# NEW FLAVONE GLYCOSIDE FROM *Scutellaria ramosissima*

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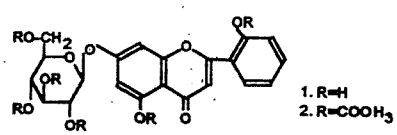
Many species of plants of the genus *Scutellaria* L. (fam. Lamiaceae) are used in folk and scientific medicines [1]. Their high pharmacological activity is due to the presence of flavonoids [2]. We are studying the flavonoids of plants of this genus growing in Central Asia.

We have previously isolated a number of flavonoids from the epigeal part and roots of *S. ramosissima* M. Pop. [3, 4]. Continuing this investigation, from an ethyl acetate fraction of an alcoholic extract, by chromatography on a column of silica gel we have isolated a new flavonoid (**1**) with the composition $C_{21}H_{20}O_{10}$, mp 280-281°C. Its UV spectrum ($\lambda_{max}$ (ethanol) 269, 325 nm; $+CH_3COONa$, 268, 327) was characteristic for flavone derivatives.

According to its PMR spectrum, the substance under consideration was a glycoside and contained the signals of protons at (ppm) 3.88-4.43 (protons of the carbohydrate moiety), 5.63 (d, 6.5 Hz, H−1"), 6.59 (d, 2.0 Hz, H−6), 6.65 (d, 2.0 Hz, H−8), 6.93-7.07 (m, H−3′,5′), 7.08 (s, H−3), 7.28 (dt, 2.0 and 8.0 Hz, H−4′), 7.72 (dd, 2.0 and 8.0 Hz, H−6′) and 13.48 (br.s, 5−OH).

The acid hydrolysis of flavonoid (**1**) yielded 2′,5,7-trihydroxyflavone, $C_{15}H_{10}O_5$ ($M^+$ 270) with mp 281-283°C [5] and D-glucose. The acetylation of glycoside (**1**) led to the hexaacetyl derivative (**2**) with mp 98-100°C the mass spectrum of which contained, in addition to the weak peak of the molecular ion with m/z 684, intense peaks of fragmentary ions: of a tetraacetylhexose residue with m/z 331, 211, 169, and 109, and of an aglycon with m/z 270.

The position of attachment of the carbohydrate residue to the 7-OH group of the aglycon was established by a study of the UV spectra of the glycoside (**1**) and its aglycon: on the addition of $CH_3COONa$ no bathochromic shift of the absorption maxima was observed, which showed the glycosylation of the 7-OH group of the flavone. In the PMR spectrum of glycoside (**1**), the signal of the anomeric proton of the D-glucose residue appeared at 5.63 ppm in the form of a doublet with a SSCC of 6.5 Hz. This showed a β-glycosidic bond of the carbohydrate residue with the aglycon.




Thus, the flavone glycoside (**1**) had the structure of 7-β-D-glucopyranosyloxy-2′,5-dihydroxyflavone.

In the roots of *S. ramosissima,* in addition to those isolated previously, we detected a flavonoid, $C_{18}H_{16}O_7$ ($M^+$ 34), with mp 259°C, $\lambda_{max}$ (ethanol) 270, 341 nm. On the basis of its spectral characteristics it was identified as rivularin [6] (2′,5-dihydroxy-6′,7,8-trimethoxyflavone).

## REFERENCES

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