

TABLE 1. Acids of the Resinous
Part of *Pinus silvestris*

Acid	Amount, %	
	of the extract	of the combined acids
Adipic	0,18	8,18
Capric + phthalic	0,29	13,18
Undecanoic	0,01	0,45
Lauric	0,07	3,17
Sebacic	0,18	8,18
Myristic	—	—
Vanillic	—	—
Caffeic	0,0004	0,018
Margaric	0,017	0,770
Syringic + veratric	0,067	3,040
Oleic	0,030	1,360
Linoleic	0,230	10,450
Stearic + behenic	0,180	8,180
Lignoceric	0,110	4,990
Unidentified acids	0,840	38,180
Total	2,200	100,0

deposited in an amount 30% of the weight of the solid support. The carrier gas was helium at a rate of flow of 120 ml/min. The column was heated from 110°C at a rate of 2.5°C/min, and the temperature of the detector was 275°C. The qualitative composition of the acids isolated was determined by the method of adding pure substances and the quantitative composition by the method of internal normalization.

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MELISSIC ACID AND β -SITOSTEROL FROM *Morina kokanica*

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We have previously reported the isolation from the leaves of *Morina kokanica*, family Morinaceae of hentriacontane, rutin, and ursolic acid. Continuing a study of the leaves, we have isolated another two substances. For this purpose, a chloroform extract of the raw material was passed through a column of silica gel and it was washed with petroleum ether and then with mixtures of petroleum ether and diethyl ether with increasing concentrations of the latter. Elution of the column with a mixture in a ratio of 9:1 gave the first substance and an 8:2 mixture gave the second substance.

The first substance was recrystallized several times from petroleum ether. Its composition is $C_{30}H_{60}O_2$, mp 90–92°, acid nature, titrating with alkalis. Molecular weight 452, determined by the neutralization method and confirmed by mass spectrometry. The IR spectrum of the substance showed absorption bands characteristic for acyclic saturated organic acids of normal structure. The substance isolated has been characterized as melissic acid.

The second substance was purified by repassage through a column with silica gel, being eluted with benzene-ethyl acetate (9:1). Its composition is $C_{29}H_{50}O$, mol. wt. 414 (mass spectrum), mp 137–138°C (acetone), acetate 129–130°C. The substance gives positive reactions for steroids. On chromatographic investigation in a layer of silica gel in several solvent systems, it had the same R_f values as β -sitosterol, and when the substance obtained was mixed with β -sitosterol no depression of the melting point was observed. The IR spectrum of the substance could be superimposed completely on that of β -sitosterol.

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Thus, the presence of melissic acid and β -sitosterol in the leaves of *Morina kokanica* has been established.

FATTY ACID COMPOSITION OF THE LIPIDS OF THE INFLORESCENCES OF *Allium karataviense*

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Inflorescences of the Turkestan onion, *Allium karataviense* Rgl. family Liliaceae, collected in the Tashkent province, UzSSR, have been studied.

The total lipid fraction was isolated by using a mixture of chloroform and methanol (2:1) by the method of Folch et al. [1]. Hydrolysis of the lipids and methylation of the fatty acids obtained was performed by a modification of the method of Szoke et al. [2].

The qualitative analysis of the methyl esters of the higher fatty acids was carried out on a Chrom-31 chromatograph using 27% of LAC-2R-446 (polyethyleneglycol adipate three-dimensionally cross-linked with the aid of pentaerythritol) as a stationary phase of medium polarity. The carrier gas was hydrogen and the temperature of the thermostat was 202°C and that of the evaporator and detector 275°C. Flame-ionization detector, pressure of the carrier gas 0.3-0.6 atm.

The identification of the higher fatty acid methyl esters was carried out by comparing graphs of the dependence of the logarithms of the retention volumes on the lengths of the chains of carbon atoms, by comparing chromatograms of samples before and after hydrogenation, and also on the basis of literature information [3]. For the quantitative interpretation of the results we used the method of internal normalization [4].

Below we give the fatty acid composition of the lipids of inflorescences of *Allium karataviense*:

Fatty acid	Amount, %	Fatty acid	Fatty acid
12:0	1.1	18:0	5.5
12:1	0.1	18:1	13.1
14:0	2.4	18:2	31.1
14:1	0.1	18:3	14.3
15:0	0.7	19:0	0.3
15:1	0.5	x	0.2
16:0	0.7	20:0	0.1
16:1	25.7	20:1	0.1
16:2	1.0	20:2	Tr.
17:0	0.4	20:3	1.8
17:1	0.5	22:1	0.1
	0.1	22:2	Tr.

Unsaturated higher fatty acids predominate in the lipids of the inflorescences of this plant, making up 62.7% of the total. Among them linoleic acid was found in the largest amount (31.1%), and linolenic and oleic acids in considerable amounts (14.3 and 13.1%, respectively). The saturated acids make up 37.0% of the total acids. Palmitic acid is present in the largest amount — 25.7%.

The ratio of saturated to unsaturated acids is 1:1.7. This is the first time that the fatty acid composition of inflorescences of the Turkestan onion has been studied.

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