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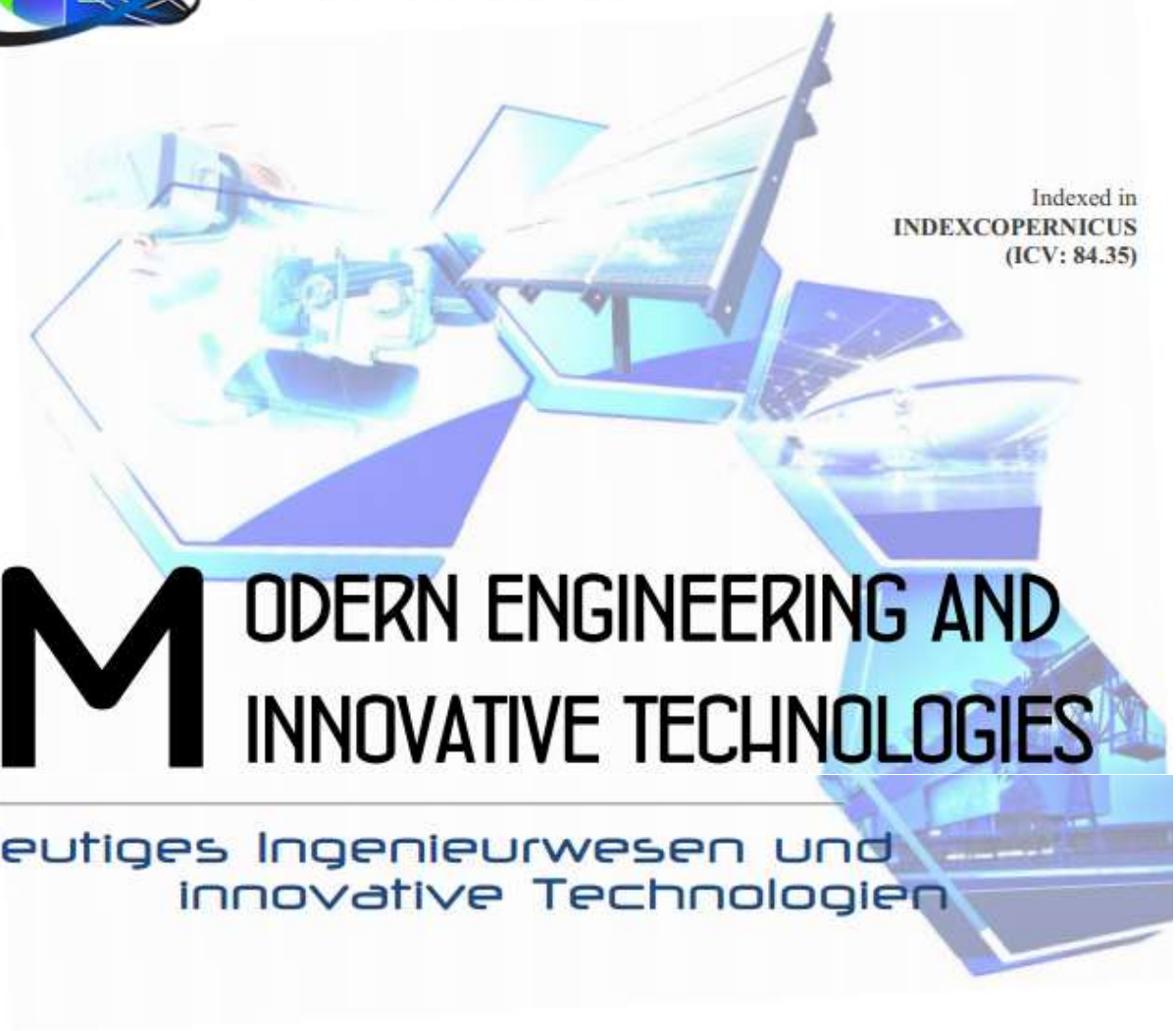

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TECHNOLOGICAL AND PHYSICOCHEMICAL PARAMETERS OF SEMI-FINISHED POULTRY MEAT DEPENDING ON THE METHOD OF MANUFACTURE

ТЕХНОЛОГІЧНІ І ФІЗИКО-ХІМІЧНІ ПОКАЗНИКИ НАПІВФАБРИКАТІВ З МЯСА ПТИЦІ ЗАЛЕЖНО ВІД СПОСОБУ ВИГОТОВЛЕННЯ

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Abstract

Introduction. *The necessary conditions for increasing the volume of production of meat products and improving their quality is to increase the efficiency of the use of raw materials, in particular poultry meat, to reduce losses and improve the range of products. Of particular relevance among meat products are frozen semi-finished products, which are in great demand among the population due to the acceleration of the pace of life of people, shorter cooking times, an increase in the share of the urban population and an increase in food consumption outside the home. In this regard, the issues of increasing the efficiency of their production in order to expand the range and increase the volume of production are in the focus of manufacturers. Poultry meat is a good raw material for the manufacture of food, since most of the carcasses are edible flesh tissue from 58.9 to 69.7%.*

