POLYPHENOLS OF Myricaria alopecuroides. I

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Myricaria alopecuroides Schrenk., family Tamaricaceae Lindl., is one of the promising tannide-bearing plants of Kazakhstan [1]. According to S. Kh. Chevrenidi, the organs of a Myricaria growing in Uzbekistan contain 9.8% of tanning substances [2].

In an aqueous acetone extract of the epigeal part of the plant collected in the flowering phase in the Great Alma-Ata Gorge of the Trans-Ili Ala-Tau, by two-dimensional chromatography on paper in the BAW (40:12.5:29) solvent system (1) and in the 15% acetic acid system, and also by specific qualitative reactions, we have detected phenolic carboxylic acids, and flavone and hydrolyzable tanning substances.

To isolate individual substances, after evaporation under vacuum the extract was treated successively with chloroform, ether, and ethyl acetate. The ethereal extract was concentrated to dryness, and the residue was treated exhaustively with hot water. The material insoluble in water, containing ellagic acid and aglycones, was treated with benzene. The residue, which was insoluble in hot water, ethanol, and ether, and was partially soluble in methanol, was recrystallized from pyridine. This gave ellagic acid with decomp. pt. ~360°C. Qualitative reactions [3], the R_f (value FN-3 paper, system 1), and the IR spectrum of the substance were identical with the corresponding characteristics of ellagic acid.

The water-soluble fraction of the ethereal extract was separated on a column of Kapron, and three substances were separated by water elution.

Substance (I) had mp 236°C, R_f 0.72 in system 1. It formed a blue coloration with ferric chloride. On the basis of its constants, qualitative reaction, and the absence of a melting point depression, this substance was identified as gallic acid [4].

Substance (II) with mp 198°C, R_f 0.89 in system 1 gave a dark-green coloration with a methanolic solution of ferric chloride. With acid hydrolysis (2 N HCl, 100°C) gave gallic acid. The results obtained, and also the IR spectrum and the absence of a melting point depression enabled substance (II) to be identified as methyl gallate.

Substance (III), $C_8H_{10}O_5$, mp 117°C, R_f 0.92 in system 1, formed 3-methoxygallic acid on acid hydrolysis. With ferric chloride it gave a green coloration. On the basis of the results obtained, the IR spectrum, and its elementary analysis, substance (III) was identified as methyl 3,4-dihydroxy-5-methoxybenzoate [5].

LITERATURE CITED

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