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B R I E F C O M M U N I C A T I O N S

IRIS POLYSACCHARIDES. III. CARBOHYDRATES FROM *Iris pseudacorus*

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We have previously investigated glucomannans from *Iris sogdiana* [1] and water-soluble polysaccharides (WSPS) from six *Iris* species [2]. Herein we present results from a study of the carbohydrate components of *I. pseudacorus* L. (water flag, Iridaceae).

Ground air-dried organs (fruit, stems, rhizomes) were treated separately with a solvent mixture ($CHCl_3$:CH_3OH, 1:1) to extract pigments and lipids. Polysaccharides were isolated successively from one portion of raw material by water, ammonium oxalate solution, and base solutions (10 and 18%). Polysaccharides from the extracts were precipitated by alcohol to produce WSPS, pectinic substances (PS), and hemicelluloses (HMC). Fractions HMC-A and HMC-A_1 were isolated upon neutralization of the extract with acetic acid; HMC-B and HMC-B_1, by precipitation with alcohol from the remaining solution. Table 1 presents data for the polysaccharide content in various plant organs. It can be seen that PS dominate in the fruit and stems (6.8 and 3.8%, respectively); WSPS, in rhizomes (5.4%).

The isolated rhizome polysaccharides are white and light brownish powders (HMC) that do not contain starch according to a negative reaction with iodine.

Acid hydrolysis of the rhizome polysaccharide fractions produced monosaccharide units, the composition of which was investigated by paper chromatography and GC [3] (Table 2).

Galactose and rhamnose make up the dominant part of the WSPS.

PS are soluble in water to form viscous colloidal solutions. Galacturonic acid (46.7%), galactose, and arabinose dominate the monosaccharide composition of the pectinic fraction. Xylose and traces of rhamnose are present in smaller amounts.

The HMC fractions contain galactose, glucose, mannose, xylose, arabinose, and rhamnose. In addition to neutral sugars, the HMC contain galacturonic acid. Treatment of the plant with base probably extracts PS, which do not dissolve upon extraction by ammonium oxalate. The HMC differ in the qualitative composition and monosaccharide content. Galactose dominates HMC-A and HMC-B; arabinose, HMC-A_1; mannose, HMC-B_1.

Based on the study of the carbohydrate components of *I. pseudacorus*, the WSPS fractions can be considered the most promising for pharmacologic investigations.

TABLE 1. Polysaccharide Content in Various Organs of *Iris pseudacorus* L.

Plant organ	WSPS	PS	Hemicelluloses			
			A	B	A_1	B_1
Fruit	2.1	8.0	1.9	1.5	0.9	1.4
Stem	1.1	3.8	1.6	1.2	1.8	1.4
Rhizome	5.4	5.0	2.2	1.4	0.9	2.2

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TABLE 2. Monosaccharide Composition of Polysaccharides from *I. pseudacorus* L. Rhizomes

Polysaccharides	Monosaccharides, %					
	Rha	Ara	Xyl	Man	Glc	Cal
WSPS	25.4	10.0	-	5.3	-	59.3
PS	-	34.0	20.0	-	-	45.6
HMC-A	2.6	3.2	26.6	1.3	-	66.3
HMC-B	-	-	1.0	5.5	11.0	82.5
$HMC-A_1$	-	73.2	10.2	1.7	-	14.9
$HMC-B_1$	16.0	12.0	12.0	36.0	12.0	12.0

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