

In preceding papers [1-4] we have reported the isolation from the epigeal part of *Campanula persicifolia* L. of ten flavone glycosides derived from luteolin, apigenin, diosmetin, and chrysoeriol. Continuing the study of the chemical composition of this plant, we have succeeded in detecting six substances of flavonol nature. Three glycosides [(I)-(III)] were isolated by column and preparative chromatography from the fractions containing these compounds. The structures of the glycosides isolated were determined on the basis of the results of a study of the products of acid and enzymatic hydrolysis, UV spectroscopy, and comparison with authentic samples, and also from chromatographic results and physicochemical constants.

Glycoside (I) - $C_{21}H_{20}O_{12}$, yellow crystals with mp 230-233°C, $[\alpha]_D^{21} -7.5^\circ$ (c 0.68; MeOH) - was identified as isoquercitrin.

Glycoside (II) - $C_{27}H_{30}O_{16}$, yellow spherocrystals with mp 185-188°C, $[\alpha]_D^{21} -0.62^\circ$ (c 0.64; MeOH) - was identical with rutin.

Glycoside (III) - $C_{33}H_{40}O_{21}$, greenish-yellow spherocrystals, mp 234-237°C (from alcohol), $\lambda_{max}^{ethanol}$ 258, 290, and 363 nm, R_f 0.58 (15% CH_3COOH). The products of complete acid hydrolysis (5% H_2SO_4 , 100°C, 1 h) were isolated and characterized as quercetin (aglycon), D-glucose and L-rhamnose. The results of paper chromatographic analysis and spectral investigations in the UV region permitted the assumption of the presence of carbohydrate substituents in positions 3 and 7 of the aglycon. The ratio of the specific indices of the glycoside and of the aglycon in the UV region of the spectrum ($E_{1cm}^{1\%} = 211$ and 794, respectively) provisionally characterized it as a trioside [5].

To confirm the results obtained and to elucidate the complete structure of the trioside, we performed its stepwise acid and enzymatic hydrolysis. Enzymolysis with pectinase at 27-28°C for 6 h led to the formation of less polar compounds with R_f 0.45, 0.31, and 0.02 (in 15% CH_3COOH), which were identified as rutin, isoquercitrin, and quercetin. Under the action of emulsin the initial substance was cleaved to rutin, while glucose was detected in the hydrolysate. Stepwise hydrolysis with rhamnodiastase (27-28°C, 2 h) gave a compound with R_f 0.07 coinciding in its properties with quercimeritrin. Thus, it may be concluded that the substance isolated was quercetin 3-O- β -rutinoside 7-O- β -D-glucopyranoside [6]. This is the first time that this compound has been isolated from representatives of the family *Campanulaceae*. The amount of flavonoid glycosides in the plant was small (the yield was not more than 0.01%). On the whole, their presence is not characteristic for representatives of the section *Rapunculus* (Fourr.) Boiss., to which *C. persicifolia* belongs [7]. The dominating compounds in the plant are luteolin derivatives.

LITERATURE CITED

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