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FLAVONOIDS OF *Astragalus eupeplus*

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Continuing an investigation of plants of the genus *Astragalus*, (family Fabaceae) [1], we have studied the chemical composition of *Astragalus eupeplus* Barneby. The plant was collected in the flowering period in the territory of Tadzhikistan (environs of the kishlak of Novabad).

To obtain the total flavonoids, 500.0 g of the dried herb was extracted with 70% ethanol in an apparatus of the Soxhlet type. The ethanolic extracts were evaporated to an aqueous residue and this was treated with chloroform. The purified aqueous extract was reextracted exhaustively with ethyl acetate, the latter was evaporated, and the combined flavonoids were precipitated with chloroform.

Individual compounds were isolated by preparative chromatography on Filtrak FN-3 paper in the BAW (4:1:5) and 15% CH₃COOH systems and by column chromatography on polyamide. Six flavonoid compounds were isolated from *Astragalus eupeplus*.

Substance (I) — C₂₇H₃₀O₁₆•2H₂O, mp 188–190°C (from ethanol), [α]_D²⁰ −12.5° (c 0.68; methanol), λ_{max} 359, 363 nm — was characterized as quercetin 3-O-rutinoside (rutin) [2].

Substance (II) — C₂₁H₂₀O₁₂, mp 232–235°C (from ethanol), [α]_D²⁰ −60° (c 0.15; methanol), λ_{max} 259, 365 nm — was quercetin 3-O-β-D-galactopyranoside (hyperoside) [3].

Substance (III) — C₁₅H₁₀O₇, mp 312–313°C (from ethanol), λ_{max} 372, 256 nm — was characterized as quercetin [4].

Substance (IV) — C₁₅H₉O₆, mp 276–277°C (from ethanol), λ_{max} 370, 265 nm — was characterized as kaempferol [4].

Substance (V) — C₂₁H₂₀O₁₁, mp 180–181°C (from ethanol), [α]_D²⁰ −69° (c 0.5; ethanol), λ_{max} 350, 266 nm — was kaempferol 3-glucoside (astragalín) [5].

Substance (VI) — C₃₃H₄₀O₁₉, mp 189–190°C, [α]_D²⁰ −120.4° (pyridine-ethanol (1:1)), λ_{max} 350, 265 nm — was identified as robinin [6].

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

This is the first time that the flavonoids of *Astragalus eupeplus* have been studied.

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