

FLAVONOIDS OF *Atraphaxis spinosa*. I

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From the leaves of *Atraphaxis spinosa* L. growing in the Alma-Ata region of the Kazakh SSR, we have isolated the combined flavonoids, consisting of 14 substances, by methanol extraction.

Chromatography on Kapron of the methanolic extract yielded a flavone glycoside (I) with mp 179-181°C in the form of lemon-yellow needles (from aqueous methanol), R_f 0.40 [butan-1-ol-acetic acid-water (4:1:5)], 0.34 (2% acetic acid), $[\alpha]_D^{20} -167.2^\circ$ (c 0.16, methanol).

The IR spectrum of substance I shows absorption bands at (cm^{-1}) 3360 (hydroxy groups), 1669 carbonyl of a γ -pyrone bound by a hydrogen bond with a 5-OH), 1600, 1580, 1510 (benzene ring), 2970, 2850 (methoxy groups), and 890, which is characteristic for the β form of the pyranose ring of a sugar [1, 2].

UV spectrum of the glycoside with additives: λ_{max} 338, 260 nm ($\text{C}_2\text{H}_5\text{OH}$), 410, 260 ($+\text{C}_2\text{H}_5\text{ONa}$), 340, 266 ($+\text{CH}_3\text{COONa}$), 370, 266 ($+\text{H}_3\text{BO}_3$), 390, 260 nm ($+\text{ZrOCl}_2$) [13].

UV spectrum of the aglycone: λ_{max} 342, 266 nm ($\text{C}_2\text{H}_5\text{OH}$), 365, 266 ($+\text{CH}_3\text{COONa} + \text{H}_3\text{BO}_3$), 387, 275 ($+\text{C}_2\text{H}_5\text{ONa}$), 365, 273 ($+\text{ZrOCl}_2$), 365, 268 nm (+ citric acid).

The acid and enzymatic hydrolysis of the substance gave the aglycone (68%) and L-rhamnose. The aglycone has mp 306-308°C and R_f 0.25 [$\text{C}_6\text{H}_6 - \text{CH}_3\text{COOH} - \text{H}_2\text{O}$ (125:72:3)] (1), 0.75 [$\text{HCOOH} - \text{CH}_3\text{COOH} - \text{H}_2\text{O}$ (2:10:3)] (2), and 0.62 [butan-1-ol- $\text{CH}_3\text{COOH} - \text{H}_2\text{O}$ (4:1:5)] (3).

Microanalyses showed the presence of one methoxy group both in the glycoside and in the aglycone.

The demethylation of the aglycone [4] gave luteolin with R_f 0.53 (1), 0.66 (2), and 0.20 (3), identified by paper chromatography with a reference sample.

Thus, on the basis of chemical and spectral studies, substance I has been characterized as 7-O-methyl-4'-O- β -L-rhamnopyranosylluteolin, and we have called it spinoside.

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