

BRIEF COMMUNICATIONS

OILS OF THE SEEDS AND OF THE FRUIT FLESH OF *Hippophae rhamnoides*

Ya. Zham'yansan

UDC 665.35:547.426

We have studied for the first time the physicochemical characteristics and the qualitative and quantitative compositions of the fatty acids of the oils of the seeds and of the fruit flesh of the wild sea buckthorn of Mongolia.

The seed oil was extracted with hexane, and the oil of the flesh by pressing the fruit. Below we give the physicochemical indices obtained for these oils:

Index	Seed oil	Fruit flesh oil
Density, d_4^{20} , g/cm ³	0,9270	0,9200
Refractive index, n_D^{20}	1,4764	1,4698
Iodine No. % I ₂	150	79,5
Acid No., mg KOH/g	10,5	7
Saponification No., mg KOH/g	192,5	187,5
Ester No., mg KOH/g	191,5	170
Setting temperature, °C	-20-22	-4-5
Unsaponifiables, %:		
sterols, %	2,25	3,65
tocopherols, mg %	1,7	1,8
carotenoids, mg %	38,1	378,0

The composition and percentages of the higher fatty acids in these oils were studied by gas-liquid chromatography on a Khrom-3 chromatograph with the following characteristics of the instrument and the process: solid support Chromaton N-AW (0.160-0.200 mm), liquid phase 10% of polyethylene glycol succinate, flame-ionization detector, column 250 cm long and 3 mm in diameter, column temperature 200°C, carrier gas nitrogen, 40 ml/min, hydrogen 25 ml/min, air 0.5 liter/min. The fatty acids of the oils were chromatographed in the form of their methyl esters.

The qualitative composition and the relative amounts of the higher fatty acids of the seed and fruit-flesh oils of the sea buckthorn can be judged from the figures given below (% , GLC):

Fatty acids	C ₁₄	C ₁₆	C _{16:1}	C ₁₈	C _{18:1}	C _{18:2}	C _{18:3}	C ₂₀	C ₁₇
Seed oil	0,1	7,2	1,8	2,8	18,4	31	30,3	0,4	—
Fruit-flesh oil	1,0	30,1	37,6	1,1	11,2	14,9	1,8	0,3	2,0

A feature of the oil from the flesh of the fruit is its relatively high content of palmitic (C₁₆) and palmitoleic (C_{16:1}) acids. The figures for these acids are close to those which other workers have found for the composition of the fruit-flesh oil of the Altai sea buckthorn [1, 2]. The buckthorn seed oil differs from the oil of the flesh by its higher content of linoleic (C_{18:2}) and linolenic (C_{18:3}) acids.

LITERATURE CITED

1. N. A. Shugam, Biologically active substances of the fruit of the sea buckthorn, Author's abstract of Candidate's dissertation, Moscow (1969).
2. Yu. S. Bykov, M. I. Goryaev, P. P. Gladyshev, and K. A. Shurov, *Izv. Akad. Nauk KazSSR, Ser. Khim.*, No. 4, 63 (1972).

Institute of Chemistry, Academy of Sciences of the Mongolian Peoples' Republic, Ulan-Bator. Translated from *Khimiya Prirodnykh Soedinenii*, No. 1, pp. 133-134, January-February, 1978. Original article submitted September 2, 1977.