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PHENETHYL β-D-GLUCOPYRANOSIDE FROM THE FLOWERS OF Rosa gallica

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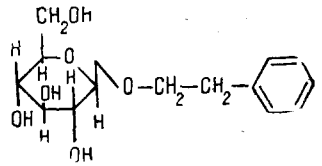
The essential oil of the rose consists mainly of monoterpene alcohols and β-phenylethanol. There is information in the literature of the presence of only monoterpene glycosides in rose flowers [1].

An aqueous ethanolic extract of fresh flowers of Rosa gallica L. (French rose; of the essential-oil variety Krymskaya Krasnaya) was separated by chromatography of silica gel; elution of the column with the solvent mixtures 1) benzene–ethanol (7 :3) and 2) ethyl acetate–ethanol–water (10 :2 :3) yielded a crystalline substance with the composition $C_{14}H_{20}O_6$, mp 38-39°C $[\alpha]_D^{20}$ −33.5° (c 3.0; water), calculated according to Klyne– 23.3° [2], soluble in water and ethanol and, on heating, in benzene.

UV spectrum λ_{max} (in ethanol) 253, 256 mμ (log ε 2.56, 2.57). IR spectrum (cm^{-1}): 706, 750 (monosubstituted aromatic nucleus); 1460, 1500, 1579 (C = C of an aromatic nucleus) [3]; 780, 1022, 1050, 1078 (pyranose ring); 904 (β-glycosidic bond); 3623 (OH group) [4, 5]; mol. wt. 278 (cryoscopically).

On acid and enzymatic hydrolysis of the substance with β-glucosidase in acetate buffer, pH 5.8, a monosaccharide was obtained which was identified chromatographically as D-glucose. The aglycone was identified as β-phenylethanol by GLC comparison with an authentic sample, and also by their IR and UV spectra [6].

Thus, the substance isolated is phenethyl β-D-glucopyranoside, and its structure can be represented by the following formula:



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