KAPITEL 2 / *CHAPTER 2* [2]
PRODUCTION OF COMBINED MEAT-CONTAINING PRESERVES OF A FUNCTIONAL DIRECTION

DOI: 10.30890/2709-2313.2023-17-03-014

Introduction

Production of meat preserves has its share in food production industry. The product range is represented by meat-plant pates, stewed meat, meat-plant porridges, etc. The analysis of literary sources shows that science-technologists constantly develop and promote new recipes for this type of products, adding plant components with functional features to the main raw materials (meat, offal) [1, 2, 3].

As an auxiliary plante-vegetable raw material to balance proteins, producers often suggest using kidney bean, soybeans, lentils. For cooking dietary products - broccoli, spinach, cereals.

A number of scientists and practitioners [4 - 7] dealt with the fundamental problems of creation and development of the theory of practice of innovative technologies of poly-component food products, modification of functional properties of raw materials of plant and animal origin.

At the same time, at the present time, the main share of manufactured meat products is not balanced by nutritional composition and does not meet the needs of the population of supplementary nutritional and biologically active substances, some cause diseases mainly related to a deficiency of protein, polyunsaturated fatty acids, prebiotics, food fibers, vitamins and micro-, macro-elements (iodine, calcium and other).

Therefore, the development of scientific and practical foundations, creation and production of high-quality and safe food products, balanced by nutrient composition and enriched with natural bio-corrective ingredients acquires special significance.

2.1. Analysis of the studies

2.1.1 Combined food products of a functional direction and their importance in the provision of the population with food and biologically active substances

Increasing demand for meat semi-finished products and ready-made products producers to increase product volumes and expand the range of these products. The use of traditional raw materials in different combinations, combination of mincemeat with raw materials of animal and plant origin, the introduction of food supplements, application of modern equipment and progressive technologies - allows not enriching the variety of products, giving the product a different taste, but also improving technological properties of minced meat, increasing its biological value [8].

Over the past decade, one of the promising directions in the technology of production of food products is the combination of meat and plant raw materials. It allows increasing the food and biological value of the finished product and allows

[2] ***Authors:*** *Riapolova Iryna, Chernyshov Igor, Novikova Natalia, Sumska Olha*

creating high-yield, different, useful products, meant for different categories of the population. As a result of use of combined meat and raw materials, the product is a single whole, whose components cannot provide an organism with necessary organoleptic, nutritive, energetic and therapeutic-prophylactic power. Combined food products, as a rule, are balanced in their composition, they do not require artificial enrichment with vitamins, minerals and other essential substances.

As O.A. Koval [10] states, the creation of combined food products with a high assimilation of macronutrients, contributes to balanced and enriched diet of the population. These products are ready systems with given properties, containing proteins and other irreplaceable components and in mutually complementary proportion.

The problem of combining plant and animal raw materials in one product of is very serious, since technological properties of the food product and its organoleptic characteristics are constantly changing. When developing new types of meat products, in order to change of meat raw materials for non-meat ingredients, it is necessary to save the usual traditional organoleptic indexes.

L.V. Molokanova [10] underline that raw materials are rich not only in macro- and microelements and vitamins, but also in fiber, pectin substances, they are a source of those biologically active substances, that are not sufficient in meat. Therefore, in comparison with meat products combined products have more balanced composition, high food and biological value. The development of combined food products provides a body with necessary nutrients, and also expands the assortment, increases the quality of finished products and reduces wastes in the process of production [11].

The results of the research carried out by L.O. Kucherenko, N.B. Annenkova [13] show that in Ukraine plants do not produce meat and vegetable preserves for children food for children of a young age. In the opinion of the authors, the expansion of this assortment is a promising direction in the development of canned food industry.

