretin, swertiajaponin, swertisin, saponarin, and knautoside [1, 2].

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