Thus, the structure of acetylisostachyflaside can be represented as 4',5,7,8-tetrahydroxyflavone 4'-O-{acetyl[O-β-D-mannopyranosyl)-(1→2)-β-D-glucopyranoside]}, and that of diacetylisostachyflaside as 4',5,7,8-tetrahydroxyflavone 4'-O-{diacetyl[O-β-D-mannopyranosyl-(1→2)-β-D-glucopyranoside]}.

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PHENOLIC COMPOUNDS OF THE EPIGEAL PART OF *Valeriana*. IV. COMPOSITION OF THE FLAVONOIDS OF THREE CENTRAL ASIAN SPECIES OF THE GENUS *Valeriana*

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Continuing the search for promising species of the genus *Valeriana* L. among the flora of Central Asia [1], we have investigated the inflorescences, leaves, and stems of *Valeriana chionophila* Pop. et Kult. [∿ snow-loving valerian], *V. ficariifolia* Boiss. [∿ fig-leaved valerian], and *V. fedtschenkoi* Coincy (Fedchenko's valerian) — low-growing high-mountain plants, the first two of which are found, in the USSR, only in Central Asia [2]. According to the results of two-dimensional paper chromatography, the epigeal organs of the plants mentioned contain hydroxycinnamic acids and flavonoids. The inflorescences were the richest in flavonoids, the leaves contained a smaller amount, and there was very little in the stems. Using a procedure described previously [3], with the aid of column chromatography on polyamide sorbent from the individual extracts we isolated in the pure state two flavonoid glycosides (I and II), and from hydrolysates of the extracts five aglycones (III-VII).

Substance (I) was present in all the samples analyzed, while (II) was present in the inflorescences and the leaves of *V. fedtschenkoi* and also in the leaves of *V. chionophila*. According to their mobilities on two-dimensional chromatograms, the results of acid and enzymatic hydrolysis, and of UV spectroscopy with the addition of diagnostic reagents [4], substance (I) was characterized as luteolin 7-O-β-D-glucoside, and (II) as diosmetin 7-O-β-D-glucoside. On the basis of the results of physicochemical investigations and comparison with authentic samples isolated previously [3, 5, 6], the aglycones were identified as acacetin (substance III), apigenin (IV), diosmetin (V), luteolin (VI), and quercetin (VII). The inflorescences of the plants contained glycosides of all the aglycones mentioned with a predominance of the derivatives of (V) and III).

In addition to flavonoids, in the epigeal and, particularly, the hypogeal organs of the species of valerian mentioned we detected valepotriates, among which, by the results of TLC in comparison with known characteristics [7], we identified valtrate and dihydrovaltrate.

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POLYPHENOLS OF *Onobrychis bobrovii*

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Continuing a study of plant of the genus *Onobrychis* (sainfoin), family *Fabaceae* [1], we have investigated for the first time the polyphenol composition of *Onobrychis bobrovii* Grossh. (Bobrov's sainfoin) [2], collected in the flowering stage by S. F. Dzhumyrko in the gorge of the R. Chegem (Kabardino-Balkarskaya ASSR) in August.

To obtain the total polyphenolic compounds, 500 g of the air-dry herbage was extracted successively with chloroform and 70% ethanol. The ethanolic extract was evaporated in vacuum to an aqueous residue, from which the polyphenols were extracted with ethyl acetate; the extract was evaporated and the combined polyphenols were precipitated with dry chloroform.

The combined polyphenolic compounds were deposited on a column containing polyamide sorbent and were eluted successively with water and with aqueous ethanol of various concentrations.

Five polyphenols were isolated in the crystalline form from Bobrov's sainfoin and were identified.

Substance (I) was eluted from the column with hot water; $C_{12}H_{16}O_7$, mp 161-162°C [ethyl acetate–chloroform (1:1)], $[\alpha]_D^{20}$ −6° (c 0.91, water); λ_{max} 285 nm; it was identified as hydroquinone O-β-D-glucopyranoside (arbutin).

Substance (II) was eluted with 10-15% ethanol; $C_{27}H_{30}O_{16}\cdot 2H_2O$, mp 187-189°C (ethanol) λ_{max} 365, 258 nm, $[\alpha]_D^{20}$ −12.5° (c 0.7; methanol); it proved to be quercetin 3-rutinoside (rutin).

Substance (III) was eluted with 15-20% ethanol; $C_{21}H_{20}O_{12}$, mp 232-235°C (ethanol), λ_{max} 265, 259 nm, $[\alpha]_D^{20}$ −60° (c 0.15; methanol); it was identified as quercetin 3-β-D-galactopyranoside (hyperoside).

Substance (IV) was eluted with 20-25% ethanol; $C_{24}H_{20}O_{11}$, mp 178-180°C (ethanol), $[\alpha]_D^{20}$ −69° (c 0.49; ethanol); λ_{max} 350, 267 nm; this was kaempferol 3-O-glucoside (astragalin).

Substance V was eluted with 55-60% ethanol; $C_{15}H_{10}O_7$, mp 310-312°C; λ_{max} 370, 256 nm (ethanol); it was identified as quercetin.

The structure of the compounds isolated were confirmed by the results of elementary analysis, UV and IR spectroscopy, and the study of the products of acid and enzymatic hydrolysis, and also by comparison with authentic reference samples.

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