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TYPE COMPOSITION OF TRIGLYCERIDES FROM SEED OILS. II. TRIGLYCERIDES FROM CERTAIN CULTIVATED PLANTS OF THE ROSACEAE FAMILY

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Results from research on the triglyceride composition of pit oils from certain plants of the subfamily *Prunoideae* have been reported [1]. In continuation of previous work [2], we present experimental data for the triglyceride composition of certain plants of the two other subfamilies of the Rosaceae family. The unsaturation increases insignificantly in general on going from oils of Prunoideae plants to those of Maloideae (mainly due to an increase in the ratio of linoleic to oleic acid). On going from plants of the Maloideae subfamily to those of the Rosoideae subfamily, the content of α-linolenic acid increases significantly (up to 20-70 mol %).

Samples were prepared from plant materials collected in Belgorod region in 2003 and HPLC was performed under conditions like those previously reported [1]. Table 1 presents data obtained using "fast" eluent [CH_3CN in $(CH_3)_2CO$, 10 vol. %]. The ratios between types of triglycerides in "problem" groups were obtained by elution in "slower" eluent [CH_3CN in $(CH_3)_2CO$, 25 vol %]., which is more suitable for separation of triglycerides formed from α-linolenic acid.

The triglyceride composition of the oils can be estimated qualitatively using reversed-phase microcolumn HPLC (Milikhrom instrument). The most highly recommended eluent for oleic—linoleic oils is acetonitrile:ethylether (10:5-6). The amount of diethylether must be decreased (10:4.5) for elution of linolenic—linoleic oils using standard reversed-phase columns (80 × 2 mm). Detection at 210 nm can observe triglycerides with greater (by almost an order of magnitude) sensitivity than refractometric detection. This method is especially suitable for finding triglycerides formed by acids with conjugated double bonds if the chromatograms are recorded at several wavelengths. Quantitative results were also obtained.

For example, recording the chromatogram of *Cerasus vulgaris* L. seed oil at wavelengths 210 and 280 nm not only confirmed the correctness of the assignment of chromatogram peaks but also enabled the quantitative distribution of α-eleostearic acid (E) to be determined for "problem" groups of triglycerides (mol %): E_2L, 3.2; ($EL_2 + E_2O + E_2P$), 34.0; (ELO + ELP + E_2S), 37.8; (EO_2 + EOP + EP_2 + ELS), 22.7; (EOS + EPS), 2.6, ES_2, traces.

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TABLE 1. Triglycerides from Seed Oils of Plants from the Rosaceae Family

Triglyceride type	Mole fraction of triglyceride in oil, % (±0.1-0.5)									
	Maloideae						Rosoideae			
	Malus domestica Borkh.	*Pyrus communis* L.	*Chaenomeles japonica* Lindl.	*Crataegus sanguinea* Pall.	*Aronia melanocarpa* (Michx.) Elliot	*Sorbus aucuparia* L.	*Fragaria virginiana* Mill.	*Rosa cinnamomea* L.	*Rubus idaeus* L.	*Potentilla erecta* L.
Ln_3	Tr.	Tr.	Tr.	Tr.	Tr.	Tr.	4.4	2.0	3.9	34.6
Ln_2L	Tr.	Tr.	Tr.	Tr.	Tr.	Tr.	12.0	8.1	10.6	21.2
LnL_2+Ln_2O	0.5	0.4	1.3	0.7	2.0	2.4	20.9 (3:1)	19.8	25.3	15.7 (2:3)
Ln_2P	Tr.	Tr.	0.3	Tr.	0.5	0.1	1.8	1.3	0.8	6.3
L_3+LnLO	16.7	20.3	17.6	29.3	48.8	37.3	21.7 (2:3)	25.3 (5:2)	21.1	7.1 (1:4)
LnLP+Ln_2S	0.9	0.8	1.2	1.1	1.0	1.9	5.0	3.9	4.0	5.9
L_2O+LnO_2	27.0	27.6	28.4	27.0	26.0	24.0	13.8	17.7 (5:1)	14.0	3.0 (1:1)
L_2P+LnLS+ LnOP	9.0	2.3	9.4	9.0	9.0	13.0	6.5	6.5	6.2	4.1
LO_2	19.2	18.5	19.3	15.2	6.7	9.8	5.1	7.4	5.3	0.7
L_2S+LOP+ LnOS	10.7	11.3	10.9	7.5	5.5	7.8	4.7	4.6	5.2	0.9
LP_2+LnPS	1.6	1.2	1.2	0.5	0.1	Tr.	0.3	Tr.	Tr.	Tr.
O_3	7.2	11.2	5.9	6.1	0.2	2.2	2.0	1.8	2.1	0.2
LOS+O_2P	4.2	4.5	3.9	2.7	0.2	1.1	1.3	1.2	0.6	0.1
LPS+OP_2	0.8	0.1	0.3	0.5	Tr.	Tr.	0.7	0.3	0.4	0.1
O_2S	2.1	1.8	0.4	0.5	Tr.	0.1	Tr.	Tr.	Tr.	Tr.

Acid radicals: Ln, α-linolenic; L, linoleic; O, oleic; P, palmitic; S, stearic. Ratios (from column 1) of problem triglycerides determined using "slower" eluent are given in parentheses.

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