FLAVONOIDS OF *Astragalus quisqualis*

R. K. Yasinov, N. V. Syrovezhko, and G. P. Yakovelev

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The epigeal part of the herbaceous perennial *Astragalus quisqualis* Bge. collected in the flowering period in May-June, 1981, in the basin of the R. Varzov, Tadzhikistan, close to the kishlak of Ziddy has been investigated for the presence of flavonoids.

To obtain the total flavonoids, 1.0 kg of the dried and comminuted herbage was extracted successively with 96% and 70% ethanol. The ethanolic extracts were evaporated in vacuum to an aqueous residue, and this was treated with chloroform to eliminate ballast substances. The flavonoids were isolated from the purified aqueous extract with ethyl acetate, the ethyl acetate solution was concentrated in vacuum, and the concentrated residue was deposited on a column of polyamide sorbent. Then the flavonoids were eluted successively with water and increasing concentrations of ethanol.

Six individual substances were isolated from *A. quisqualis*: two glycosides (substances (I) and (II)), three aglycones (III, IV, and V), and one phenylcarboxylic acid (VI).

Substance (I) (eluted with 30% ethanol) was identified as rutin (quercetin 3-O-rutinoside), $C_{27}H_{30}O_{16}\cdot 2H_2O$, mp 190-191°C (aqueous ethanol), $[\alpha]_D^{20}$ −32.2° (c 0.3; methanol), λ_{max} 260, 360 nm [1].

Substance (II) (eluted with 50%) ethanol) was hyperoside (quercetin 3-O-galactoside), $C_{21}H_{20}O_{12}$, mp 237-238°C (aqueous ethanol), $[\alpha]_D^{20}$ −27.8° (c 0.5; methanol), λ_{max} 363, 257 nm [2].

Substance (III) (eluted with 60% ethanol) was quercetin, $C_{15}H_{10}O_7$, mp 308-309°C (ethanol), λ_{max} 375, 265 nm [3].

Substance (IV) (eluted with 70% ethanol) was kaempferol, $C_{15}H_{10}O_6$, mp 275-277°C (ethanol), λ_{max} 370, 265 nm [3].

Substance (V) (eluted with 40% ethanol) was luteolin, $C_{15}H_{10}O_6$, mp 328-330°C (aqueous ethanol), λ_{max} 355, 260 nm [4].

Substance (VI) (eluted with 10% ethanol) was caffeic acid, $C_9H_8O_4$, mp 194-196°C (aqueous ethanol), λ_{max} 300 sh., 330, 240 nm [5].

The structures of all the compounds isolated were confirmed by the results of elementary analysis and UV and IR spectroscopy, and by a study of the products of acid and alkaline hydrolysis, and also by comparison with authentic samples.

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