

COMPONENTS OF THE ESSENTIAL OIL OF LEMONGRASS

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Cymbopogon citratus Stapf. - lemongrass - is a perennial herbaceous grass with a height of about 1 m that grows wild in India on fertile soils along the river valleys and on the edges of forest tracts. It grows widely in the majority of tropical and subtropical countries, especially in India, Pakistan, the countries of Africa and South America, and in Australia. In the USSR it is cultivated on the Black Sea shores of Georgia [1, 2]. This species has been used by various peoples from ancient times as a seasoning for beverages and fruits, and also as a decorative plant [1, 3]. The essential oil is present in the epigeal mass (about 1.7% on the absolutely dry weight). The broad action of the essential oil of lemongrass has attracted attention to it, and it has been investigated repeatedly [3-6].

During 1976-1981, we have investigated the essential oil of lemongrass obtained from plants grown in the Mashtaga subtropical sovkhos [communal farm] (Apsheron).

The amount of essential oil was determined by Ginzberg's method in triplicate [7], and the physicochemical constants of the oil by standard methods [8]. Investigations over many years have shown that the highest yield of essential oil is found under the field conditions of Apsheron: In September-October at a moisture content of the raw material of 70.2% the yield of oil amounted to 0.516% on the raw material and 1.713% on the absolutely dry mass.

The essential oil of lemongrass is a pale yellow liquid with a lemon odor with burning properties possessing a pleasant sharp taste. Physicochemical constants of the oil: n_D^{20} 1.4870; γ_{20}^{20} 0.8970; acid No. 4.20; ester No. 12.70; ester No. after acetylation 172.65. The solubility of one volume of oil in 70% ethanol is 1:3. The presence of 25 components in the oil has been established by the GLC method (LKhM · 8 MD). Conditions of performing the analysis: carrier gas helium, rate of flow 6 ml/min, Carbowax 20 M, PEG, mol. wt. 20,000. Length of the capillary column 50 m, internal diameter, 0.25 mm, temperature of the evaporator 200°C and of the column from 70 to 180°C at the rate of 2°/min. Oil sample 0.1 µl, split 1/60, recorder 1 mV, speed of chart 240 mm/h, FID, $V = 10^{-11}$ A. Quantitative calculation was carried out with the aid of the standard additive method.

From the essential oil of lemongrass it has been possible to identify several of the main components: mycene, limonene, methylheptenone, methylheptenol, citral, nerol, geraniol, linalool, terpineol, and citronelloi.

On the basis of the investigations performed and a resolution of the Ministry of Health of the USSR, it has been established that the essential oil from the lemongrass growing on the Apsheron peninsular possesses no toxicity and can be used in perfumery and cosmetic articles and the food industry.

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