2.1.2. Requirements for meat raw materials and ensuring quality in manufacturing food products

The main problem in the production of safe meat-and-plant preserves is high-quality main and additional raw materials. The control over meat raw materials is exerted when slaughtering animals, the carcasses of which are branded according suitability for further use. When carrying out a veterinary and sanitary examination of the products of slaughter animals and poultry, meat considered to be relatively suitable is brought to industrial processing, production of sausages, meat bread, preserves. The technologists of food production face the task to manufacture a high-quality and safe product of raw materials with low-quality, which satisfies human needs of macro- and micronutrients.

Meat preserves may have a high energy value in comparison with meat and other meat products, because bones, cartilage, tendons and other small parts of meat are removed.

By taste characteristics canned meat is worse than meat. Raw materials for production of canned meat are beef, pork, lamb, poultry, offal, animal fat, salt, onion and garlic and spices. Peas, cereals, pasta are added to canned meat.

The main tasks of canned food production are to remove microorganisms from products, but with different methods of preservation of meat, changes occur at the biochemical level.

Sterilization causes stable bonds in proteins, which reduces assimilation by approximately 20%. There are losses of vitamins and amino acids: valine, isoleucine, phenylalanine, methionine and threonine. With this, the amino acid lysine is more readily assimilates at a pasteurization temperature of 70 °C. Extractive substances, especially nitrogen-containing, often break up. Creatine, which takes part in taste formation, degrades by 30% with the sarcosine and uric oxide. Some vitamins lose activeness and some vitamins are destroyed. Ascorbic acid is ruined. Group B vitamins are often destroyed. B1 is destroyed by 80%, B2 - by 75%, vitamin A - by 40%, vitamin D - by 40%, vitamin H - up to 60%.

B.Y. Zaptalov et al. [14] at the time of the examination of canned meat from various producers in Ukraine, established that producers used low-quality raw materials in some canned meat, or they chose inappropriate technological modes of production, which affected organoleptic properties. "..the smell and taste are not characteristic of stewed meat, without the aroma of spices, with alien smell and a taste, the presence of cartilage, vessel bundles, the presence of coarse connective tissue."

Currently, abroad and in our country, normative documents and recommendations on safety of food of food products are being actively developed. It causes the situation that in the whole world there are many food intoxication and falsifications of natural meat products, which results in a reduction in their quality.

In addition, intensive research is carried out on new concepts for the effective control over the quality and safety of food products. Most famous of them are:

- HACCP (Hazard Analysis Critical Control Point);
- Hurdle Technology;
- Predictive microbiology.

On the international level, the concept of HACCP has been most widely recognized.

In production of food products, the main attention should be paid to safety of consumer health and well-being. Safety is ensured by the HACCP system. The principles and mechanisms, laid down in the HACCP, essentially reduce probability of threats for the life and health of people. Important elements of this system: International standard ISO 22000:2005 "Food safety management systems – Requirements for any organization in the food chain",

2.2. Object, subject and method of leading

Research on the topic of this work was carried out under conditions of the private enterprise "Our Product" at the canning plant. The production facilities are in Kherson and near Skadovsk district of Kherson region. Since 2003, the products have been branded as "Our Product" and are represented in different regions of the country. Raw materials for meat, mushrooms and meat-and-plant canned food are supplied by "Nizhnyodniprovsk Zvirompromhospodarstvo" of Kherson regional community

located in the village Mala Kardashynka, Hola Pristan district, Kherson region.

The object of study is raw materials used for production of canned meat products, the main - meat (pork) and additional - mushrooms (oyster mushroom).

The subject of the study is the technology of production of canned meat with the addition of mushroom raw materials, high-quality and safety characteristics of the finished product.

In order to carry out the tasks of evaluation of manufactured products we chose research methods. The quality of the canned food is evaluated by determined sequence: firstly, the weight of individual components of the canned food is determined, then the outer and inner surface of the container is examined, and then, organoleptic evaluation of the product and its chemical indexes is performed.

The weight was determined by means of laboratory scales. The total acidity, which is to be titrated, and salt content was determined by means of equipment and reagents. The active acidity of meat, meat-mushroom raw materials was carried out by a potentiometric method by means of auxiliary pH meter. The inner surface of the cans was visually identified. Smell, aroma, taste of the preserves were indicated organoleptically, their thickness and color - visually.