Methods. *During the research, various modes of intensive mixing were studied in order to establish the optimal semi-finished products with high taste properties for the production. At the same time, it became impossible to use electromechanical equipment with which the enterprise was equipped: beaters of the MB-6 brand. To determine the optimal modes of intensive mixing, three speeds of the beater rpm were used in the research. - 410 rpm., 630 rpm., 780 rpm. The cutlet mass was prepared from poultry meat*

Results. *At a speed of revolutions of the beater 630 rpm. and 780 rpm., the water-holding capacity is higher by 4.9 - 6.8% than in control and minced meat with a processing of 410 rpm. comparison of the value of the water-holding capacity shows that there is a correlation between the change in the tenderness of the minced meat and the water-holding ability. These factors indicate the receipt of semi-finished products of better consistency with good shaping and high taste. The results of the conducted tasting showed that the experimental samples of semi-finished products in terms of organoleptic characteristics were higher than the control samples, in particular, the uniformity of the crust, tenderness, juiciness are observed.*

Key words: *semi-finished products, raw materials, meat, minced meat, tasting, organoleptic characteristics, consistency, water-holding capacity*

Introduction.

Adequate nutrition is one of the most important factors determining the health of

the population. Currently, the demand for chilled meat and meat products made from it, including semi-finished products, as well as ready-to-eat products, is constantly increasing. Of particular relevance among meat products are frozen semi-finished products, which are in great demand among the population due to the accelerating pace of life of people, shorter cooking times, an increase in the share of the urban population and an increase in food consumption outside the home. In this regard, the issues of increasing the efficiency of their production in order to expand the range and increase the volume of production are in the focus of manufacturers[7].

The necessary conditions for increasing the volume of production of meat products and improving their quality is to increase the efficiency of the use of raw materials, in particular poultry meat, reduce losses and improve the range of products [5].

Poultry meat is a good raw material for the manufacture of food, since most of the carcasses are edible flesh tissue from 58.9 to 69.7%. Poultry meat is the most important source of complete protein of animal origin, lipids with a high level of essential fatty acids[9].

A promising direction in the meat industry is the dynamically developing production of semi-finished products from poultry meat. The share of semi-finished products from poultry meat is approximately 25% of the sale of semi-finished meat products. This is due to a number of reasons: affordable price for all manufacturers and consumers, manufacturability of raw materials processing and production of finished products. In addition, poultry is the most affordable and dietary source of protein (high in protein and low in fat) in the human diet. In the future, it is planned to increase the volume of meat products, further expand the range and improve the quality, increase the output of balyk and culinary products and semi-finished products [3].

Nowadays, much attention is paid to improving the structural and mechanical properties of food products, reducing losses during heat treatment and improving the quality of finished products. At the same time, the need to increase the water-holding capacity and improve the structural - mechanical, physicochemical and organoleptic characteristics is indicated. [1, 2].

The properties of minced meat depend on the ratio between the amount of tightly and weakly bound moisture. An increased part of tightly bound moisture leads to the growth of solid-like substances in the system, an increase in weakly bound moisture leads to an increase in the thickness of the layers of the dispersion medium and decreases the forces of interaction between the dispersion parts. [4].

It has been established [8] that low-frequency vibration in combination with mechanical stirring makes it possible to change the rheological, chemical properties of substances that have a colloidal structure. The technological production of minced culinary products from poultry meat includes operations of grinding and mixing. It is known that the quality of finished products from minced meat depends on many technological factors, including the level of grinding, particle size.

However, the degree of minced meat grinding is limited by the diameter of the grinder grill holes, therefore, beaters are used to prepare a certain part of the products. In this case, aeration of the mass and emulsification of particles, saturation of the

mass with air oxygen [2].

During the aeration process, the mixtures create effects that cannot be duplicated in any other way. Products made from controlled foods have a looser consistency and better taste. [8]

Research methodology.

The aim of the research was to study the possibility of achieving positive structural and mechanical properties of the minced meat mass by intensive mixing with a churning machine, excluding mixing on a minced meat mixer.

During the research, various modes of intensive mixing were studied in order to establish the optimal semi-finished products with high taste properties for the production. At the same time, they got out of the possibility of using electromechanical equipment with which the enterprise was equipped: beaters of the MB-6 brand.

