

FLAVONOIDS OF ARTEMISIA TRANSILIENSIS

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Continuing a study of the flavonoid composition of Artemisia transiliensis Poljak [1], we have isolated four flavonoid aglycones from an ethereal extract. Flavones and flavonols in which the OH group at C₍₃₎ is substituted are stable to oxidation in alkaline solutions and can be obtained on acidification [2]. Using this method, the ethereal extract was treated successively with saturated NaHCO₃ solution and with a 10% solution of Na₂CO₃. The alkaline solutions were acidified and extracted with ether. From the bicarbonate extract by preparative paper chromatography using benzene-acetic acid-water (125:72:3) as solvent, we isolated quercetin 3-methyl ether with mp 259° C and a substance, II, with mp 255–256° C (from 70% ethanol), λ_{max} 355, 266, 255 mμ. In the cyanidin reaction, substance II gave a crimson coloration showing its flavonol nature. Spectral studies in the UV region with ionizing and complex-forming reagents showed the presence in the aglycone II of free OH groups at C₍₇₎, C_(3') and C_(4'). In an alkaline melt of the substance paper chromatography showed the presence of catechol and protocatechuic acid. IR spectroscopy showed that the aglycone II contains a methoxy group (2960, 2850 cm⁻¹) located at C₍₃₎. Demethylation of the substance led to the formation of 7,8,3',4'-tetrahydroxyflavonol with mp 310–312° C [3]. Methylation of the aglycone with diazomethane yielded a pentamethoxyflavone with mp 149–150° C.

Thus, on the basis of the chemical and spectral studies substance II has been characterized as 7,8,3',4'-tetrahydroxy-3-methoxyflavone. It proved to be new, and we have called it transilitin. From the sodium carbonate solution we isolated genkwanin with mp 283° C and acacetin with mp 260–261° C.

REFERENCES

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A FLAVONOID DIGLYCOSIDE FROM ACONITUM ORIENTALE

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In the leaves of Aconitum orientale Mill., collected in the region of the Teberdina reserve, we have found by paper chromatography no less than four flavonoid compounds.

By chromatography on a column of Kapron with desorption by 25–35% ethanol we isolated glycoside I with mp 187–189° C, [α]_D²⁰ –245° (c 0.5; methanol). λ_{max} 344, 165 mμ (methanol); CH₃COONa λ_{max} 344, 165 mμ; CH₃COONa + H₃BO₃ λ_{max} 344, 265 mμ; AlCl₃ λ_{max} 405, 350, 277 mμ; AlCl₃ + HCl λ_{max} 342, 275 mμ; CH₃ONa λ_{max} 390, 265 mμ.

The aglycone (yield 50%) with mp 273–275° C (acetyl derivative with mp 180–182° C) was identified as kaempferol on the basis of its IR and UV spectra, chromatographic behavior, and absence of a depression of a mixture with an authentic sample. The carbohydrate component of glycoside I is L-rhamnose (melting point of the osazone 178–180° C).

On the stepwise acid hydrolysis, a 7-monoside with mp 232–233° C, [α]_D²⁰ –166° (c 0.4; methanol) was obtained as an intermediate product; alkaline hydrolysis [1] led to the formation of a 3-monoside with mp 173–175° C, [α]_D²⁰ –165° (c 0.2; methanol). By physicochemical analysis, the conversion products of the diglycoside were characterized as kaempferol 7-O-α-L-rhamnofuranoside and kaempferol 3-O-α-L-rhamnofuranoside.