The evaluation of organoleptic indications was assessed on a 5-point scale. In order to equalize the indications between the model characters, they were laid out in simple descriptors and were called profilographs [15].

To determine the quantity of proteins, fats, carbohydrates, and essential amino acids in ready-made foods, we used the tables of chemical composition of food products and by the method of analysis.

Microbiological indexes of raw materials and ready-made canned products were determined by seeding on nutritive media by the number of colony formation organisms (TEM) mesophilic aerobic and facultative anaerobic microorganisms (QMAFAnM) of DSTU 8446: 2015 [16] by seeding on nutritive media Endo for determining bacteria of groups of intestinal bacteria, the research was conducted according to GOST 30518 -97 [17].

2.3. Results

2.3.1. Substantiation of the choice of additive raw materials during in production of meat preserves of a functional direction

The process of selection of food products is based on the selection of raw materials, both main and supplementary. The main and additional raw materials used to produce canned meat products must comply with normative documents and specifications and have certificates of providers. After delivery to the enterprise, qualitative and quantitative indexes are controlled by the laboratory of the enterprise. The research enterprise "Our product" have their own facilities for production of products and cultivation of mushrooms, which are located at the structure of the enterprise "Nizhnyodniprovske Zviropromgospodarstvo" of Kherson regional community. We suggest using supplementary raw materials of mushrooms, and oyster mushroom, for the production of meat preserves of a functional direction, because the

raw materials are characterized by a number of useful characteristics:

- oyster mushroom are a low-calorie product. This characteristic can help to improve the optimal weight of the body for those people, who want to lose their weight. Consumption of oyster mushroom will make nutrition more balanced. The large amount of fiber in mushrooms gives a feeling of fullness, regardless of low calorie content;
- oyster mushrooms are one of the richest sources of zinc, which improves immunity of people of all ages;
- oyster mushroom is rich in potassium, the necessary amount of which in the body improves the activity of the heart and kidneys;
- oyster mushroom contains mannitol instead of glucose, so diabetics can safely include dishes with it in their diet;
- oyster mushroom contains a great number of vitamins of groups B and D, which are necessary for maintaining a healthy person. Moderate everyday consumption of mushrooms will satisfy the need of people of these vitamins;
- oyster mushroom is rich in fiber, improving the work of the digestive system and normalizing its microflora;
- polysaccharides and oyster mushroom fiber are good sorbents and help cleanse the body of toxins and hard metals.

By the number of substrates on which they are cultivated, oyster mushroom has more advantages than all cultivated mushrooms. Its production is practically harmless and ecologically clean. The used substrate can be used as food for animals and organic fertilizer.

Nutrients for the cultivation of the chemical composition, cultivation and preservation of oyster mushroom were examined by many scientists [18-22]. Information on chemical composition is very contradictory, its explained by the fact that different substrates are used for the cultivation. At the same time, the widespread use of oyster mushroom in the production of such a product and promotion at the market, as an environmentally friendly and useful product, is limited by a lack of studies examining scientific foundations of technologies for the processing of mushrooms of this species.

Considering the advantages of oyster mushroom we took experimental samples of it as a functional component with meat raw materials. The chemical analysis of pork and oyster mushroom, which will be used as the main raw material in the production of meat products with plant components, indicates a good balance between the nutrients. Due to introduction of oyster mushroom, the need of zinc and vitamins of group B (B2, B3, B5, B6, B9), vitamins D, E, biotin, fiber is often satisfied (table 1).

Such components of oyster mushroom, as carbohydrates, fiber can compensate excessive fat in pork, creating a poly-component complex (Fig. 1).

From the experience of using oyster mushroom, it is known that it has good technological characteristics, but the shelf life makes it difficult to produce canned meat with mushrooms without the use of additional operational technologies. Therefore, it is possible to produce meat semi-finished products.

