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**Actual Problems of the
Chemistry of Natural Compounds**

ABSTRACTS

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POLYSACCHARIDES OF THE AERIAL PART OF *Pisum sativum***R.K. Rakhmanberdyeva¹, Z.Y. Samandarova², A.E. Eshbekov²**

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Peas - *Pisum sativum* - a genus of annual and perennial herbaceous plants of the legume family (Fabaceae), is widely used as a food and fodder crop.

The purpose of this work is to isolate the carbohydrate complex from the aerial part of *Pisum sativum*, collected in the Jizzakh region during the flowering period, to establish the physicochemical properties and monosaccharide composition.

To do this, air-dry raw materials were crushed and treated with ethanol to remove low molecular weight compounds. The alcohol extract revealed the presence of glucose, fructose and sucrose. To extract the polysaccharides, the plant residue was successively extracted with water, oxalate buffer, and alkali. As a result, water-soluble polysaccharides (WSPS) were isolated from the aqueous extract, pectin substances (PS) from the oxalate extract, and hemicellulose (HMC) from alkaline extract with yields of 4.9; 4.65; 3.15% respectively.

Water-soluble polysaccharides are white amorphous powder, highly soluble in water. The monosaccharide composition is represented by galactose, glucose, arabinose, rhamnose and uronic acid. The IR spectrum of WSPS contains absorption bands characteristic of polysaccharides: ν_{\max} , 3298, 1746 (C=O), 1590, 1413, 1100, 913, 668 cm^{-1} .

After the separation of WPPS from the meal with a mixture of equal volumes of 0.5% solutions of oxalic acid and ammonium oxalate at 70°C, PS was extracted. PS-amorphous powder of beige color, dissolves well in water, forming a thick solution with a relative viscosity of 7.14. Galactose, arabinose, rhamnose, and uronic acid were identified in PS hydrolyzate.

Titrimetric analysis established that the content of free carboxyl groups (K_f) in HP is 9.0%; esterified carboxyl groups (K_e) - 23.90%; the degree of esterification (S_e) is 72.6%. Therefore, PS is a highly esterified pectin.

The IR spectrum has characteristic absorption bands for carboxypolysaccharides: ν_{\max} , 3424, 1740 (C=O), 1627, 1444, 1320 (-OCH₃), 914, 825 cm^{-1} .

After extracting PS with 5% KOH solution, hemicellulose (HMC) was isolated with a yield of 3.15%. The monosaccharide composition of HMC is represented by galactose, arabinose, xylose, rhamnose and uronic acid. The dominant monosaccharide in HMC is xylose, i.e. the main polysaccharide is xylan, which is characteristic of this type of biopolymers.

Thus, the presence of alcohol-soluble sugars, water-soluble polysaccharides, pectin substances and hemicelluloses in the aerial part of *Pisum sativum* has been shown. Their monosaccharide composition was established and IR spectra were studied.