

LIPIDS OF THE OIL-CONTAINING DUST IN THE PROCESSING OF COTTON SEEDS

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In the processing of cotton seeds, during the separation of the hulls from the kernel, an enormous amount of oil-containing dust is formed, part of which is carried out into the cyclone while a considerable part of it is suspended in the air. To create normal conditions for the workers and in order to decrease losses of fat with the entrained particles of the kernel, an apparatus for trapping the dust has been proposed [1].

We have made a comparative investigation of the lipids of the oil-bearing dust (OD) and of the kernel fraction (KF) passing into the rolls. The lipids were obtained from the samples by repeated extraction with hexane at room temperature, and the solvent was distilled off in vacuum in a current of nitrogen. The qualitative compositions of the lipids was determined by TLC on Silufol in the solvent system ether-hexane (3:1).

In the lipids of the OD and the KF, triacylglycerols, epoxyacylglycerols, free fatty acids, diacylglycerols and sterols were identified. Characteristic indices of the samples are given below:

Index	OD	KF
Moisture content of the samples, %	8,8	8,0
Oil content on the absolutely dry matter, %	28,1	36,7
Amount of phosphorus in the samples, %	0,79	0,91
Free gossypol in the samples, %	0,07	1,90
Color of the oil in a 1-cm layer	14,0	17,0
Acid No. of the oil, mg KOH/g	13,0	10,2
Peroxide No. of the oil, %	0,02	0,006
Protein, %	31,5	33,5
Cellulose on the absolutely dry matter, %	13,9	9,0

After the oil-bearing dust had been stored for seven days, the acid number of the lipids isolated from it had risen to 44.0 mg KOH, and the peroxide number to 0.075, which is probably due to the presence in the finely comminuted dust of enzymes capable of cleaving complex lipids [2]. In addition, we isolated the lipids from these samples and determined their fatty acid compositions by GLC (Chrom 4 instrument, column with 15% of Reoplex 400 on Chromaton N-AW-DMCS at 200°C) which are given below (%):

Acids	Lipids of the OD	Lipids of the KF	FAAs of the OD
C _{12:0}	0,5	0,4	Tr.
C _{14:0}	0,4	0,5	Tr.
C _{16:0}	20,8	23,6	31,9
C _{16:1}	0,9	0,6	Tr.
C _{18:0}	1,4	0,3	Tr.
C _{18:1}	13,7	13,6	23,4
C _{18:2}	62,3	61,0	44,7
Σ _{sat}	76,9	75,2	68,1
Σ _{unsat}	23,1	24,8	31,9

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A similar distribution of the acids has been reported by other authors [3].

After extraction with hexane, the samples of the OD and KF were steeped in chloroform-methanol. The following phospholipids were detected in the lipids of the OD and KF by TLC on silica gel in the solvent system described previously [4]: phosphatidylethanolamine, phosphatidylcholine, phosphatidylinositol, and lysophosphatidyl choline.

Thus, the oil-bearing dust formed in the processing of cotton seeds is a valuable waste which can be used together with the total mass of kernels for the extraction of oil.

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LIPIDS OF *Rumex confertus*

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Plants of the genus *Rumex* (family Polygonaceae) are widely used in folk medicine for the treatment of dermal, gastrointestinal, and oncological diseases and are a valuable raw material for the leather industry [1]. The lipids of *Rumex* fruits have scarcely been investigated.

We have studied the lipids of the fruit of *R. confertus* Willd., which is widely distributed in Central Asia and is promising for introduction into cultivation.

The yield of hexane-extracted lipids from the comminuted amounted to 1.5% on the mass of the air-dried raw material.

The sum of the lipids was separated by chromatography on a column of silica gel [2] into the following fractions (% on the mass): hydrocarbons, 3.2; sterol esters (SEs), 14.0; wax esters (WEs) + x_1 , 9.4; triacylglycerols (TAGs), 41.4; free fatty acids (FFAs) with anthraquinones (A-1) and x_2 , 19.6; fatty alcohols, 0.4; diacylglycerols (DAGs) with anthraquinones (A-2) and sterols, 4.4; chlorophylls with x_3 , traces; monoacylglycerols (MAGs) with x_4 , 1.4; brown pigments, 6.2.

The lipids were identified as described in [2, 3]. The brown-pigment fraction gave a negative reaction for the presence of polar lipids, while A-1 had a pink and A-2 had a yellow coloration. The change in their coloration under the action of alcoholic solutions of KOH and $Mg(OAc)_2$, together with the presence of characteristic absorption bands in the UV spectrum [4], permitted the pigments to be assigned to the hydroxylated anthraquinones. It is known that the fruit this *Rumex* species contains chrysophanol and chrysophanein [1].

The low level of TAGs and the high level of hydrocarbons, SEs and WEs showed that the lipids isolated from the fruit of the *R. confertus* were a mixture of the surface lipids of the fruit coats and the reserve lipids of the seeds.

According to the results of TLC and IR spectroscopy, the hydrocarbons were paraffin and consisted (GLC, % [3]) of C_{16} - C_{18} - tr; C_{19} - 0.3; C_{20} - 0.2; C_{21} - 0.5; C_{22} - 0.1;

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