Table 1 - Chemical composition of oyster mushroom in pork, g in 100g of the products

Indicator	Oyster mushroom	Pork	Indicator	Oyster mushroom	Pork
Moisture	89,0	51,0	Vitamins,% / 100g of raw materials		
White	3,3	13,1	Thiamine (B1)	8,3	25,0
Fat	0,4	29,4	Riboflavin (B2)	19,0	6,7
Carbohydrates	3,8	3,9	Niacin (B3)	9,7	-
Cellulose	2,3	0,5	Pantothenova k-ta (B5)	26,0	-
Potassium (K)	17,0	8,4	Vitamin D	7,0	-
Phosphorus (P)	15,0	18,0	Vitamin E	-	3,3
Iron (Fe)	7,4	7,8	Biotin (H)	22,0	-
Zinc (Zn)	6,4	-	Nicotine (PR)	25,0	25,0

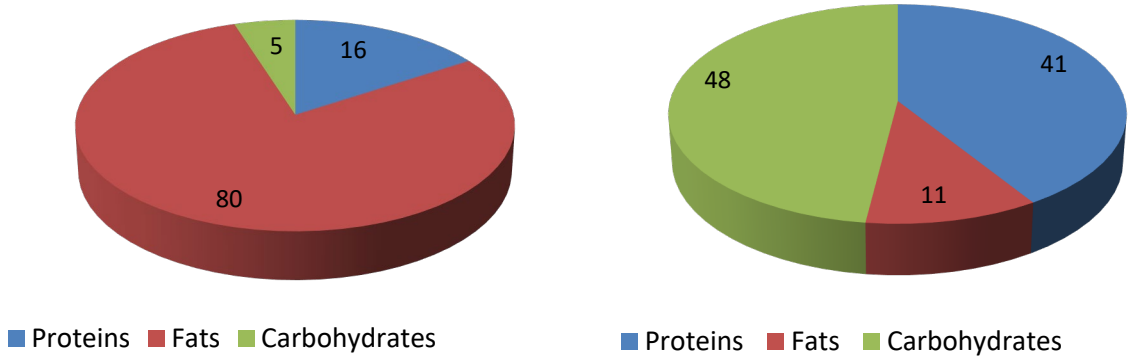

Fig. 1 - Correlation of main nutrients in pork and oyster mushroom

2.3.2. Recipe development and indexes of the quality of the products

Theoretical calculations and practical work made it possible to develop the recipe for canned meat and mushrooms and the technological scheme. For comparison, different correlations of meat and oyster mushroom mushrooms were used, that were blanched at a temperature of 80^0C during 5 minutes.

To model the recipe, we chose the optimal correlation of the main components and components highlighting taste and smell, for the control of the canned meat with buckwheat produced by the enterprise. By way of selection, two variants of combinations of mushrooms were selected: in the first variant, 23% of blanched mushrooms were added to buckwheat, in the other variant, the quantity of meat was reduced to 50% and the quantity of the mushroom component was increased to 38% (Table 2). For sterilization, we chose the regimes that are used during the production of canned food, taken as control.

Table 2 - Combinations of canned meat and mushroom components

Combinations of components of meat and mushroom preserves,%	Buckwheat porridge with pork	Pork with mushrooms, variant I	Pork with mushrooms, variant II
Pork without tendons	65	65	50
Mushrooms (oyster mushroom)	-	23	38
Buckwheat porridge	23	-	-
Sunflower oil	5	5	5
Domestic salt	1,5	1,5	1,5
Fresh onion	5	5	5
Milled black pepper	0,5	0,5	0,5

The study of organoleptic indications, physical-chemical, structural-mechanical characteristics allows us to learn the impact of the interaction of different types of components on the high-quality characteristics of the finished product.

The organoleptic evaluation of the model samples of the processed products was performed on a 5-point scale, the commission of 6 people, who were chosen as taste-detectors. In ready-made samples, the content of the canned food was determined: a look, as the components of the canned food are distributed, color, smell and aroma in a cold and warm state at a temperature up to 350C, consistency (tenderness, juicy, springiness, density, crumbliness), taste.

