

INFLUENCE OF MOLYBDENUM ON THE ACCUMULATION AND COMPOSITION  
OF THE WATER-SOLUBLE POLYSACCHARIDES OF *Plantago psyllium*

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The water-soluble polysaccharide complex was previously isolated from the herb flaxseed plantain (*Plantago psyllium* L.) [1] and this, together with rippleseed plantain, may serve as a source of the preparation Plantaglyutsid [2].

We have studied the dynamics of the accumulation of polysaccharides in flaxseed plantain when it is given a foliar top dressing with molybdenum [1], and also their monosaccharide composition and physicochemical properties.

The polysaccharides were extracted with water at 90-95°C from raw material collected in the period of mass flowering (Botanical Garden of Ryazan' Medical Institute, 1980-1984). The extracts were evaporated and were precipitated with 5 volumes of ethanol.

The monosaccharide composition was studied by descending paper chromatography in the butan-1-ol-pyridine-water (6:4:3) and ethyl acetate-formic acid-water-acetic acid (18:1:4:3) systems after 20-h hydrolysis with 1 N sulfuric acid. Galacturonic acid and neutral monosaccharides - galactose, arabinose, and rhamnose as the main components, together with smaller amounts of two partially methylated monosaccharides - were detected. It was established by alternating-current polarography [3] that the amount of molybdenum in the polysaccharide on foliar top dressing was  $7 \cdot 10^{-3}\%$ , no molybdenum being found in a control.

The polysaccharides were demineralized by dialysis through semipermeable membranes. On the purification of the polysaccharide obtained with foliar top dressing the amount of molybdenum did not change. This permits the conclusion that the molybdenum was chemically bound to the polysaccharide. The final purification of the polysaccharides was achieved by passing 1% solutions through KU-2 (H<sup>+</sup>) and AV-17 (OH<sup>-</sup>) ion-exchange resins.

The amounts of galacturonic acid were determined by potentiometric titration [4]:

Polysaccharide	Yield, %	Ash content, %	Amounts, %		Neutral monosaccharides			
			uronic acid	-OCH <sub>3</sub>	Gal	Ara	Rha	minor component
Control	14.4	24-26	60	13	+	+	+	±
Experiment	10.5	23-27	66	25	+	+	+	±

The results of the investigations permit the conclusions that molybdenum somewhat decreases the amounts of total monosaccharide complex and of galacturonic acid while considerably raising the amount of -OCH<sub>3</sub>.

LITERATURE CITED

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