PHENOLIC COMPOUNDS OF Astragalus ciceroides AND A. saganlugensis

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The epigeal parts of Astragalus ciceroides Sosn. and A. saganlugensis Trautv., family Fabacaeae, assigned to the one section Eu-Hypoglottis [1], have been investigated for the presence of phenolic compounds. The plants were collected in the flowering period on the territory of Armenia.

The comminuted raw material was exhaustively extracted with 70% ethanol in the water bath. The combined extracts were concentrated in vacuum, treated with water, and extracted successively with chloroform and with ethyl acetate. The ethyl acetate extract was dried over anhydrous sodium sulfate, filtered, and concentrated, and the residue was chromatographed on a column of polyamide sorbent with elution by water and mixtures of water and ethanol.

Substances (I-VI) were isolated from A. ciceroides and substances (I-VII) from A. sagan-lugensis, and have been identified as follows.

Substance (I) - caffeic acid, $C_9H_8O_4$, mp 196-198°C, λ_{max} 325, 300, 240 nm [2].

Substance (II) - chlorogenic acid, $C_{16}H_{18}O_{9}$, mp 201-204°C, $[\alpha]_{D}^{20}$ -32.3° (s 1.2; ethanol), λ_{max} 329, 300, 240 nm [2].

Substance (III) - quercetin, $C_{15}H_{10}O_{7}$, mp 310-312°C, λ_{max} 375, 265 nm [3].

 $\frac{\text{Substance (IV)}}{-69°} \leftarrow \text{astragalin (kaempferol 3-0-}\beta-D-glucopyranoside), C_{21}H$_{22}$O$_{11}$, $mp 179-181°C$, $[\alpha]$_D^{20}$ $\frac{-69°}{-69°}$ (s 0.4; ethanol), λ_{max} 350, 267 nm [3].}$

Substance (V) — isoquercitrin (quercetin 3-0- β -D-glucopyranoside), C₂₁H₂₂O₁₁, mp 238-240°C, [α]D —69.2° (s 0.1; methanol), λ_{max} 362, 255 nm [3].

Substance (VI) — rutin (quercetin 3-0-[0- α -L-rhamnopyranosyl-(6 \rightarrow 1)- β -D-glucopyranoside), C₂₇H₃₀O₁₆, mp 192-194°C, [α]_D²⁶ -35.5° (s 0.4; ethanol), λ_{max} 365, 258 nm [3].

Substance (VII) — isorhamnetin 3-0- β -D-glucopyranoside, $C_{22}H_{22}O_{12}$ mp 170-172°C, $[\alpha]_D^{20}$ —26.3° (s 0.5; ethanol), λ_{max} 355, 255 nm [4].

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

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