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QUALITY CONTROL METHODS FOR TURKEY MEAT PRODUCTS

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МЕТОДЫ КОНТРОЛЯ КАЧЕСТВА ПРОДУКТОВ ПЕРЕРАБОТКИ МЯСА ИНДЕЕК

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Abstract. The article under discussion considers methods of quality control of turkey meat products. The author believes that the quality control of food raw materials and food products is a significant stage in the production of food products. It is important to organize research aimed at improving the quality and safety of turkey meat products, using accurate, rapid, and highly effective methods of infrared spectroscopy and chromato-mass spectrometry to determine its chemical composition to develop methods to determine the correctness of HS codes.

Аннотация. В статье рассматриваются методы контроля качества продуктов переработки мяса индеек. Автор статьи считает, что осуществление контроля качества продовольственного сырья и пищевой продукции — значительная стадия при производстве продуктов питания. Важное значение имеет организация исследований, направленных на повышение качества и безопасности продуктов из мяса индейки, с применением точных, оперативных, и имеющих высокую эффективность методов ИК-спектроскопии и хромато-масс-спектрометрии для определения его химического состава для разработки методов определения правильности кодов ТН ВЭД.

Keywords: normative requirements, technical requirements, hygienic and microbiological standards, safety system, qualimetric method, photometric method, atomic absorption method, chromatographic method.

Ключевые слова: нормативные требования, технические требования, гигиенические и микробиологические нормативы, система безопасности, квалиметрический метод, фотометрический метод, атомно-абсорбционный метод, хроматографический метод.

Discussion

Good nutrition is one of the most important determinants of public health. One of important conditions of reception of high-quality meat products for a food of people is use in their structure of meat raw materials of high food and biological value [1].

Human needs in nutrients were reflected in the concept of balanced nutrition, which was developed in the twentieth century. It was based on the law of conservation of energy in a living organism, formulated by R. Mayer and H. Helmholtz. According to this concept, a person needs a certain complex of nutrients and the necessary amount of energy. Many of the substances are indispensable, i.e. are not produced by the body. Therefore, the food should provide the body with

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substances necessary for its development and biological growth, as well as to compensate for the cost of mental and physical work [7].

Production of turkey meat products in domestic practice is limited, despite the fact that turkey meat is one of the most valuable protein products, which is the most important source of complete protein of animal origin [4].

A study of the development of the meat processing industry found that in recent years the world has paid more and more attention to deep processing of poultry meat, and in the future the volume of finished products from it will increase. For this purpose, of course, it is most appropriate to use large poultry. The turkey, as the largest of the common poultry species, is ideal for deep meat processing. Modern processes make it possible to produce females with a live weight of 10 kg or more at 16 weeks of age, and males over 22 kg. However, in the form of whole carcasses or even portioned products, turkeys are not competitive. But deep processing significantly increases the profitability of the production of products using turkey meat.

Excellent taste qualities, a high meat-to-bone weight ratio, and rapid reproduction - these advantages have led to the increasing popularity of turkey around the world. In addition to its high taste and nutritional qualities, turkey meat is characterized by lower fat and cholesterol content than beef and pork. It is excellent for dietary nutrition. At the same time, turkey meat is rich in proteins, vitamins and minerals that people need. Turkey is an excellent source of phosphorus (only turkey contains phosphorus in the same amount as fish).

Turkey meat is ideal for baby food, being a low-allergenic product. In addition to all the advantages, it should be noted that turkey meat is approved for use by various religions.

In conditions of shortage of beef meat, a partial replacement of it with turkey meat, or completely making the product from turkey meat is a promising direction in the meat industry. And if the nutritional value of the meat of this bird meets all requirements, the issues related to the technological process of production products from this category of meat raw materials, with the formation of organoleptic properties of finished products require improvement.

In this connection the issues of wide use of turkey meat in the production of meat products and the possibility of cheapening their cost price by using protein additives of animal origin and flavor mixtures that do not reduce the biological value and consumer properties of the product are relevant.