The organoleptic indexes were determined with the coefficients considering the importance of the quality indexes (Table 3).

Table 3 - The results of the scoring of model samples of canned food

Research samples	Evaluation in points					Total evaluation
	Look	Color	Smell and aroma	Taste	Consistency	
	Coefficient of the importance of a quality index					
	0,1	0,1	0,2	0,4	0,2	
Buckwheat porridge with pork	4,9	4,06	4,9	4,93	4,8	4,81
Pork with mushrooms, variant I	4,93	4,3	4,9	4,8	4,9	4,8
Pork with mushrooms, variant I	4,7	4,1	4,8	4,9	4,8	4,72

To evaluate the organoleptic indexes, we used a modern technique of sensory analysis and a profiling of the finished product. This made it possible to compare the indexes between model characters, to distribute them between simple descriptors and create a profilograph (fig. 2).

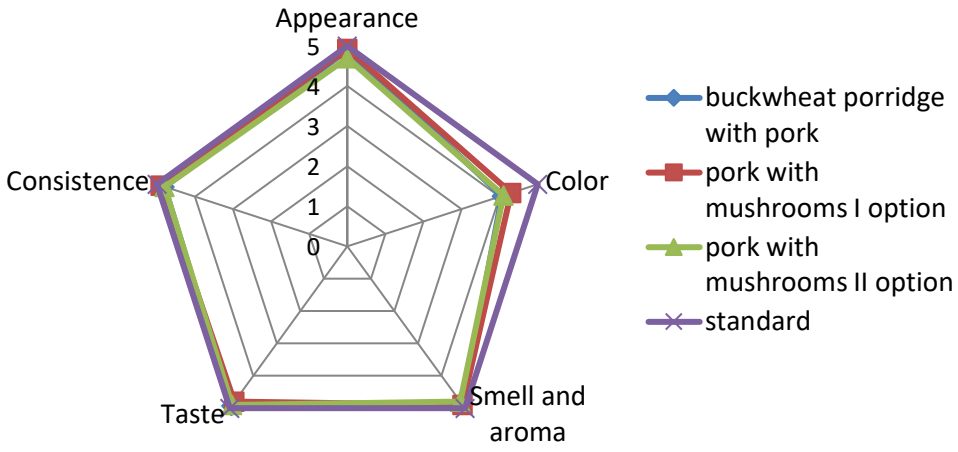

Fig. 2 - Profile evaluation of meat and mushroom preserves of the suggested variants.

Analysis of the sensory and profile evaluation of the products evidences attractive and harmonic components of the canned food in section No. 1, where the content of the mushroom raw materials is 23%. This variant has the smell and taste of stewed pork with an insignificant taste of mushrooms, evenly distributed pieces of meat and mushrooms and a small amount of jelly-like broth.

The other variant had more differences with the control and reference values. It was ranked lower by its look, color and consistency, that is due to percentage of the correlation between meat and mushroom components.

2.3.3 Physical and chemical indexes of raw materials and finished products

For the production of safe products, meat raw materials must be of high quality, established by veterinary and sanitary authorities. The state of slaughtered animals affects the quality of meat. In the chilled meat of healthy animals after maturation, biochemical changes occur related to lactic acid, with which the reaction shifts to the acid side and the pH of the meat becomes 5.7 to 6.2. Such values ensure the development of rotten microflora, which has appositive impact on further preservation of meat and the quality of the final product. Determination of the index of pH allows evaluating the status of slaughtered animal and is used to establish the compliance with veterinary and sanitary requirements.

Before the preparation of model samples of meat products with mushroom raw materials, the pH value of meat raw materials and meat-mushroom raw materials was determined from chilled and defrosted meat, and the freshness of the meat in the reaction was also assessed (table 4).

The obtained pH values and reactions with cuprous sulfate indicate that meat taken from healthy animals, chilled and defrosted comply with normative indexes. Meat and mushroom raw materials has higher indexes of pH, characteristic of plant products, the mushrooms in the composition.

