

## BRIEF COMMUNICATIONS

### POLYSACCHARIDE COMPOSITION OF

#### *Polygonum hydropiperis* AND *P. aviculare*

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Carbohydrates from plants of the family Polygonaceae have been previously studied [1-3]. The polysaccharide composition of *Polygonum aviculare* collected in Ryazan' district has been described [4, 5]. We studied for the first time the polysaccharide composition of *Polygonum hydropiperis* (hot pepper) and *P. aviculare* (bird pepper) growing in the Republic of Uzbekistan, preparations of which are currently used as hemostatics for uterine, hemorrhoidal, and stomach ulcers and as antibacterials [6, 7].

We studied the aerial organs of the plant. Each species (100 g each) was extracted separately with alcohol (three times, 82°) for 24 h. The combined extracts were evaporated to an oil. The product was a brown liquid with the characteristic odor of hot pepper and a slightly hot taste. It formed a light suspension upon standing.

The monosaccharide composition was studied by PC (*n*-butanol:pyridine:water, 6:4:3, FN-12, 13 paper, anilinium biphthalate developer), 100-110°C, 10 min). Glucose and arabinose were detected. The sugar ratio was determined by GC as the aldonitrile acetates [8] (Table 1). The main monosaccharide of the alcohol extracts was glucose.

The dried remaining raw material was extracted with water (three times, 1:3 ratio) for 2 h. The extracts were separated by filtration, combined, and condensed to 100 mL. Protein was removed by the Sevag method [9]. Then the extracts were again evaporated to a small volume and precipitated with alcohol (1:3). The precipitates were separated, washed, and dried with alcohol (96°). Table 1 lists the yields.

The water-soluble polysaccharides (WSPS) were cream-colored powders that were very soluble in water to form thin solutions that gave a negative reaction for starch with iodine.

WSPS (0.1 g) of *P. hydropiperis* and *P. aviculare* were hydrolyzed in H<sub>2</sub>SO<sub>4</sub> (3 mL, 2 N) at 100°C for 6 h. The hydrolysates were neutralized with BaCO<sub>3</sub> and filtered. The filtrates were treated with cation-exchanger KU-2 (H<sup>+</sup>) and evaporated. PC detected galactose, glucose, and arabinose and traces of xylose and an insignificant amount of uronic acid. The ratio of neutral sugars was determined by GC as the aldonitrile acetates. Table 1 gives the GC results.

The main monosaccharide in the WSPS was glucose. Galactose and arabinose were present in smaller quantities. Mannose and rhamnose were not detected.

Thus, alcohol extracts and WSPS were obtained from the herbs *P. hydropiperis* and *P. aviculare*. The WSPS differed from previously known polysaccharides in the monosaccharide composition and were glucoarabinogalactan polysaccharides.

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TABLE 1. Qualitative and Quantitative Composition of Alcohol Extracts and WSPS from *Polygonum hydropiperis* and *P. aviculare*

Sample	Yield, %	Monosaccharide ratio				
		Gal	Glc	Ara	Xyl	UA
<i>Polygonum hydropiperis</i>						
Alcohol extract	0.9	-	83.8	16.2	-	+
WSPS	1.3	16.0	76.5	4.5	Tr.	+
<i>Polygonum aviculare</i>						
Alcohol extract	1.1	-	90.0	9.9	-	+
WSPS	1.6	21.3	75.1	12.7	Tr.	+

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