

	Acid, mole %				
	16:0	18:0	18:1	18:2	18:3
n-TAG	2.9	0	20.1	51.4	24.6
sn-1	7.3	2.4	25.1	44.8	20.4
sn-2	0.5	—	24.6	55.6	19.3
sn-3	0.9	0.6	10.6	53.8	34.1

	Acid, wt. %			
	16:0	C <sub>18</sub>	epoxy-18:1	epoxy-18:2
ep-TAG	5.0	62.0	11.7	21.3
sn-1	13.3	29.0	9.2	48.5
sn-2	1.6	78.1	14.5	5.8
sn-3	0.1	78.9	11.4	9.6

Consequently, in the n-TAGs almost the whole amount of the saturated acids is present in the sn-1 position, the 18:1 acid is distributed mainly in the sn-1 and sn-2 positions, the 18:2 acid in the sn-2 and sn-3 positions, and the 18:3 acid in the sn-3 position. The nature of the distribution of the 16:0 acid in the ep-TAGs is the same as in the n-TAGs. The epoxy acids, esterifying all three positions, are distributed differently according to their unsaturation: The ep-18:1 acid esterifies mainly the sn-2 and sn-3 positions, and the ep-18:2 acid the sn-1 position.

Thus, we have performed a stereospecific analysis of plant p-TAGs for the first time and have shown that the ep-18:1 and ep-18:2 acids have different natures of their distribution over the three sn-positions of glycerol.

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#### OIL AND CARBOHYDRATES OF THE SEEDS OF *Cydonia oblonga*

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We have studied the oil and carbohydrates of the seeds of *Cydonia oblonga* Mill. (common quince), family Rosaceae, which are wastes of the preserving industry.

The seeds dried to the air-dry state had an oil content on the absolutely dry matter of 29.3%. According to the literature [1], this magnitude is between 15 and 20%.

The oil and carbohydrates were extracted successively from a single sample of the raw material. The seeds were ground and the oil was extracted by steeping in hexane at room temperature. Then the meal was dried and used for the subsequent extraction of various groups of carbohydrates, mono- and oligosaccharides, water-soluble polysaccharides, pectin substances [2], and hemicelluloses A and B [3]. The polysaccharides were hydrolyzed with 2 N H<sub>2</sub>SO<sub>4</sub> at 100°C for 30 h, and the sugars in the hydrolysate were studied by the PC and GLC methods [4], using authentic samples for identification. For GLC, the monosaccharides were converted into the corresponding aldonitrile acetates.

The oil obtained (after the elimination of the hexane) consisted of a mobile light brown liquid with the following indices:  $d_4^{20} = 0.9236$  g/cm<sup>3</sup>; refractive index,  $n_D^{20} = 1.4728$ ; iodine number, 120% I<sub>2</sub>; amount of unsaponifiabiles, 0.94%.

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The fatty-acid composition was determined by the GLC method:  $C_{16,0} = 5.5$ ;  $C_{18,0} = 0.8$ ;  $C_{18,1} = 39.2$ ;  $C_{18,2} = 54.5$ ;  $C_{18,3}$  - traces.

In its fatty-acid composition, this oil is similar to sunflowerseed oil.

In the mono- and oligosaccharides, glucose, fructose, sucrose, rhamnose, and fructose-containing oligosaccharides were detected.

A mucous water-soluble polysaccharide was obtained with a yield of 1%. It consisted of a white fibrous amorphous powder containing no nitrogen, soluble in water, forming clear and very viscous solutions, giving a negative starch reaction with iodine, and possessing no reducing capacity. In the products of its hydrolysis, galactose, glucose, mannose, xylose, and arabinose were detected in a ratio of 6.3:34.9:1:14.2:2.4, together with very small amounts of galacturonic acid. Among the monosaccharides glucose and xylose predominated, which gives grounds for assuming the presence of xyloglucans in the polysaccharide. The presence of galacturonic acid is connected with the depolymerization of the pectin substances.

The pectin substances were obtained with a yield of 1.4%. They had the form of an amorphous water-soluble powder;  $[\alpha]_D^{20} + 160^\circ$  (c 0.5; water). The products of acid hydrolysis were found to contain mainly D-galacturonic acid and the neutral sugars: galactose, glucose, mannose, xylose, arabinose, and rhamnose in a ratio of 3.6:2.7:1:2.5:6.3:1.8, respectively.

The alkali-soluble polysaccharides (hemicelluloses A and B, yield 22.9%) were present in considerably larger amounts than the pectin substances. The hemicellulose A was found to contain galactose, glucose, mannose, xylose, and arabinose residues in a ratio of 1.5:4.4:1:1:1, while hemicellulose B contained the same sugar residues in a ratio of 1:5.3:2.0:20.5:2. In hemicellulose B the xylose residues predominated, which gives grounds for assuming the presence of a xylan in the raw material. Thus, the results of a study of the seeds of *Cydonia oblonga* have shown that its oil is similar, so far as concerns fatty acid composition, to sunflowerseed oil and in the carbohydrate complex there are mono- and oligosaccharides, mucous polysaccharides, pectin substances, and hemicelluloses.

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