To determine the optimal modes of intensive mixing in the studies, three speeds of revolutions of the beater rpm were used. - 410 rpm., 630 rpm., 780 rpm. The cutlet mass was prepared from poultry meat. The control parameters were cutlet mass made according to the traditional technological scheme. Since structural and mechanical indicators are decisive for assessing the quality of minced meat, the indicator indicators were wet holding ability, tenderness, technological test [7].

During processing, minced meat samples were taken for measurements and analyzes with an interval of 30 s. The results were determined from the data of two serial experiments

Research results.

As a result of the research, the influence of different technologies for the production of minced meat from poultry meat on its quality was established. From table. 1 shows that the values of the indicator indicators at the rafting mode of 630 rpm. and 780 rpm. almost the same.

Table 1

Influence of the rate of mixing intensity on the rheological properties of minced meat

Indicators	Control	Speed r / min.		
		410	630	780
Humidity	71,6 ± 0,24	71,8 ± 0,18	71,2 ± 0,31	71,5 ± 0,32
Moisture retention ability%	41,8 ± 0,38	43,7 ± 0,52	46,4 ± 0,49	48,6 ± 0,92
Tenderness	372 ±17	398 ± 19	425 ± 17	447 ± 16
Plastic viscosity, Pa.s	16,2 ± 0,76	16,5 ± 1,03	17,3 ± 1,01	17,9 ± 0,97

The water retention capacity is one of the most characteristic indicators of minced meat, the regulation of which makes it possible to reduce the loss of water and fat-soluble substances in meat during heat treatment. Increasing the rate of churning of minced meat increases the water-holding capacity [6]. So at a speed of revolutions of the beater 630 rpm. and 780 rpm., the water-holding capacity is higher by 4.9 - 6.8% than in control and minced meat with a processing of 410 rpm. comparison of the value of the water-holding capacity shows that there is a correlation between the change in the tenderness of the

minced meat and the water-holding ability. These factors indicate the receipt of semi-finished products of better consistency with good shaping and high taste.

Intensive mixing of the mass ensures uniform and high organoleptic characteristics (Table 2). distribution of all components with simultaneous saturation with air, which improves its quality. Semi-finished products obtained from the cutlet mass, which was amenable to intensive mixing, keep their shape well.

Table 2

Indicators	Control	Speed r / min.		
		410	630	780
	Grades in points			
Appearance	2	3	3	3
Colour	4	4	4	5
Smell	4	4	4	4
Consistency	3	4	5	5
Average score	3,25	3,75	4	4,25

The results of the conducted tasting showed that the experimental samples of semi-finished products in terms of organoleptic characteristics were higher than the control samples, in particular, the uniformity of the crust, tenderness, juiciness are observed.

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Аннотация

Вступление. *Необходимыми условиями увеличения объема производства мясных продуктов и улучшения их качества является повышение эффективности использования сырьевых ресурсов, в частности мяса птицы, сокращение потерь и совершенствование ассортимента выпускаемых изделий. Особую актуальность среди мясных продуктов приобретают замороженные полуфабрикаты, которые пользуются большим спросом населения в связи с ускорением темпа жизни людей, сокращением времени на приготовление пищи, увеличением доли городского населения и ростом потребления пищи вне дома. В связи с этим вопросы повышения эффективности их производства с целью расширения ассортимента и увеличения объемов выпуска продукции находятся в центре внимания производителей. Мясо птицы является хорошим сырьем для изготовления продуктов питания, так как большую часть тушек составляют съедобные мякотные ткани от 58,9 до 69,7%.*

Методы. *Во время исследований были изучены разные режимы интенсивного смешивания с целью установления оптимальных для производства полуфабрикатов с высокими вкусовыми свойствами. При этом выходили из возможности использование электромеханического оборудования, которым обустроенное предприятие, : сбивательные машины марки МВ- 6. Для определения оптимальных режимов интенсивного смешивания в исследованиях применялись три скорости оборотов взбивателя об/мин. - 410 о/мин., 630 о/мин., 780 о/мин. Котлетная масса готовилась из мяса птицы.*

Результаты. *При скорости оборотов сбивателя 630 о/мин. и 780 о/мин., влагоудерживающая способность более высокая на 4,9 - 6,8% чем в контроле и фаршу с обработкой 410 об/мин. сопоставление величины влагоудерживающей способности показывает, что прослеживается корреляция между изменением показателя нежности фарша и влагоудерживающей способности. Эти факторы указывают на получение полуфабрикатов лучшей консистенции с добрыми формировочными и высокими вкусовыми качествами. Результаты проведенной дегустации показали, что опытные образцы полуфабрикатов по органолептическим показателям были выше контрольных образцов, в частности наблюдается равномерность корочки, нежность, сочность.*

Ключевые слова: *полуфабрикаты, сырье, м'ясо, фарш, дегустація, органолептические показатели, консистенція, влагоудерживающая способность.*

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