Table 4 - Indexes of the degree of freshness of raw materials

Index	Raw materials			
	meat (chilled meat)	meat (defrosted meat)	Meat and mushroom with chilled meat	Meat and mushroom with defrosted meat
Value pH	5,8±0,01	6,0±0,01	6,2±0,02	6,4±0,01
Value of the reaction cuprous sulfate	Clear meat broth with a blue shade	Meat broth with large flakes	Clear meat broth with slight blurring	Meat broth with blurring and large flakes

Evaluation of the quality of the finished product was carried out after the test, according to the accepted research methods in the laboratory for production and laboratory for control of the quality and safety of products at Kherson State Agrarian and Economic University (table 5).

Table 5 - Quality indexes of the finished products

Index	Buckwheat porridge with pork	Variant I	Variant II
Acid number, mg KOH/g	1,07±0,02	1,03±0,01	1,04±0,01
Weight part of salt, %	1,5±0,08	1,4±0,06	1,3±0,04
Weight part of meat and fat, % not less	60,0±0,4	58,0±0,5	48,0±0,4
Weight part of fat,% not more	25,0±0,2	22,0±0,3	23,5±0,1
Extraneous matter	Not identified	Not identified	Not identified

The research shows that at the time of the experiment meat raw materials were fresh with proper quality. Weight part of fat should is more than 25% for the control sample and from 22 to 23.5% for the research samples, which is within normative indexes.

2.3.4. Determination of the indexes of safety of raw materials and finished products

Considering higher requirements to the quality of the products the enterprises of meat industry introduce a complex system of quality management, which combines technical, economic, social and organizational measures. At the private enterprise "Our Product", a system for analyzing unsafe factors for technologies for production, including meat and plant preserves, tomato paste etc.

Analyzing technological scheme for production of meat and mushroom preserves we can identify some stages where there is probability of contamination of raw materials, the risk of emergence of biological, chemical, physical dangers and determine critical points that should be considered in a production process (Table 6).

Table 6. Hazardous factors in the production of canned food

Stage of a technological process	Possible risks	Reasons for emergence	Control measures
1	2	3	4
Delivery of raw materials (meat, mushrooms)	Biological	Contamination of meat, mushrooms with rotten, pathogenic micro-flora; crossed contamination in delivery	Control of a provider, available documents confirming quality and safety of raw materials (incoming control of raw materials, product compliance with normative-technical documents and standards of a company)
	Chemical	Remains of preparations, pesticides, chemicals which entered a production process	
	Physical	Alien materials (glass, metal, plastic, stone, sand), which entered a product because of violation of transportation conditions	
Storage of raw materials	Biological	An increase in the number of microorganisms because of inappropriate temperature of storage; the expired shelf-life	Following the rules of storage (temperature regime, moisture) and norms of storage; rules of commodity neighborhood, shelf life, registration of the parameters of refrigerator equipment, control over turnover of product supply
	Chemical	Contamination with chemicals	Following the methods for product storage (rooms for storage food and non-food products)
	Physical	Damage of containers, wastes of rodents	Appropriate methods for storage, sanitary treatment and deratization
Preliminary preparation of raw materials	Biological	Semination of products with microorganisms from the staff, inventory, equipment, containers; an increase in microorganisms as a result of inappropriate temperature regime	Following the appropriate temperature regime, regimes of cleansing and disinfecting; staff hygiene
	Chemical	Remains of cleansing and disinfecting preparations on containers, inventory, equipment	Use of accepted cleansing and disinfecting preparations according to instructions; production control over compliance with sanitary rules at a food enterprise
	Physical	Remains of extraneous matter	Following the requirements for personal hygiene of the staff (cut nails, a lack of jewelry, subjects that cab be broken)

Table 7 (continued)

