

On The Peculiarities Of Vitamin E Influence On The Quality Of Geese Meat

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Abstract

Vitamin E is traditionally considered the main tissue antioxidant. However, the results of ample research in recent years testify that, depending on many factors, primarily, the dose of vitamin E has both positive and negative effects on the organism. According to Japanese biochemists, an excess of vitamin E stimulates the formation of osteoblasts that destroy bone tissue of animals. In this regard, further studies on the effects of vitamin E on metabolic processes should be aimed at optimizing the recommended doses of vitamin E in the animal's diet.

The aim of this work was to explore the effect of vitamin E double dose in the diet of geese on the quality of the produced meat. As an object of research the geese are chosen because their muscular tissues are characterized by a specific fatty acid composition with a high content of polyunsaturated fatty acids and, accordingly, by the ability to oxidative damage at a low temperature storage of this meat. The geese diet of the experimental group in the pre-slaughter period (from day 42 to day 63) differed from the control group diet with its twice as much (40 mg / kg) of vitamin E content. The geese meat was kept at -18°C, the storage period was limited by State standards of Ukraine (210 days). The process of peroxide oxidation of lipids in meat was evaluated by the content of TBA-active products. For the integral evaluation of endogenous antioxidants in meat, the antioxidant activity ratio was applied. At the same time, fatty acid composition of lipids and the content of fat-soluble vitamins E, A and β -carotene were determined.

The results of the experiment show that the antioxidant activity of the 63-day geese thoracic muscles of the experimental group by 63.6% exceeded the corresponding index in the control group. During storage, the antioxidant activity of the geese meat of the control group decreased by 3.0 times and became less than the corresponding indicator of the experimental group by 81.8%. The total unsaturation of the fatty acids of the thoracic muscles of the 63-day-old geese of the control and experimental groups probably did not differ. However, during storage, this indicator of the control group decreased by 14.9%, while of the experimental one - remained at the initial level. At the end of the experiment, on the background of the same content of oleic acid, the geese meat of the experimental group was characterized by a significantly higher content of indispensable linoleic and linolenic acids (by 48.2% and 11.8%) and polyunsaturated docosapentaenoic and docosahexaenoic acids (by 71.4% and 80, 0%). The meat of the experimental group geese throughout the experiment had significantly higher content of vitamin E and 29.1% higher content of β -carotene at the end of the experiment. Consequently, adding the double dose (40 mg / kg) of vitamin E into the diet of the geese in the pre-slaughter period does both: increases the antioxidant activity of the geese muscle tissues, and inhibits the oxidative damage of the meat at low temperature storage, which is confirmed by the analysis of the fatty acid composition.