

LIPIDS OF THE AERIAL PART OF *Capsella bursa-pastoris*

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*Capsella bursa-pastoris* (L.) Medic, common shepherd's-purse (Cruciferae), is a medicinal plant that is included in the VIIIth and IXth editions of USSR pharmacopoeia and is an official remedy in other countries. It is used for uterine bleeding, malignant ulcers and cancer of the stomach, tumors, uterine cancer and fibroma, and for all types of kidney bleeding and diseases in homeopathy [1, 2].

Extracts of leaves and roots are known to contain neutral lipids (62.6 and 58.5%), glyco- (20.8 and 17.8%), and phospholipids (16.6 and 23.7%, respectively) [3]. Seed oil contains fatty acids (FA) up to 50% linolenic and ~1% erucic acid [4].  $\beta$ -Carotene and  $\beta$ -sitosterol were identified in the aerial part [5].

We studied lipids of the aerial part of the plant collected during flowering in Tashkent district (April 2000). The ground aerial part was extracted first with benzine, yield 0.9%, and then  $\text{CHCl}_3$ , yield 1.7%.

The benzine extract was fractionated by preparative TLC (PTLC) using benzine—diethylether (4:2) into seven fractions: 1) polar lipids, pheophytins "a" and "b", monoacylglycerols, 34.7%; 2) diacylglycerols, sterols, chlorophylls "a" and "b", 12.4%; 3) free FAs, triterpenols, 25.8%; 4) unidentified compounds, 4.1%; 5) triacylglycerols (TAG), 6.7%; 6) waxy esters, 12.8%; 7) hydrocarbons, 3.5%.

The  $\text{CHCl}_3$  extract was also separated by PTLC using the system for neutral lipids in order to purify it of them and chlorophyll pigments. The fraction of polar lipids was 65% of the total  $\text{CHCl}_3$  extract. Then, separation of the polar lipids by TLC in acetone gave 73% glyco- and 27% phospholipids.

TABLE 1. Fatty Acids of *Capsella bursa-pastoris* Lipids

Acid	Content, GC, %		
	Benzine extract		$\text{CHCl}_3$ extract
	total FA	TAG	total FA
8:0-12:0	1.1	5.6	2.5
14:0	1.8	3.7	2.0
14:1	0.5	0.4	0.4
15:0	1.0	1.2	1.0
16:0	24.2	23.4	52.2
16:1	1.7	2.4	5.6
16:2	-	0.7	-
18:0	10.2	8.4	9.6
18:1	20.8	21.0	11.7
18:2	8.3	15.4	7.5
18:3	5.2	8.3	3.2
20:0	10.8	-	4.3
X <sub>1</sub>	1.1	9.5	-
22:0	1.8	-	-
X <sub>2</sub>	11.5	-	-

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Table 1 presents the compositions of FAs in the benzene extract and TAG isolated from it and the total FAs in the CHCl<sub>3</sub> extract. Acids were separated by GC of their methyl esters. The individual peaks in the chromatogram were assigned from the relative retention time (RRT) calculated relative to 16:0 and from curves of the logarithm of the retention time as a function of chain length and degree of unsaturation.

The most FAs components were identified in the benzene extract. The principal acids for all FAs samples were 16:0 and 18:1. In general, FAs of neutral lipids have a high degree of unsaturation (up to 50% of the acid mass).

The total FAs of the CHCl<sub>3</sub> extract are even more unsaturated. These acids are contained in the polar glyco- and phospholipids.

Acid X<sub>1</sub> is a saturated component with a chain length of 21 C atoms. Acid X<sub>2</sub> was also tentatively identified by the curves and RRT as most probably erucic (22:1) acid, which was observed in seeds of many plants of this family although it is yet unknown in lipids of the aerial part.

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