

OIL OF FOUR PLANTS OF THE FAMILY RANUNCULACEAE

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Supplementing the information obtained previously on oils of three species of *Thalictrum* (slimtop, yellow, and low) and one species of *Delphinium* (*D. semibarbatum*) [1], belonging to the family Ranunculaceae, we have studied the oil of four more plants of the same family. Some indices characterizing the seeds and the oil are given in Table 1.

Table 1

Index	<i>Aquilegia kareliniana</i>	<i>Anemone protracta</i>	<i>Thalictrum foetidum</i>	<i>Thalictrum sultanabadensis</i>
Oil content of the seeds, %	32.36	16.50	23.06	—
Iodine no. of the oil, %	188.49	140.79	184.80	187.35
Thiocyanogen no. of the oil, %	87.54	75.87	89.39	88.23
Iodine no. of the fatty acids, %	198.63	144.12	195.74	193.92
Thiocyanogen no. of the fatty acids, %	89.90	81.20	89.25	89.95
Neutralization no. of the fatty acids, mg KOH/g	204.67	192.70	196.70	197.59
Mean mol. wt. of the fatty acids	274.15	291.18	285.26	283.97

The fatty-acid composition of the oil, determined by gas-liquid chromatography, is shown in Table 2. These indices of the qualitative composition of the main fatty acids agree well with the results of paper chromatography. On the basis of these materials the following general conclusion may be drawn: $\Delta^{5,6}$ -isoleic acid is specific to all the oils of plants of the genus *Thalictrum*; isolinoleic and isolinolenic acids, the structures of which have not yet been determined with accuracy, are specific to at least three genera of the family Ranunculaceae (*Thalictrum*, *Aquilegia*, *Delphinium*). Isolinoleic acid is also present to the extent of 25% in the oil of *Anemone*.

Table 2

Acid	Symbol	Content of the acids in the oils, %			
		<i>Aquilegia kareliniana</i>	<i>Anemone protracta</i>	<i>Thalictrum foetidum</i>	<i>Thalictrum sultanabadensis</i>
Pelargonic	C _{9:0}	2.93	2.78	1.44	1.58
Capric	C _{10:0}	2.82	1.18	1.48	1.96
Undecylic	C _{11:0}	2.24	1.13	1.36	—
Unknown	—	1.85	0.92	—	—
Unknown	—	2.13	—	—	—
Lauric	C _{12:0}	3.80	0.95	1.91	1.91
Unknown	—	—	—	—	1.51
Myristic	C _{14:0}	2.82	1.30	2.09	1.77
Pentadecylic	C _{15:0}	2.03	1.05	1.41	1.62
Palmitic	C _{16:0}	22.71	18.82	11.12	13.78
Palmitoleic	C _{16:1}	6.44	8.92	3.52	4.88
Hexadecadienoic	C _{16:2}	—	—	2.82	3.33
Margaric	C _{17:0}	7.65	4.55	4.06	5.46
Stearic	C _{18:0}	7.62	5.40	7.80	7.48
Oleic	C _{18:1}	14.25	28.25	—	—
$\Delta^{5,6}$ -Isoleic	C _{18:1}	—	—	18.05	26.34
Linoleic	C _{18:2}	4.71	—	5.12	11.53
Isolinoleic	C _{18:2}	6.28	24.75	12.53	5.86
Isolinolenic	C _{18:3}	9.72	—	25.29	10.99

REFERENCE

1. A. L. Markman and R. E. Freiman, KhPS [Chemistry of Natural Compounds], 1, 123, 1965; Uzb. khim. zh., no. 2, 44, 1966; Maslozhirovaya promyshlennost, no. 8, 13, 1966.

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