From the mother solution a polysaccharide was isolated which gave galactose, mannose, galacturonic acid, and traces of glucose on hydrolysis.

The pectin isolated from the leaves (collected on May 22), after reprecipitation with ethanol, demineralization, and drying, consisted of a cream-colored powder containing 38% of uronic anhydride and 2.5% of OCH_3 groups; a 0.25% aqueous solution of the pectin formed a viscous colloidal system (η_{rel} 2.0). From a hydrolyzate of the pectin by precipitation with methanol we obtained the barium salts of the uronic acids, which were analyzed by electrophoresis and shown to consist of galacturonic acid. According to paper chromatography, the pectin of the bulbs contained galactose, mannose, galacturonic acid, and glucose.

Thus, it has been established that the polysaccharides of U. ferganica include a glucomannan and pectin.

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A REFRACTOMETRIC STUDY OF PECTIN SUBSTANCES

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We have investigated by refractometry the pectin substances from seaweeds — zosterin [1] — and from ginseng — panaxan [2] — and fragments of them. We have studied the interaction of the biopolymers with low-molecular-weight additives from the nature of the change in the difference of the refractive indices of solution and solvent Δn as a function of the concentration of the biopolymer c and from the increase in the refractive index dn/dc.

The improvement in the solubility of the galacturonan and the apiogalacturonan from zosterin with the addition of urea corresponds to a bend in plots of Δn versus c, and for the apiogalacturonan in 0.8 and 1 M urea singular points appear on these curves (Fig. 1), which, according to well-known refractometric ideas [3], correspond to a process of complex-formation by the biopolymer and the urea. No such relationships and, correspondingly, no significant increase in solubility are observed for zosterin. Additions of small amounts of ammonium hydroxide increase the solubility of the galacturonan, as is shown by an increase in dn/dc. As follows from the results of light-scattering experiments [4], the decrease in dn/dc with the addition of large amounts of NH_4OH corresponds to the aggregation of the biopolymer. The interaction of NaCl with the macromolecules of panaxan and with the galacturonan from panaxan found refractometrically corresponds to an improvement in solubility and to disaggregation in solutions of biopolymers [4]. For zosterin at the threshold of gelatinization [5] an increase of its interaction with acid has been reported. The addition of sucrose to solutions of zosterin does not lead to a change in the refractometric relationships, which shows the absence of appreciable chemical interaction with sucrose.

Thus, the addition of low-molecular-weight additives to solutions of pectin substances frequently leads to their interaction with biopolymers which in some cases is accompanied by a process of disaggregation and in others by aggregation or gelling.

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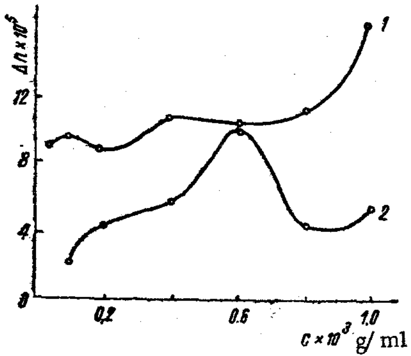

Fig. 1. Dependence of Δn on c for apiogalacturonan in 0.8 M (1) and in 1 M (2) urea.

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PHOSPHOLIPIDS OF THE COTTONPLANT OF VARIETY TERMEZ-7

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Thin-fibered cotton plant *G. barbadense* of variety Termez-7 is a new promising early-ripening high-yielding variety resistant to fusarial wilt. One of its ancestors is variety 5904-I [1], the phospholipid contents of which we have studied previously [2-4]. The aim of the present work was a study of the phospholipids (PLs) of the new variety and a comparison of them with those of variety 5904-I.

The phospholipids of the seed kernels were isolated and were characterized by methods similar to those described previously [2-4]. Six groups of phospholipids were found, which are given in order of increasing polarity: unidentified PLs X_1 and X_2, phosphatidylethanolamines (PEs), phosphatidylinositols (PIs), phosphatidylcholines (PCs), and lyso-PCs. Their amounts were 2.6, 7.0, 14.2, 22.6, 48.4, and 5.1%, respectively.

Structures of the main phospholipids, the PCs, PEs, and PIs, were confirmed by physical and chemical methods and corresponded to known compounds.

The total fatty-acid compositions and the position distributions of the acyl radicals in the molecules of the main phospholipids were established by methods described previously [3] (Table 1). The position distribution of the fatty acids enabled us to calculate the possible molecular compositions: 42 species each in the PCs and PEs, and 49 species in the PIs. In relation to saturation, these species are distributed in the following way (%):

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