OIL OF THE SEEDS OF SOME SPECIES OF THE FAMILY CAPRIFOLIACEAE

É. I. Gigienova and A. U. Umarov

UDC 547.915.665.31

Continuing an investigation of plants of the family Caprifoliaceae [1] growing in Central Asia, we have studied the oil of the seeds of Lonicera nummulariifolia from the northern slopes of the Great Chimgan, Symphoricarpos chenaultii (chenault coralberry) from the Tashkent Botanical Garden, and of Abelia corymbosa from the region of Lake Sarychelek, which have not previously been studied adequately [2]. Table 1 gives the characteristics of the seeds and the physicochemical indices of petroleum ether extracts. The compositions and chemical indices of the combined fatty acids and of the saturated and solid acids isolated from them are given in Table 2.

The fatty acid compositions of all the oils are similar to that of poppy oil and belong to the semidrying group.

The mixture of fatty acids isolated from each oil was found by paper chromatography [3] and UV spectroscopy to contain about 1% of oxo acids.

TABLE 1

Index	Lonicera nummulariifolia	Symphoricarpos chenaultii	Abelia corymbosa
	Seeds		
Shape	Elliptical, oblate	Elliptical	Lanceolate
Size, mm	3×1	3,5×2×1	8×3
Weight of 1000 seeds, g	7,01	3,67	3,26
Ratio of husk to kernel	Not determined		20:1
	Petroleum-ether extract		
Content (on the absolutely dry matter), %	32,87	11,91	4,15
Color	Dark yellow	Light yellow	Pale yellow
Odor		Odorless	
Density, d_4^{20}	0,9197	0,9214	—
Refractive index, n_D^{20}	1,4763	1,4845	1,4876
Viscosity, °E	7,686	7,712	—
Saponification No., mg of KOH/g	90,65	188,21	177,84
Hehner No., %	96,27	95,71	—
Acid No., mg of KOH/g	1,06	0,82	12,02
Iodine No., % I_2	36,91	148,50	128,65
Content, %			
of unsaponifiables	0,40	0,50	13,07
of phosphatides	0,41	0,50	Traces

Institute of the Chemistry of Plant Substances, Academy of Sciences of the Uzbek SSR. Translated from Khimiya Prirodnykh Soedinenii, No. 6, pp. 827-829, November-December, 1971. Original article submitted July 13, 1971.

TABLE 2

Acids and Indices of mixtures of acids	Comp. of the acids, % and indices of the mixtures of acids						
	Lonicera nummulariifolia			Symphoricarpos chenaultii			Abelia corymbosa
	total	saturated	solid	total	saturated	solid	total
Capric	—	—	0,74	—	—	0,51	—
Undecanoic	—	—	—	—	—	—	0,47
Lauric	0,22	1,56	0,85	0,12	1,24	0,72	0,33
Myristic	Traces	0,14	0,45	0,17	0,60	0,73	0,37
Palmitic	8,88	74,02	76,14	6,58	82,34	83,88	6,95
Palmitoleic	Traces	2,08	2,34	Traces	1,48	2,01	—
Margaric	—	—	—	—	—	—	0,57
Stearic	2,71	22,20	19,48	0,99	14,34	12,75	2,36
Oleic	18,25	—	—	11,02	—	—	10,70
Linoleic	69,94	—	—	80,02	—	—	76,68
Linolenic	—	—	—	1,10	—	—	1,57
Mixture of acids content, % of the mixture	100,00	12,02	12,92	100,00	8,24	8,80	100,00
Iodine No., % I_2	141,88	2,82	3,13	152,47	2,02	3,49	150,76
Neutralization No., mg of KOH/g	203,25	214,66	214,64	200,95	215,12	214,90	202,41
Mean mol. wt.	276,10	261,34	261,41	279,22	260,82	261,10	277,38

LITERATURE CITED

1. É. I. Gigienova, A. U. Umarov, and A. L. Markman, Khim. Prirodn. Soedin., 5, 117 (1969).
2. N. I. Sharapov, Oil-Bearing Plants and the Oil-Forming Process [in Russian], Moscow (1959), p. 355.
3. É. I. Gigienova, A. U. Umarov, and A. L. Markman, Maslob.-Zhir. Prom., 9, 34 (1969).