1	2	3	4
Sterilization	Biological	Under a lack of appropriate control over the regime of sterilization thermophilic microorganisms can survive	Appropriate temperature and time pf preparation, control of technical and sanitary thermal equipment
	Chemical	Remains of cleansing preparations in cans	Use of acceptable cleansing and disinfecting preparations according to the instructions that are provided
	Physical	-	-
Keeping in thermostat	Biological	Development of microorganisms that survived after sterilization. Creation of microbiological «swell»	Control over the state of cans. When "swell" is detected, its cause is identified with a laboratory method
	Chemical	Creation of chemical «swell» in interaction of elements of can surface with its content	Control over the content of tin, zinc in the finished product. When "swell" is detected, its cause is identified with a laboratory method
	Physical	Damages of cans and unsealing	Careful packing and transportation

Analysis of possible risks of biological, chemical and physical nature, allowing to reveal critical control points (fig. 3).

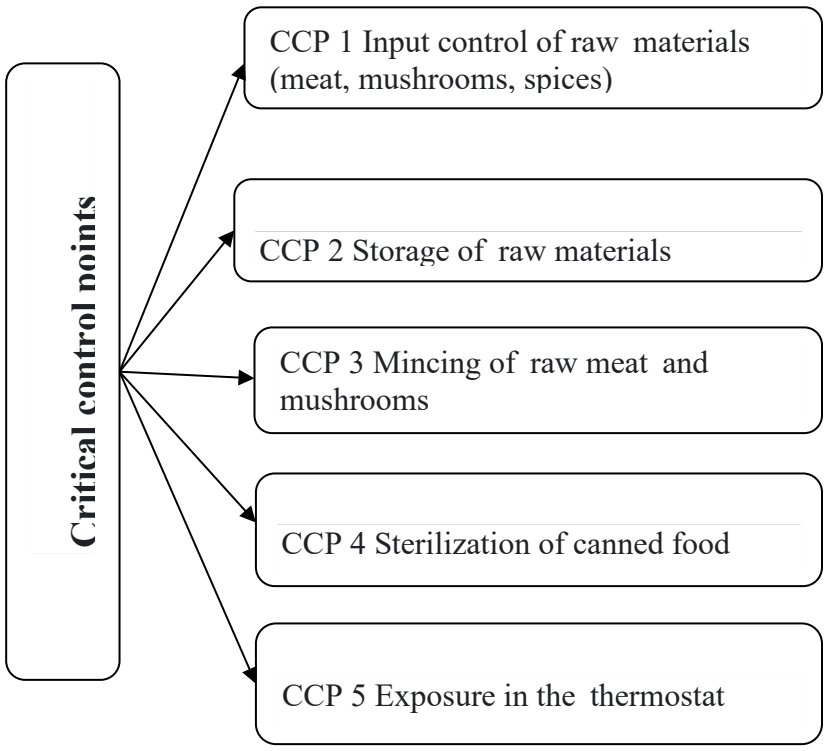

Fig. 3 - Critical control points of the technological process for the production of meat and mushroom preserves

The first critical control point (CCP 1) is the acceptance of raw materials (for

meat), quality and safety of the finished products depends. When accepting meat raw material, it is necessary to pay attention to documents confirming the suitability of this meat for the production of canned food, and also in case of suspected violation of transportation, it is necessary to carry out bacteriological control.

No less important stage is the determination of compliance with normative indexes concerning extraneous matter in mushroom raw materials (admissible levels of hard metals, nitrates), contamination with sand, soil and other. Availability of the certificate of the product quality is obligatory.

Another critical control point (CCP 2) concerns conditions for storing meat, mushrooms, and the temperature regime itself, the shelf life. It is necessary to carry out monitoring of indexes of the microclimate and control over the term of delivery of raw.

Meat cutting is the third critical control point (CCP 3). At the time of cutting, there is microflora distribution of the surface of the meat and the smaller the pieces are, the more microorganisms can appear at the surface. Therefore, this process must be carried out very quickly under certain temperature regimes. Also, the initial amount of microorganisms present on the surface of the carcass affects the quality of the finished product.

