

GLYCOFLAVONOIDS OF GYPHOPHILA PANICULATA

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Khimiya Prirodnykh Soedinenii, Vol. 4, No. 4, pp. 248-249, 1968

Recently, gypsophilas have been attracting increasing attention from workers as promising plants for the production of saponins [1-4]. However, the other classes of natural compounds that they contain have been studied comparatively little.

In the present paper we give the results of the isolation and identification of the flavonoids of Gypsophila paniculata. In an analysis of various organs, it was found that the roots, where the bulk of the saponins is concentrated, contain a comparatively small amount of flavonoids. However, in the epigeal part, particularly in the leaves and flowers, more than seven components of a flavonoid nature have been found. By extracting the total flavonoids from the herb at 70° C with methanol and separating them on a column of polyamide sorbent, we obtained seven individual compounds. Of these, six were identified on the basis of their physicochemical properties and by comparison with authentic samples as vitexin, saponaretin, orientin, homoorientin, isosaponarin, and adonivernitol.

A substance with the composition  $C_{26}H_{28}O_{14}$  and mp 200° C (decomp), on mild hydrolysis and enzymatic cleavage gave vitexin and D-xylose. By a spectroscopic investigation in the UV region [5], free hydroxy groups were found in the 5, 7, and 4' positions. Consequently, the D-xylose must be attached to the C-glycosyl substituent of vitexin. This substance is a new glycoside of vitexin and we have called it kachimoside. ["Kachim" is Russian for gypsophila.]

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30 November 1967

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UDC 547.972

EXTRACTIVE PHENOLIC COMPOUNDS FROM THE HEARTWOOD OF PINUS SIBIRICA

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Khimiya Prirodnykh Soedinenii, Vol. 4, No. 4, pp. 249-250, 1968

The composition of the phenolic components of Siberian pine has not previously been studied. From 21.0 g of the benzene-insoluble fraction (0.18% of the dry wood) of an acetone extract of the heartwood of the pine we have isolated

Table 1

Substance	Ethanol				+ AlCl <sub>3</sub>				+ sodium acetate			
	λ <sub>max</sub>		log ε		λ <sub>max</sub>		Δλ		λ <sub>max</sub>		Δλ	
(I)	312	268	3.18	3.53	312	280	0	12	312	269	0	1
(II)	316	270	3.93	4.32	330	282	14	12	330	268	14	-2
Acetate of (I)	302	252	3.30	3.29	—	—	—	—	—	—	—	—
Diacetate of (II)	308	257	4.28	4.35	—	—	—	—	—	—	—	—
(III)	300	235	4.22	4.20	—	—	—	—	—	—	—	—

by preparative chromatography on a polyamide sorbent (20:1) with elution by chloroform with an increasing content (1-5 vol-%) of methanol three substances: 3-hydroxy-7-methoxyflavone [tectochrysin (I)], 5,7-dihydroxyflavone (chry-