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The investigation total content of free organic acids in the blackberry fresh fruit

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Introduction. Organic acids are compounds of an aliphatic or aromatic series, which are characterized by the presence in the molecule of one or more carboxyl groups. This class of compounds is widespread in the plant world. Organic acids are contained in plants mainly in the form of salts, esters, dimers, as well as in a free state, forming buffer systems in the plant cell sap. Organic acids have a wide range of biological effects on the human body: in addition to vitamin properties, they have a choleric effect that normalizes the activity of the digestive system. Organic acids regulate the secretion of bile and pancreatic juice, improve appetite; have bactericidal properties and reduce the putrefactive processes in the body. So, the aim of the study was determine the total content of organic acids in fresh blackberry fruits.

Materials and methods. The object of the study was fresh fruits of blackberry (*Rubus plicatus*), collected from cultivation sites. The material was gathered in 2021 after the fruiting period in the vicinity of the village of Ternova, Kharkiv region (50°19'31" N, 36°66'93" E). The quantitative determination of the total organic acids was carried out by the following method: 5.0 g (exact mass) of blackberry fresh fruit were grinded. The extraction of free organic acids was provided by distilled water on water bath in a flask with a reflux condenser and extracted at the ratio raw material/solvent 1/40 (*m/v*), during the 2 hours. The obtained extract was filtrated to the measuring flask and a mark was made up by freshly boiled distilled water [2]. The quantitative content of the sum of organic acids, in terms of citric acid, (*X*, %) was calculated according to the formula:

$$X(\%) = \frac{(V_{eq} - V_x) \cdot 0.0032 \cdot K \cdot 100 \cdot 100 \cdot 100}{m \cdot 5 \cdot (100 - W)},$$

where, 0.0032 – the amount of citric acid, which is equivalent to NaOH solution, g/mL; V_{eq} is the equivalent volume of NaOH solution, mL; V_x – the blank volume of NaOH solution, mL; *m* – the mass of the raw materials, g; *K* – correction coefficient; *W* – the loss in mass upon drying, %.

Results and discussion. The total content of organic acid was 2.51±0.05% expressed as citric acid in blackberry fresh fruit.

Conclusion. The obtained research results can be used in the development of herbal remedies, dietary supplements, and medicinal products.