

FATTY ACID COMPOSITION OF THE NEUTRAL LIPIDS OF *Calendula persica*

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The lipid composition of pot marigold *Calendula officinalis* L. has been discussed in [1-3]. However, up to the present there has been no information in the literature available to us on the fatty acid composition of the neutral lipids of the *Calendula* species investigated.

We give the results of an investigation of the fatty acid composition of the neutral lipids (NLs) obtained from various organs of Persian marigold *Calendula persica* C.A.M., fam. Asteraceae, growing in Azerbaidzhan [4]. The plants were gathered in the environs of Baku.

The neutral lipids were obtained by the circulation extraction of the air-dry comminuted leaves, stems, roots, flowers, and seeds with petroleum ether (bp 40-60°C) in a Soxhlet apparatus until the raw material was exhausted [5]. The total yields of neutral lipids from this plant were (%): from the leaves, 3.1; stems, 2.8; roots, 2.4; flowers, 5.2; and seeds, 16.8 on the air-dry raw material. The fatty acids were isolated by hot saponification with 10% methanolic caustic potash, as described in [1]. The fatty acid methyl esters were analyzed by GLC on a Chrom-4 chromatograph using a 4 mm × 2.5 m column filled with 17% of ethylene glycol succinate on Chromaton N-AW-DMCS at 196°C with a rate of flow of carrier gas (helium) of 62 ml/min. The individual components were identified by the procedure described in [6]. The fatty acid compositions (GLC, %) of the neutral lipids are given in Table 1.

The qualitative fatty acid compositions of the NLs of the plant organs investigated showed no differences and included eight main components. Only the amounts of the individual fatty acids differed appreciably. Among the fatty acids detected, of the unsaturated acids linoleic (18:2) and linolenic (18:3) predominated, and of the saturated acids palmitic (16:0), while there were small amounts of lauric (12:0), myristic (14:0), palmitoleic (16:1), and stearic (18:0) acids. Among the saturated fatty acids the main component was palmitic, and among the unsaturated acids linoleic. A relatively high level of palmitic acid was found in the NLs of the flowers, while the NLs of the seeds were characterized by a comparatively high linoleic acid content.

Thus, the neutral lipids obtained from the leaves, stems, roots, flowers, and seeds of *Calendula persica* have identical qualitative fatty acid compositions but differ from one another in the amounts of the individual acids. In all cases, among the saturated fatty acids the main component is the 16:0 acid, and among the unsaturated acids the 18:2 acid.

TABLE 1

Fatty acid	Leaves	Stems	Roots	Flowers	Seeds
12:0	0.2	0.4	0.2	0.3	0.4
14:0	0.8	0.7	0.6	0.6	0.3
16:0	14.8	16.5	19.7	42.2	5.7
16:1	1.1	0.5	0.7	0.5	0.4
18:0	3.2	2.6	Tr.	2.4	3.1
18:1	10.8	9.1	7.4	14.4	12.8
18:2	45.7	50.1	44.1	21.1	55.6
18:3	19.4	22.1	27.3	13.2	21.2

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