STEROLS OF THE LEAVES OF Rhododendron ponticum AND Laurocerasus officinalis

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We have continued a study of the sterols of the evergreen shrubs of Georgia [1]. We have investigated the leaves of Rhododendron ponticum L. (ponticum rhododendron) and Laurocerasus officinalis Roem (Prunus laurocerasus; common laurelcherry) collected in the gorge of the river Dzirula.

We used a known method [2, 3] to obtain fractions of free sterols (FSt's), of esterified sterols (ESt's), and sterol glycosides (SG's) from lipid extracts of these plants. The bound forms of the sterols were cleaved by subjecting the SG and ESt fractions to acid hydrolysis and alkaline saponification, respectively. Sterols from each sample were isolated in the form of a complex with digitonin [2]. The digitonin complex was decomposed with dimethyl sulfoxide [4]. After extraction with n-hexane and elimination of the solvent, a mixture of crystalline sterols was obtained that gave a positive reaction with the Lieberman–Burchard reagent and with molybdophosphoric acid.

Thin-layer chromatography on silica gel in the benzene–diethyl ether (7:3) and n-hexane–diethyl ether–acetic acid (88:20:0.5) systems established the presence of the three forms of sterols (FSt's, ESt's, and SG's) in the leaves of the laurelcherry and of one form (FSt's) in the leaves of the rhododendron.

The results of GLC analysis (Varian A-aerograph-1860 chromatograph; conditions described in our previous paper [1]) showed that the leaves of the rhododendron and the laurelcherry contained 0.001–0.02% of sterols. The FSt's accumulate in the leaves of the laurelcherry in larger amount than the ESt's and SG's. The qualitative compositions of the sterol forms of the materials investigated were identical and consisted mainly of β-sitosterol and also stigmasterol, cholesterol, and unidentified sterols.

For example, in the FST's from the rhododendron leaves the main sterol component was identified as β-sitosterol (93.6%). The proportions of the individual sterols in the sterol forms of the leaves of the laurelcherry were different: in the FSt's, ESt's, and SG's there were 70.6, 99.8, and 22.0% of β-sitosterol; 2.1 and 34.1% of stigmasterol,* 10.1 and 35.5% of cholesterol,* and 7.2, 0.02, and 8.4% of unidentified sterols, respectively.

LITERATURE CITED

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* In the Russian original, only two two percentages were given for these sterols – Publisher.

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