saponifiable substances	59.2	59.5
unsaponifiable substances	40.8	40.5
Density, d_4^{20}, g/ml	0.9900	0.9895
Refractive index, n_D^{20}	1.5036	1.5165
Acid No., mg KOH/g	50.0	40.0
Ester No., mg KOH/g	290.0	180.0

Both extracts contained appreciable amounts of lipids, the bulk of which was represented by esters of high-molecular-weight acids of the aliphatic series. This was indirectly confirmed by the high level of saponifiable substances in the CO_2 extracts investigated.

The fatty acids of the CO_2 extracts of cinquefoil and angelica were represented by a fairly wide set of saturated acids, among which palmitic predominated:

Fatty acid	CO_2 extract of P. erecta	CO_2 extract of A. officinalis
Lauric	0.4	2.5
Tridecanoic	—	2.3
Myristic	—	1.8
Pentadecanoic	11.5	0.8
Palmitic	21.3	20.5
Palmitoleic	7.0	3.8
Stearic	8.0	4.2
Oleic	30.0	41.7
Linoleic	10.4	20.0
Linolenic	11.4	2.4
Total saturated acids	41.2	32.1
Total monounsaturated acids	37.0	45.5
Total polyunsaturated acids	11.4	2.4

A positive characteristic of these extracts from the point of view of the presence of biologically active principles in them is their content of linolenic acid, the vitamin F factor.

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PHOSPHOLIPIDS OF THE SEEDS OF *Crambe schugnana*

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Continuing an investigation of the phospholipids of plants of the family Cruciferae [1], we have studied the seeds of *Crambe schugnana* Korch., which is widely distributed in Uzbekistan [2]. The phospholipids (PLs) were extracted from the seeds by Folch's method [3]. The yield of combined phospholipids after freeing them from carbohydrates [1] was 0.69% (on the air-dry weight of the seeds), and their phosphorus content was 3%. The qualitative composition of the total PLs and the quantitative ratio of the individual fractions were determined by known methods [1, 4, 5]. Six phosphorus-containing spots were detected: PL X_1 (3.4%), X_2 (4.6%), phosphatidylcholine (PC; 55%), phosphatidylethanolamine (PE; 13.7%), phosphatidylinositol (PI; 19%), and lyso-PC (4.3%).

We investigated the three main fractions (PC, PI, PE), which were isolated in the homogeneous state by means of column chromatography of the combined material on silica gel. The results of IR spectroscopy, and of determinations of phosphorus and nitrogen and of the products of alkaline and acid hydrolyses confirmed that these fractions were glycerophospholipids [1].

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TABLE 1

Fatty acid	Triglycerides	Total phospholipids	Phosphatidylcholine			Phosphatidylethanolomine			Phosphatidylinositol		
			initial	position		initial	position		initial	position	
				1	2		1	2		1	2
$C_{12:0}$	0,8	0,7	1,3	2,2	—	2,6	4,4	0,90	1,5	2,8	—
$C_{14:0}$	0,6	0,2	1,1	1,9	—	1,2	3,0	0,4	1,6	2,0	1,4
$C_{16:0}$	1,7	13,5	14,6	26,2	2,6	14,8	24,0	5,8	25,0	48,3	1,7
$C_{16:1}$	1,1	0,8	2,7	3,6	2,5	1,2	1,0	1,0	1,2	—	1,3
$C_{18:0}$	0,6	0,5	1,0	2,6	—	1,2	1,2	0,6	0,7	2,0	—
$C_{18:1}$	23,2	25,3	32,1	28,6	34,4	27,2	30,0	23,0	18,8	16,9	17,5
$C_{18:2}$	13,9	26,2	27,7	19,2	35,7	36,4	23,6	49,0	30,7	13,5	5
$C_{18:3}$	18,1	10,8	11,0	3,9	18,8	8,2	1,8	15,3	13,4	2,0	27,1
$C_{20:0}$	6,0	10,2	6,5	8,8	4,5	7,2	11,0	4,0	4,8	6,5	2,5
$C_{22:1}$	34,0	11,8	2,0	3,0	1,5	—	—	—	2,3	6,0	2,0
$\Sigma_{sat.\ acids}$	9,7	25,1	24,5	41,7	7,1	27,0	43,6	11,7	33,6	61,6	5,6
$\Sigma_{unsat.\ acids}$	90,3	74,9	75,5	58,3	92,9	73,0	56,4	88,3	66,4	89,4	94,4

The fatty acids of the triglycerides and the combined PLs and their main fractions were isolated under mild conditions and were analyzed by GLC. The oil of this plant contains erucic acid ($C_{22:1}$). The combined PLs also contain this acid which was detected in all their fractions with the exception of the PE fraction (Table 1).

To determine the position distribution of the fatty acids, the main phospholipids were subjected to enzymatic hydrolysis with phospholipase A, and from these results, by methods described previously [1], we calculated their possible molecular compositions: the PC and PE each contained 70 types, and the PI 75 types. According to their degree of saturation, they were distributed in the following way:

Type	PC	PE	PI
Disaturated	2,2	4,6	3,7
Diunsaturated	55,5	51,2	37,3
Saturated – unsaturated	40,0	38,2	57,2
Unsaturated – saturated	2,3	6,0	1,8

Thus, it has been established that in the PC and PE the main types are diunsaturated and in the PI they are saturated–unsaturated.

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