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## FLAVONOIDS OF *Astragalus coluteocarpus*

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Continuing a study of plants of the genus *Astragalus* [1], we have investigated the epigeal part of *A. coluteocarpus* Boiss. collected in the environs of Dushanbe. The two-dimensional paper chromatography of an ethanolic extract in the solvent systems butan-1-ol-acetic acid-water (4:1:5) and 15% acetic acid revealed the presence in the epigeal part of this milk vetch of more than 12 substances of flavonoid nature, six of which were isolated in the individual form.

The air-dry raw material was exhaustively extracted with 70% ethanol. The extract was concentrated, the ethanol was distilled off, and lipophilic substances were eliminated and precipitated with chloroform and were then separated on a column of polyamide sorbent. Six flavonoid compounds were obtained in the individual state.

Substance (I) —  $C_{15}H_{10}O_6$ , mp 275–277°C,  $\lambda_{\max}$  265, 230 nm (ethanol) — was characterized as kaempferol [2].

Substance (II) —  $C_{21}H_{20}O_{11}$ , mp 180–181°C,  $[\alpha]_D^{20}$  — 56° (s 0.1; dimethylformamide),  $\lambda_{\max}$  357, 255 nm (ethanol) — was characterized as astragalin [3].

Substance (III) —  $C_{15}H_{10}O_7$ , mp 311–313°C,  $\lambda_{\max}$  256, 370 nm (ethanol) — was identified as quercetin [2].

Substance (IV) —  $C_{27}H_{30}O_{16} \cdot 2H_2O$ , mp 189–191°C (aqueous ethanol)  $[\alpha]_D^{20}$  — 43.2° (s 0.5; methanol),  $\lambda_{\max}$  260, 360 nm — was identified as rutin [4];

Substance (V) —  $C_{21}H_{20}O_{12}$ , mp 237–238°C (aqueous ethanol)  $[\alpha]_D^{20}$  — 27.8° (s 0.5; methanol),  $\lambda_{\max}$  237, 363 nm — was identified as hyperoside [4].

Substance (VI) —  $C_{15}H_{10}O_6$ , mp 328–330°C (aqueous ethanol),  $\lambda_{\max}$  260, 355 nm — was identified as luteolin [5].

The structures of all the compounds isolated were confirmed by the results of elementary analysis, by UV and IR spectroscopy, and by the results of a study of the products of acid and alkaline hydrolysis, and also by a comparison with authentic samples. This is the first time that any of the substances mentioned have been isolated from *Astragalus coluteocarpus*.

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