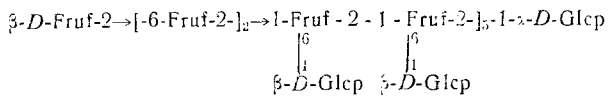
	C-1	C-2	C-3	C-4	C-5	C-6
Residues of 2 → 1-bound fructofuranose units	62.35	104.5	78.3	76.1	82.6	63.7
Residues of 2 → 6-bound fructofuranose units	61.0	105.0†	78.65	76.5 ‡	81.65	64.7
α-D-Glucopyranose residues	93.5	72.5	73.9	70.8	73.0	61.0
β-D-Glucopyranose residues	97.15	72.7	73.2	70.5	72.5	62.1

The methylation of the glucofructan by Hakomori's method gave a permethylate with $[\alpha]_D^{22}$ −33.3°, which was subjected to formolysis followed by hydrolysis. The product of the hydrolysis of the permethylate was subjected to thin-layer chromatography [TLC, system: benzene—acetone (2:1)] and 2,3,4,6-tetra-O-methyl-D-glucose, 1,3,4,6-tetra-O-methyl-D-fructose, 1,3,4-tri-O-methyl-D-fructose, 3,4,6-tri-O-methyl-D-fructose, and 3,4-di-O-methyl-D-fructose were identified by comparison with authentic samples.

The analysis of the products of the hydrolysis of the permethylate was confirmed by IR and ^{13}C NMR spectra. Summing all the conclusions, it is possible to put forward the following structure for the glucofructan from the bulbs of *A. cepa*:



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WATER-SOLUBLE POLYSACCHARIDES OF SOME REPRESENTATIVES OF THE FAMILY VACCINIACEAE

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We have investigated the ripe fruit of *Vaccinium vitis-idaea* L. (cowberry), *Vaccinium oxycoccus* L. (small cranberry), and *Vaccinium myrtillus* L. (myrtle whortleberry) collected, respectively, in the environs of the villages of Ushmar and Neshkino in the Klepikovskii region and the village of Murmino in the Ryazanskii region of Ryazan province. The chemical compositions of the fruits of these plants has been studied inadequately, which also applies to the water-soluble polysaccharides (WSPSs).

After preliminary purification [1], the air-dry raw material (moisture content 9.5-11.0%), from the 1980-1982 harvest was extracted with hot water at 90-95°C (1:20) for 1.5 h. The extract was filtered and evaporated, and the residue was treated with 96% ethanol (1.5 volumes). The precipitate of WSPSs was separated off, washed with ethanol and with acetone, and dried in vacuum over P_2O_5 for 12 h. The yield of polysaccharides (PSs) from the cowberries was 2.4%, from the myrtle whortleberries 2.5%, and from the small cranberries 2.6%. Their ash contents (6.4, 6.5, and 5.2%, respectively) were determined by igniting samples of the PSs in a muffle furnace at 600°C.

The WSPSs were determined by reprecipitating aqueous solutions with acidified ethanol, dialysis through a semipermeable membrane, and treatment with KU-2 cation-exchange resin

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(H^+ form). The ash content of the demineralized PSs was 0.4-0.5%. The amounts of uronic anhydride in the WSPSs were determined by complexonometric titration [2] (cowberries 73.7%; myrtle whortleberries, 75.1%; small cranberries, 78.2%).

The hydrolysis of the demineralized PSs, the neutralization of the hydrolysates, and the subsequent operations with them were carried out as described previously [1]. The WSPSs of the hydrolysates obtained were investigated by descending PC in the butan-1-ol—pyridine—water (6:4:3) system at 19-21°C for 42-47 h (Leningrad type M ["slow"] paper, density 80 g/m²). The monosaccharides were revealed with aniline phthalate. It was found that PCs of the cowberry, myrtle whortleberry, and small cranberry consisted of seven monosaccharides: D-galacturonic acid, D-galactose, D-glucose, L-arabinose, D-xylose, and L-rhamnose and one unidentified monosaccharide present in traces which was chromatographically more mobile than L-rhamnose.

The amounts of the neutral sugars — galactose, glucose, arabinose, xylose, and rhamnose — were determined by direct densitometry of the chromatograms on an automatic integrating microdensitometer of type 3 CS (Joyce-Loebl); in the WSPSs of the cowberry they were present in a ratio, respectively, of 2.5:1.9:2.2:1.0:1.0; in the myrtle whortleberry, 5.0:1.1:3.2:1.9:1.0; and in the small cranberry, 1.8:1.2:3.3:1.3:1.0. The figures obtained permit the PSs of the fruit of these plants to be assigned to the class of pectin substances.

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STEREOSPECIFIC ANALYSIS OF TRANSESTERIFIED TRIACYLGLYCEROLS

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The transesterification of fats is discussed in many publications [1], but inadequate attention has been devoted to the structures of the triacylglycerols (TAGs). In order to determine the recombination of acyl radicals, we have studied their distribution in the molecules of the TAGs in the process of transesterification in a model mixture consisting of triolein (TO) and tripalmitin (TP), synthesized by ourselves.

For the synthesis we used dynamite-quality glycerol and the 16:0 and 18:1 fatty acids. The latter was obtained by fractionating olive oil fatty acids as described by Jantzen and Andreas [2]. The TO and TP were synthesized at 180°C in a current of nitrogen for 5 h, using as catalyst K_2CO_3 in an amount of 0.2-0.3% on the mass of the fatty acids. The glycerol was added in 30-40% excess as compared with the amount calculated theoretically. The completeness of esterification was checked by TLC [3]. The reaction products were separated by column chromatography (CC), the homogeneity of the fractions being checked by TLC in comparison with model samples, and their quantitative ratios were determined gravimetrically. The following results were obtained (wt. %): TAGs, 40-57; sum of 1,3- and 1,2(2,3)-diacylglycerols (DAGs), 33-26; free fatty acids (FFAs) 21-13.5; and monoacylglycerols (MAGs) 6.5-4.0. These results show that in addition to the desired product — triacylglycerols — there was a considerable amount of intermediate products resulting from incomplete acylation. Consequently the completeness of esterification was judged only from the results of TLC and not from the acid No. [4].

The pure TO and TP were transesterified in a ratio of 4:1 at 65°C using sodium ethanolate as catalyst (0.2% calculated as sodium on the total mixture) with stirring for 50 min and subsequent 10-min standing. Then the reaction mixture was extracted with hexane, washed with distilled water, and dried over Na_2SO_4.

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