In the world, and especially in the Commonwealth of Independent States, when determining the quality indicators of turkey meat, mainly determine the content of total protein, fats, carbohydrates and water, as well as some heavy metals such as lead and mercury. Recently, in order to increase the productivity of meat production by adding various antioxidants, antibiotics, and hormones to turkeys' diets, special attention has been paid to the problem of consumer health damage. For this reason, the study of the chemical composition of poultry meat by physical and chemical methods in controlling the quality of poultry meat gives positive results. Accordingly, it requires the development and implementation of modern methods of examination, quality control and certification of meat products in the state control bodies.

In Uzbekistan, along with all other types of products, certain results are achieved in the development of modern and rapid methods of examination of turkey, the introduction of international code numbers based on their chemical composition and improvement of the certification system. The strategy of action developed for the development of our country sets the objectives of deepening structural changes and consistent development of agricultural production, further strengthening food security, expanding the production of environmentally friendly products, significantly increasing the export potential of the agricultural sector.

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Quality control of food raw materials and food products is an important stage in food production. One of the main quality indicators is the content of nitrates and salts of heavy metals. Various chemical, physical and physical-chemical methods of analysis and measurement are used to identify harmful, biologically active substances in food raw materials and food products. They are based on the principles of influencing the product under study and obtaining an analytical signal [8].

Regulatory consolidation of responsibility on the part of product manufacturers for the violation of current safety requirements is one of the most important mechanisms today for implementing the policy of the Republic of Uzbekistan in the field of healthy nutrition [6]. The necessity of theoretical views of modern scientists of the industry in the development of HS, the meaning of the chemical composition, structure and consumer properties of goods in their classification and identification, the importance of the customs expertise in consumer protection of low-quality and hazardous goods, the use of quality management systems in certification of goods according to international standards on the basis of a harmonized system are of great importance [9]. Besides, the quality management system is based on comprehensive standardization. Standards define the order and methods of planning the improvement of product quality at all stages of the life cycle, establish requirements to the means and methods of product quality control and evaluation [10].

When analyzing the regulatory and technical requirements for the quality and safety of turkey meat, it can be concluded that the following indicators must be subject to mandatory control: hygienic and microbiological standards [3].

There is a system of safety HACCP (Hazard Analysis and Critical Control Points (HACCP)), which is focused on the study of existing risks and management of factors affecting product safety. When forming a system of product safety management, it is important to research and subsequent analysis of hazards to detect the most likely threats, as well as the development of a system of preventive measures. The HACCP system involves ensuring that products are safe for consumers and streamlining control over their safety during manufacturing [6].

The main physical-chemical methods used today are photometric, atomic absorption and chromatographic methods. The use of other physical-chemical methods has increased due to the use of fluorimetric method and capillary electrophoresis. Today, analytical chemistry methods are also gradually being introduced: the arsenal of analysis methods is expanding; automation and mathematization of analysis is being carried out; implementation of continuous analysis; new opportunities for increasing the sensitivity, accuracy, and expressiveness of analysis are emerging; the range of analyzed objects is expanding; the role of analytical control has risen significantly [2].

To assess the quality of poultry products today we use the qualimetric method, which consists of a group of forecasting methods that help to anticipate changes in the structure and nature of consumer requirements for individual components or for the product as a whole and thereby ensure the satisfaction of requirements and high competitiveness of the product. The use of qualimetric methods for quality management of the created products allows to minimize the adjustments of the production of products after its release to the market [5].

There is an effective method for determining the content of mercury in food raw materials. The essence of the method consists in the oxidation of mercury contained in the sample into a divalent ion in an acidic environment, its reduction into a metallic form, and measurement on an atomic absorption spectrometer. The advantage of this technology is high sensitivity and low interfering matrix influences [1].

Thus, based on the above task it’s important to organize research aimed at improving the quality and safety of turkey meat products, using accurate, rapid, and highly effective methods of

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infrared spectroscopy and chromato-mass spectrometry to determine its chemical composition to develop methods to determine the correctness of HS codes.

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