LIPIDS FROM THE AERIAL PART OF *Arischrada korolkovii*

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In continuation of studies on biomass lipids of medicinal plants of the Lamiaceae family, we investigated tha air-dried aerial part of *Arischrada korolkovii* (Regel et Schmalh.) Pobed. [syn: *Salvia korolkovii* Regel et Schmalh. and *Schraderia korolkovii* (Regel et Schmalh.) Pobed.]. The composition of the essential oil of this species has been reported [1].

The yield of purified lipids from the $CHCl_3$:CH_3OH (2:1, v/v) extract of the ground aerial part of the plant [1] was 7.27% of the dry mass.

The extract was separated over a silica-gel column. Narrow lipid fractions were analyzed by TLC using solvent systems that depended on the polarity of the fractions, as before [2]. The fatty-acid composition was determined by isolating acids from triacylglycerides (TAG) and glycolipids (GL). These acids and free fatty acids (FFA) that eluted from the column were converted to the methyl esters using diazomethane. The fatty-acid methyl esters were purified by preparative TLC from accompanying components of the essential oils and other impurities. Their composition was established by GC on a Chrom-4 instrument with a flame-ionization detector using a column (2500 × 4 mm) packed with 15% Reoplex 400 on Chromaton N-AW-DMCS.

Table 1 lists the lipid composition of the aerial part of *Arischrada korolkovii*. Table 2 gives the fatty-acid composition of the TAG, FFA, and GL.

The results (Table 1) showed that GL dominate the lipids from the aerial part of *A. korolkovii*, like previously studied species of the Lamiaceae family, *Origanum onites* [3] and *O. tytthanthum* [2]. According to TLC, they consist of mono- and digalactosyldiacylglycerides and sterylglycosides and their esters. Galactolipids are the main GL.

The neutral acyl-containing lipid components include esters of alcohols, triterpenols, and sterols; TAG; and FFA. There are more TAG than FFA.

It should be noted that the qualitative compositions of the FFA and TAG acids are identical (Table 2). They typically have a low amount of saturated (15:0 and 17:0) and monounsaturated acids (15:1 and 17:1) with an uneven number of C atoms. Furthermore, the FFA are characterized by a high degree of saturation and 16:0 acid as the main component. The GL fatty acids differ from the above lipid classes by a smaller set of components. They contain noticeably more unsaturated 18:2 and 18:3 acids.

TABLE 1. Lipid Composition of the Aerial Part of *Arishrada korolkovii*

Component	Content, mass %
Hydrocarbons and carotenes	12.0
Alkanol, triterpenol, and sterol esters	11.5
Triacylglycerides	11.4
Free fatty acids	8.5
Fatty alcohols, triterpenols, and sterols and essential oil components	11.2
Triterpene acids	0.5
Glycolipids	31.0
Phospholipids	0.8
Total chlorophylls, pheophytins, and other unidentified substances	13.1

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TABLE 2. Fatty-acid Composition of Lipids from the Aerial Part of *Arishrada korolkovii*, GC %

Acid	TAG	FFA	GL
12:0	0.4	0.4	-
14:0	4.2	0.9	1.3
15:0	0.2	0.7	-
15:1	0.8	Tr.	-
16:0	28.1	54.8	51.9
16:1	Tr.	Tr.	Tr.
17:0	0.8	1.7	Tr.
17:1	0.9	Tr.	-
18:0	8.0	13.5	5.0
18:1	12.8	16.6	19.5
18:2	22.0	1.0	8.6
18:3	21.8	1.9	13.7
20:0	Tr.	8.5	Tr.
$\Sigma_{sat.}$	41.7	80.5	58.2
$\Sigma_{unsat.}$	58.3	19.5	41.8

Thus, lipids from the aerial part of *A. korolkovii* were studied for the first time. It has been found that lipids of this species are rich in galactolipids containing essential fatty acids, like the two previously studied representatives of the Lamiaceae family [2, 3].

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