

BRIEF COMMUNICATIONS

CARBOHYDRATES OF THE BARK OF THE ROOTS

OF *Melila azedarah*

M. Kh. Malikova, D. A. Rakhimov,
and R. A. Zaidova

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The family Meliaceae is a source of biologically active compounds — limonoids [1]. A representative of this family *M. azedarah*, is cultivated in the botanical garden of the Academy of Sciences of the Uzbekistan Republic. In the present communication we give the results of an investigation of the polysaccharides (PSs) from the ground bark of the roots of *M. azedarah* after the isolation of the limonoids.

We used known procedures [2] for the isolation and analysis of the carbohydrate components. Alcohol-soluble sugars were extracted with boiling methanol and then with 82% ethanol. Paper chromatography in the n-butanol–pyridine–water (6:4:3) system revealed the predominant presence of glucose and a small amount of arabinose. A solution of aniline phthalate was used as the revealing agent:

The water-soluble polysaccharides (WSPSs) were extracted with water, the pectin substances (PcSs) with a mixture of 0.5% solutions of oxalic acid and ammonium oxalate, and the hemicelluloses (HCs) with a 10% solution of caustic potash.

The WPSs, PcSs, and HCs, after precipitation with ethanol, were hydrolyzed with 2 N H₂SO₄ and the products were investigated by PC and GLC as described in [2, 3]. As can be seen from the results given below, the main monosaccharide was glucose:

| PS type | Yield, % | Gal | Glc | Xyl | Ara | Rha | GalUA |
|---------|----------|-----|-----|-----|-----|-----|-------|
| WPS | 0.76 | 1 | 10 | 0.5 | — | 1 | + |
| PcS | 2.2 | — | 5 | — | 1 | — | + |
| HC | 4.4 | 1.2 | 8.5 | 0.7 | 1.2 | 1 | + |

Of the PSs isolated, a solution of the PcSs gave a positive reaction with iodine. The PcSs consisted of an amorphous light-colored powder readily soluble in water. O—CH₃ 3.9%, $[\alpha]_D^{20} + 68^\circ$ (c 1; H₂O), $\eta_{rel} = 3$ (c 1; H₂O). The amount of galacturonic acid determined by the carbazole method [4] was 64%. The molecular mass of PcSs was 28,000 (determined viscosimetrically) [5].

The WSPSs consisted of a brownish powder readily soluble in water. It was impossible to determine their specific rotation because of the turbidity of the solution, $\eta_{rel} = 1.3$ (c 1; H₂O). The galacturonic acid content of the WSPSs was 40%, which permits them to be assigned to the acidic polysaccharides.

Thus, the presence of free monosaccharides, water-soluble polysaccharides, pectin substances and hemicellulose in the bark of the roots of *M. azedarah* has been established.

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