drates obtained were hydrolyzed with 2 N H_2SO_4, the intensities of the glucose and galactose spots increased and the spot of fructose appeared with R_f 0.50, 0.73, 0.63 in systems 1, 2, and 3, respectively [5].

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AN INVESTIGATION OF CO_2 EXTRACTS FROM THE ROOTS AND RHIZOMES OF *Potentilla erecta* AND *Archangelica officinalis*

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UDC 664.5

The roots and rhizomes of *Potentilla erecta* (L.) Hampe (tormentilla cinquefoil) and of *Archangelica officinalis* (Mococh.) Hoffm. (*Angelica archangelica*; garden angelica) have long been used as spice-aromatic plants, in view of which the compositions of their essential oils have been most studied [1, 2].

The use of liquified carbon dioxide as an extractant for plant raw material has enabled the lipid fraction to be extracted from plants in addition to terpenoids.

We have investigated the main physicochemical indices of CO_2 extracts of cinquefoil and angelica, devoting our main attention to their fatty-acid compositions.

The CO_2 extracts of *P. erecta* and *A. officinalis* were obtained from the air-dry raw material ground to a fineness of 0.10-0.16 mm. Extraction was performed in a laboratory apparatus under strictly controlled thermodynamic conditions ($P = 2.4 \cdot 10^4$ Pa, 165 min). The amount of essential oil was determined by steam distillation with a Ginsberg receiver, and the lipid fraction of the extract was isolated by precipitation with cooled methanol from the initial product. The saponifiable and unsaponifiable substances were obtained after alkaline hydrolysis by extraction with petroleum ether of the hydrolyzate before acidification (unsaponifiables) and after acidification (saponifiables). To study their fatty-acid compositions the lipid fractions were subjected to transesterification in absolute methanol in the presence of sodium methoxide. The methyl esters of the fatty acids were analyzed in a "Khrom-2" gas chromatograph with a column 190 cm × 4 mm using as the stationary phase polyethylene glycol succinate on Chromosorb (60-80 mesh) 20% W_1/W_2, temperature +195°C, carrier gas nitrogen (80 ml/min):

Index	CO_2 extract of P. erecta	CO_2 extract of A. officinalis
Yield of extractive substances, % on the absolute dry weight of the raw material	4.7	3.4
In the extract (%):		
essential oil	26.0	23.0
lipids	11.2	7.3

Krasnodar Scientific-Research Institute of the Food Industry. Translated from Khimiya Prirodnykh Soedinenii, No. 1, pp. 108-109, January-February, 1977. Original article submitted September 9, 1976.

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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UDC 547.953:665.37

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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Translated from Khimiya Prirodnykh Soedinenii, No. 1, pp. 109-110, January-February, 1977. Original article submitted September 14, 1976.