

VII. GALANGININ — A NEW GALANGIN GLYCOSIDE

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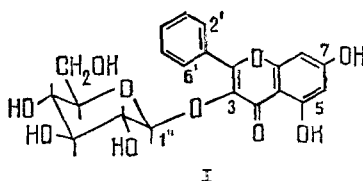
In the process of separating the fraction of weakly polar flavonoid glycosides from the herbage of *Datisca cannabina* L., together with the datiscanin described previously [1], by chromatography on Sephadex LH-20 [chloroform-methanol (99:1)] we have isolated a small amount of a new flavonoid compound which has been called galanginin (I). The substance consists of light yellow acicular crystals with the composition $C_{21}H_{20}O_{10}$, mp 218–220°C, $\alpha_D^{20} -45^\circ$ (c 0.2; methanol), with maxima in the UV spectra at (nm): in MeOH, 265, 312, 340 inf1.; + NaOAc, 276, 365; + $AlCl_3$ and $AlCl_3 + HCl$, 277, 334, 392.

The acid hydrolysis of (I) gave the aglucone — light yellow needles, mp 220–223°C, $C_{15}H_{10}O_5$, M^+ 270, λ_{max}^{MeOH} 267, 360 nm — identical with an authentic sample of galangin (3,5,7-trihydroxyflavone). In the hydrolysate glucose was detected chromatographically, and it was also found under the conditions of the enzymatic hydrolysis of (I) with β -glucosidase.

The acetylation of compound (I) formed a hexaacetate the PMR spectrum of which ($CDCl_3$) contained the singlets of two aromatic (2.47, 2.25 ppm) and four aliphatic (2.15 ppm, 3 H; 2.02 ppm, 9 H) acetoxy groups and the signals of a glucopyranose residue: 4.8–5.3 ppm (m, 4 H), 3.8 ppm (m, 2 H-6'), 3.5 ppm (m, H-5'').

The PMR spectrum (deuteroacetone) confirmed the structure of the aglycone moiety of galanginin: (ppm) 12.36 (s, 5-OH), 3.2 (m, H-2',6'), 7.5 (m, H-3',4',5'); 6.55 (d, 2 Hz, H-8), 6.32 (d, 2 Hz, H-6), and the signals of carbohydrate protons (3.1–3.6, 6 H; 5.3, d, 8 H, H-1''), characteristic for β -D-glucopyranosides. Of the three possible positions of attachment of the glucose to galangin, we excluded the 5-OH group, since the PMR spectrum has its signal at 12.36 ppm, and a comparison of the UV spectra of (I) and the aglycone permitted us to settle on 3-glycosylation.

Thus, galanginin has the structure of 3,5,7-trihydroxyflavone 3-O- β -D-glucopyranoside (I).



We have also succeeded in obtaining galanginin by the stepwise hydrolysis of galanginoside, isolated previously from the same plant and containing rutinose in position 3 of galangin [2]. Stepwise hydrolysis with formic acid in cyclohexanol was performed in the same way as in the production of datiscanin [1].

LITERATURE CITED

1. G. G. Zapesochneya, N. A. Tyukavkina, and I. V. Shervashidze, *Khim. Prir. Soedin.*, 176 (1982).
2. T. T. Pangarova and G. G. Zapesochneya, *Khim. Prir. Soedin.*, 790 (1974).

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