

# **CONTENT OF LIPIDS IN THE TISSUES OF THE ORGANISM OF HONEY BEES UNDER THE CONDITIONS OF FEEDING OF HONEY BEES BY CITRATE-CAPPED SILVER AND COPPER NANOPARTICLES-CITRATES IN THE SUMMER-AUTUMN PERIOD**

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The article presents data on the content of total lipids and the ratio of their classes in the body of honey bees under conditions of feeding with sugar syrup with the addition of citrate-capped silver and copper nanoparticle in the summer-autumn period.

According to the results of our investigations, the growth of the content of total lipids in the tissues of the head, the thorax and abdomen of the honey bees organism was noted and the probable differences of fractional distribution of lipids were expressed.

The investigation was conducted on 5 groups of honey bees, with 3 hives in each. Control group (I) was fed with sugar syrup (1000 ml / week / bee), experimental group II - under similar conditions, received a sugar syrup with the addition 0.5 mg citrate-capped silver nanoparticle, the experimental group III – under similar conditions, received 1 mg citrate-capped silver per 1000 ml of sugar syrup per bee colony for a week, and IV and V - respectively 0.5 and 1 mg of citrate-capped copper nanoparticle in the form of citrate per 1000 ml of sugar syrup. Extraction of common lipids in the samples of tissues of honey bees was carried out by the Folche method, and their amount was determined gravimetrically.

Under the conditions of feeding of honey bees by sugar syrup with additives of citrate-capped silver and copper nanoparticles, a significantly higher content of total lipids was observed in the tissues of the thoracic IV group ( $p < 0,05$ ). In addition, the expressed differences in the ratio of individual classes of lipids in the tissues of bees of experimental groups have been observed, namely: higher content of phospholipids, mono- and diacylglycerols and triacylglycerols in the tissues of separate parts of the body of honey bees of experimental groups, against the background of a decrease in the relative content of unsaturated fatty acids and free cholesterol. The obtained results indicate positive changes in the content of individual lipid fractions, which increase the metabolic accumulation of energy and plastic components of the trophic chain.

**Keywords:** HONEY BEES, SILVER CITRATE, COPPER CITRATE, PHOSPHOLIPIDS, MONOACYLGLYCEROLS, TRIACYLGLYCEROLS, UNETHICAL FATTY ACIDS, ESTERIFIED CHOLESTEROL, FREE CHOLESTEROL.