GC—MS INVESTIGATIONS. II. LIPID COMPOSITION OF *Stevia rebaudiana*

N. V. Korobko, Ya. A. Turko, V. V. Shokun, E. N. Chernyak, L. M. Pokrovskii, O. N. Smetankina, B. F. Kerimzhanova, and U. A. Baltaev*

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Herein we communicate results from a study of the components from leaves of *Stevia rebaudiana* Bertoni (Asteraceae), in particular, the composition of fatty acids and alcohols of neutral lipids.

Air-dried and ground raw material was extracted three times with petroleum ether at room temperature. The yield of total extracted substances was 4.7%. The combined extract was evaporated. The solid was separated by the standard method [1].

The acidic part of the extract was methylated by diazomethane and passed over a microcolumn of Al_2O_3. The neutral part of the extract was evaporated and passed over a column of silica gel with elution of alcohols by a small amount of $CHCl_3$.

The resulting samples were investigated using GC—MS in an Agilent 5973N GC with an Agilent 6890N quadrupole MS as the detector. We used an HP-5 capillary quartz column (5% diphenyl—95% dimethylsiloxane copolymer) of length 30 m, inner diameter 0.25 mm, and stationary-phase film thickness 0.25 μm. The carrier gas was He; flow rate, 1 mL/min. The column temperature gradient was 4 min at 70°C, from 70 to 280°C at 10°C/min, and 10 min at 280°C. The injector temperature was 280°C; ion-source temperature, 175°C.

The percent composition of the components was calculated from the peak areas without using correction factors. Components were identified by comparing retention times and full mass spectra with Wiley 275 and NIST 02 electronic libraries.

TABLE 1. Component Composition of Lipid Fraction from *Stevia rebaudiana*

Retention time, min	Area, %	M^+, *m/z*	Component
	Acidic lipid fraction		
			Fatty acids
17.19	0.87	242	14:0
19.27	2.11	270	16:0
20.98	9.32	294	18:2
21.05	24.95	292	18:3
21.25	2.03	298	18:0
23.05	0.84	326	20:0
24.90	0.94	354	22:0
26.92	0.78	382	24:0
	Neutral lipid fraction		
			Alcohols
21.16	12.95	296	Phytol
35.25	1.22	412	Stigmasterol
36.83	2.57	414	*β*-Sitosterol
37.36	4.53	426	Lanosterol
37.81	19.44	426	*β*-Amyrin
39.29	44.65	426	Lupeol

Filial RGP "HTsB RK," Ministry of Education and Science, Republic of Kazakhstan, Stepnogorsk, Kazakhstan, tel/fax (71645) 5 24 50, e-mail: baltayev@yahoo.com. Translated from Khimiya Prirodnykh Soedinenii, No. 3, p. 286, May-June, 2008. Original article submitted October 19, 2007.

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Neutral and acidic lipid fractions contained 53 and 100 components, respectively. Of these, only those present at >0.5% were identified. Table 1 gives the GC—MS data.

The acidic lipid fraction contained saturated fatty acids, among which hexadecanoic (16:0) acid dominated, and unsaturated fatty acids, among which octadecadienoic (18:2) and octadecatrienoic (18:3) dominated. Octadecanoic, eicosanoic, docosanoic, and tetracosanoic acids were found in smaller amounts.

The neutral lipid fraction contained lupeol as the main component and β-sitosterol, stigmasterol, and lanosterol from the sterol part in addition to the unsaturated hydrocarbon squalene and terpenols β-amyrin and phytol.

REFERENCES

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