

BRIEF COMMUNICATIONS

OIL FROM THE FRUIT AND SEEDS OF *Physalis peruviana*

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We have previously investigated the oils of various species of the family Solanaceae growing in Azerbaidzhan [1-4]. Continuing these investigations, we have studied some basic physicochemical indices, the fatty acid composition, and the vitamin and sterol contents of the oils of the fruit and seeds of a representative of this family not previously studied — Peruvian ground cherry (cape gooseberry), *Physalis peruviana* L. — collected in the botanical garden of the Institute of Botany, Academy of Sciences of Azerbaidzhan, in 1993. There is no information in the literature on the chemical composition of ground cherry oil and only its level in the seeds is considered by Sharakov [5].

The oil was obtained by extraction with petroleum ether (40-60°C) in a Soxhlet apparatus. The fruit yielded 7.3% and the seeds 18% on the air-dry raw material. Physicochemical indices were determined as described in [6]. The composition and amount of the fatty acids were determined by GLC on a Chrom-4 instrument with a 4 mm × 2.5 m column filled with 17% of ethylene glycol succinate on Chromaton N-AW-DMCS, at 196°C, the carrier gas being helium, at a rate of 62 ml/min.

The fatty acids of the oil were chromatographed in the form of their methyl esters, and their peaks were identified from their relative retention times [7]. The amount of carotenoids was determined according to [8], tocopherols [9], and sterols [10].

The qualitative compositions of the fatty acids of the fruit and seeds of the ground cherry were identical and consisted of seven components, in different amounts from the different plant organs. The fruit oil included almost 20% more of the 16:0 and 16:1 acids, and the seed oil was enriched by the same amount with the 18:1 and 18:2 acids.

The characteristics of the fruit and seed oils of Peruvian ground cherry are given below:

Index	Fruit oil	Seed oil
Specific gravity, d_4^{20} , g/m ³	0.9235	0.9264
Reflective index, n^{20}	1.4462	1.4481
Acid no., mg KOH/g	4.2	2.9
Iodine no., % I ₂	88.2	116.3
Unsaponifiables content, %	2.6	2.1
including:		
tocopherols, mg-%	158.4	152.3
carotenoids, mg-%	189.2	16.1
sterols, %	1.92	0.91

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Fatty acid composition of the oils, GLC, % by weight:

Acid	Fruit oil	Seed oil
16:0	15.7	8.2
16:1	14.4	1.1
18:0	1.6	3.1
18:1	14.3	20.2
18:2	51.5	65.1
18:3	1.4	2.3
20:0	1.1	Tr.
$\Sigma_{\text{sat.}}$	18.4	11.3
$\Sigma_{\text{unsat.}}$	81.6	89.7

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