

BRIEF COMMUNICATIONS

POLYSACCHARIDES OF THE LEAVES OF *Morus alba*

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The white mulberry *Morus alba* (fam. Moraceae) — one of the most widespread plants of Central Asia — is used in folk medicine in the form of infusions [1].

The isolation of polysaccharides (PSs) possessing biological activity and also the investigation of their carbohydrate composition is of definite interest. We have studied a PS isolated from the leaves of white mulberry.

The comminuted raw material was extracted with hot water at 95°C with a ratio of initial raw material to solvent of 1:10 for 2.5 h. The supernatant was concentrated in vacuum at 40–45°C. The polysaccharide was precipitated with two volumes of alcohol containing 0.5% of HCl, and it was washed with alcohol to eliminate Ca^{++} and Cl^- and dried. The yield of PS was 2%.

To determine its qualitative carbohydrate composition, the PS was hydrolyzed with 1 N H_2SO_4 for 48 h, followed by neutralization with barium carbonate. After evaporation, the filtrate was shown by paper chromatography (Filtrak FN-11,14) in the butanol—pyridine—water (6:4:3) system (20 h) to contain galacturonic acid, glucose, galactose, and arabinose (revealing agent — acid aniline phthalate). The proportion of galacturonic acid, determined by the carbazole method [2], was 48%, which permits the PS studied to be assigned to the group of acidic polysaccharides [3].

The PS consisted of a gray powder sparingly soluble in water and soluble in dilute alkalis. The O—CH₃ content was 2.0%, moisture content 3%, $\eta_{\text{rel}} = 3.25$ (c 1; 0.001 N NaOH). $M = 30,500$, determined viscometrically [4]. Found, %: N 1.84. The PS gave a negative reaction with iodine, showing the absence of a glucan of the starch type.

The IR spectrum of the PS had absorption bands at 3460 cm^{-1} , which is characteristic for free hydroxy groups. Bands at 1745 and 1750 cm^{-1} were assigned to the stretching vibrations of the carbonyls of carboxy and ester groups. Intense vibrations of an isolated carboxyl appeared at 1640 and 1420 cm^{-1} . A group of strong bands in the 1000–1200 cm^{-1} region was assigned to the stretching vibrations of pyranose rings and ether bridges. A comparison of the IR spectrum of the PS isolated and those of pectins showed that the absorption bands characteristic for pectins [5] were present.

Thus, the presence in the leaves of white mulberry of an acidic polysaccharide consisting of residues of galacturonic acid and neutral monosaccharides (glucose, galactose, arabinose) has been established.

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