The next control point (CCP 4) is the sterilization of products. It is known that in case of improper sterilization, spores of anaerobic microorganism can be viable, and even germinate at the time of keeping in thermostat or in the process of storing canned food. It may become an unsafe biological factor in consumption of such a product. At this point, it is necessary to exert control over the sterilization regimes: the temperature and the hour of keeping.

Keeping the finished products in the thermostatic room is the last critical control point (CCP 5). This technological process is carried out to identify a sign of growth of mesophilic anaerobic microorganism, those that cause swelling of cans and microbiological "swell". With consumption of such a product, there is a threat of food microbial toxicosis caused by botulism. In case of revealing cans with signs of swell, it is necessary to carry out additional research to identify the nature of the damage.

To identify safety of the raw materials by biological risks, namely, by the microbiological criterion, we counted the number of mesophilic aerobic microorganisms, such an optional in 1 kg of pork, mushrooms and spices in the formulation of the preserves by seeding on MPA, bacteria of the group of intestinal bacterium on Endo's agar were compared with the normative values for the hygienic criterion of the technological process for meat and meat products [23] (Table 7).

The obtained data confirm that the chilled meat is suitable for the production of canned food and has microbiological indexes within the acceptable limits. Defrosted meat by the level of microbial contamination approaches the acceptable limits, which is explained by the rapid development of microflora after defrosting. Mushrooms planned to be used in production of this type of canned food, have equal acceptable levels of microbial contamination, it is also true for additional raw materials, except black pepper. However, it is necessary to highlight that after the mixing of all ingredients, sterilization will be carried out, in order to allow removing vegetative and spore bacteria under appropriate regimes.

Table 7 - Indicators of microbial contamination of raw materials

Type of raw materials, normative indexes	Microbiological indexes		
	KMAFAnM (KUO), in 1 g	BHKP (KUOO), in 1g	Sulfite reducing clostridia in 0,01 g
Chilled pork	$8,2x10^5$	$2,8x10^2$	Not identified
Defrosted pork	$2,2x10^6$	$4,5x10^2$	Not identified
Acceptable levels	$5,0x10^5$-$5x10^6$	50-$5x10^2$	Not identified
Oyster mushrooms	$6,4x10^3$	Not identified	Not identified
Acceptable levels	$5,0x10^4$	100-1000	Not identified
Black pepper	$1,3x10^3$	Not identified	Not identified
Acceptable levels	≤1000	Not acceptable	Not identified
Salt	$4,8x10^2$	Not identified	Not identified
Acceptable levels	≤1000	Not acceptable	Not identified

The examination of the finished product for the presence of excess microflora after sterilization, after the completion of the term of keeping in the thermostatic room, and after the storage of three months showed positive results (Table 8).

Table 8 - Indexes of the content of excess microflora in the finished products

Index	Time of the research		
	After sterilization	After keeping in the thermostat	in 3 months
MAFAnM (KUO), in 1g	$0,3x10^1$	$0,5x10^1$	$0,6 x10^1$

The obtained data on the content of microorganisms in the finished products evidences the stability of microbiological indexes at the time of storage and meet the requirements of industrial sterility.

It is also necessary to emphasize that at the enterprise of "Our Product" the main requirements for the raw materials, proper sanitary and hygienic support for the manufacturing process are met, which contributes to production of high-quality products.

As the analysis of indexes of the products shows, adding mushroom raw materials to pork in a quantity of 23%n has good indexes of food value, sensory analysis, physical and chemical properties.

Conclusions

1. Taking into account the useful characteristics of mushrooms, namely, oyster mushroom, we suggested adding them to the composition of meat-containing preserves of a functional direction.

2. The analysis of the canned products "Pork with mushrooms" shows that it has a functional direction, good indexes of food value, sensory analysis, physical and chemical properties, ready to be consumed cold and heated. This is a precondition for the development of technical conditions for canned meat and mushrooms "Pork with Mushrooms" and possible further implementation in serial production at the private enterprise "Our Product" in Kherson.