

Compound (I) -  $C_{11}H_{12}O_4$ , mp 144.5°C; UV spectrum:  $\lambda_{\max}^{C_2H_5OH}$  218, 241, 312 sh., 330 nm; it was identified by mass spectrometry and PMR spectroscopy as ethyl caffeate.

Compound (II) -  $C_9H_8O_4$ , mp 196-197°C; UV spectrum:  $\lambda_{\max}^{C_2H_5OH}$  217, 238, 290 sh., 328 nm; identified as caffeic acid.

Compound (III) -  $C_{15}H_{18}O_9$ , mp 176°C; UV spectrum:  $\lambda_{\max}^{C_2H_5OH}$  218, 241, 301 sh., 333 nm.

In all its indices (mass and PMR spectrometry), compound (III) coincided with the caffeoyl  $\beta$ -D-glucopyranoside isolated from Aruncus dioicus.

The antioxidant activities referred to Ionol [4] were, respectively: caffeic acid - 1.02; caffeoyl  $\beta$ -D-glucopyranoside - 0.92; ethyl caffeate - 1.10.

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#### 6-OXOOCTADECANOIC ACID FROM THE FRUITING BODIES OF Lactarius theiogalus

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Higher basidial fungi of the genus Lactarius are widespread in the forests of our country. Many species of fungi of this genus are collected and consumed in salted form by the population [1]. Among the fatty acids detected in this genus, stearic (octadecanoic) and lactarinic (6-octadecanoic) have been identified most frequently [1, 2]. In the fruiting bodies of the fungi, these acids are present in the free state or in the form of esters with sesquiterpenoids [3, 4].

By extraction with ethanol followed by chromatography on silica gel, from the fruiting bodies of L. theiogalus (species determined according to Moser) that had been collected in the 1982-1984 seasons and had been stored at different times and by different methods, a compound was isolated with mp 85.5°C (hexane) (0.3% on the absolutely dry weight) with the composition  $C_{18}H_{34}O_3$ . Found %: C 72.12; H 11.50. Calculated %: C 72.4; H 11.4;  $M^+$  298. UV spectrum:  $\lambda_{\max}^{C_2H_5OH}$  207, 250, 274 nm.

The IR spectrum (paraffin oil) contained absorption bands at ( $\lambda_{\max}$ ,  $cm^{-1}$ ) 730, 740, 1470 ( $CH_2$ ), 880, 2800-3000 (O-H), 1380 ( $CH_3$ ), 1690, 1700, and 1705 (C=O), well correlated with the spectra of ketostearic acids that have been described [5].

In the PMR spectrum ( $CDCl_3$ ) signals were observed at (ppm) 0.97 (3H,  $-CH_3$ ); 1.35 (18H,  $9CH_2$ ); 1.68 (6H,  $3CH_2$  in the  $\beta$  position to CO groups); 2.45 (6H,  $3CH_2$  in the  $\alpha$  position to CO groups); and 10.70 (1H,  $-COOH$ ).

The mass spectrum contained the peaks of ions with  $m/z$ : 298 ( $M^+$ , 3%), 280 ( $M^+ - H_2O$ , 2%), 197 ( $C_{12}H_{25}-CO$ , 34%), 144 ( $CH_2-CO-C_4H_8-COOH + H$ , 75%), 129 ( $CO-C_4H_8-COOH$ , 28%), 126 ( $CH_3-CO-C_4H_8-COOH - H_2O$ , 100%), 111 ( $CO-C_4H_8-COOH - H_2O$ , 47%), 101 ( $C_4H_8-COOH$ , 14%), 98 ( $CH_3-C_6H_{12}$ , 28%), 71 ( $CH_3-C_4H_8$ , 25%), 57 ( $C_4H_9$ , 41%), 43 ( $C_3H_7$ , 43%).

A comparison of the characteristics obtained with available literature - the PMR and mass spectra of methyl 6-ketostearate [6] - permitted the compound isolated to be identified

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as free lactarinic acid, the presence of a free carboxy group and the position of the oxo group at the C<sub>6</sub> atom being shown unambiguously by the nature of the fragmentation and by the signals in the PMR spectrum.

Thus, it has been shown that the presence of 6-oxooctadecanoic acid is a stable biochemical feature characteristic for the fungus L. theiogalus regardless of its ecological situation and also of the season of collection, and the time and conditions of storage of the fruiting bodies.

The search for stable biochemical characteristics for the purposes of chemosystematics presents considerable difficulties. Thus, for fungi of the genus Lactarius attempts have been made to use azulenic and sesquiterpene derivatives as markers [7, 8]. However, these characteristics proved to be unstable in view of their dependence on ecological factors [7] and on the method of isolating the substances [8]. It is precisely for this reason that the results obtained on the possibility of the presence of lactarinic acid is of interest from the point of view of the search for taxonomic markers for fungi of the genus Lactarius.

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#### LIPOSOLUBLE PIGMENTS OF THE FRUIT OF *Ficus carica*

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In the literature, except for isolated results on the total amount of provitamin A [1, 2], there is no detailed information on the composition and amount of liposoluble pigments of the carotene and chlorophyll group in figs.

In connection with a planned increase in the volume and variety of products marketed by the preserving industry with the inclusion of an extract of figs possessing high nutritive and medicinal properties, we have investigated the carotenoids and chlorophylls of the fruit of Ficus carica L., varieties Smena and Turetskii korichneviyi, collected in the Gurdzhaan region of the Georgian SSR.

The sum of the pigments were isolated within the total lipids [3], and it was freed from accompanying liposoluble substances by column chromatography on silica gel [4] and was fractionated into carotenes, xanthophylls, and chlorophylls by the use of a sucrose column [5]. Individual, representatives were obtained by TLC on silica gel using the solvent systems heptane-methyl ethyl ketone (5:3) to separate the xanthophylls and chlorophylls,

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