Section 3. **IMPROVEMENT OF FOOD PRODUCTS QUALITY**

**THE USE OF QUALIMETRY PRINCIPLES FOR THE EVALUATION OF THE QUALITY OF BISCUITS WITH THE ADDITION OF SEMI-FINISHED NUTRITIVE BONE PRODUCT**

E. Shidakova-Kamenyuka, N. Golovko, I. Rogovyi, A. Rogovaya

The possibility of applying qualimetry principles for complex evaluation of biscuits quality is considered. The objects for the evaluation are two kinds of shortbread cookies with the addition of semi-finished nutritive bone products: sweet cookies “Prometheus” and a group of salty cookies “Zakusochnoye”. The necessary and sufficient qualities of biscuits were used for the evaluation. They were presented as a “a tree of qualities”. For the calculation of complex parameter of a product quality was started from the determination of group indices. Three groups of qualities were considered: organoleptic, physical-chemical, and chemical composition. Group qualities were evaluated with the account of relative values of quality parameters within the group and the weightiness coefficients. It is found that organoleptic characteristics of “Prometheus” cookies are maintained at the same level as those in a control group. However, in comparison with the control sample the importance of group parameter increase by physical-chemical properties (at 11,5%) and by chemical composition (2,2 times). The improvement of group parameter by the taste equals 5,7%, by physical-chemical properties it is 12,7% for “Zakusochnoye” cookie. By the chemical composition this sample exceeds the control 1,8 times. The common complex quality value of the products under research was estimated with the account of complex evaluation for certain groups of qualities and corresponding weight coefficients. It is found that addition of nutritive bone semi-product increases complex quality parameter of biscuits. In particular, sweet biscuits quality improvement equals 29,8%, salty biscuits improve their quality 30,6%

**Keywords:** qualimetry, biscuit, a tree of qualities, quality, complex parameter.

**PROSPECTS FOR ENRICHMENT KEFIR WITH WHEAT GERM**

A. Odarchenko, Ye. Gasay, Z. Karpenko

At present milk products are wider and wider used in nutrition for prophylactic use. Widening of “functioning products” assortment reveals the opportunities of managing the process of biologically active substances in a human organism.
Alongside with the diversity of nutritive filling agents, wheat germs, which are the sources of vitamin B group influencing cardiovascular and nutritive system, and which is the most important – nervous system, strengthen nervous cells, improve vital tonus and temper, are perspective for the use as a functional ingredient in cultured milk products.

The aim of the research is to study the influence of secondary raw materials on kefir quality. Fat status of ready product equaled 2.5%. Preliminary prepared wheat germs in the amount 0.5 and 1.0 g were added into kefir mixture during ripening.

The expedience of manufacturing kefir with wheat germs is found and substantiated in the result of the investigation. The received results demonstrated that kefir with wheat germs possesses a number of preferences, in particular, the improvement of the appearance and taste. It is noted that addition of germs decreases both active and titrated acidity. Besides, during the storage of kefir with germs, its properties change less intensively. It means that kefir can store longer. Nevertheless, functional features of this product are the most important.

**Keywords:** functional food, dairy products, kefir, wheat germ.

**IMPROVEMENT OF THE TECHNOLOGY OF MEAT MINCED PRODUCTS USING HYDROCOLLOIDS**

Y. Yastreba, V. Pasichniy

The article is devoted to scientific substantiation and elaboration of the technology of meat products with the usage the sodium alginate. The technology of meat minced products enriched with food fibers of vegetable origin is developed. The processes of the preliminary treatment by the method of the mathematical planning are optimized. The mathematical model of the process of the preliminary treatment of sodium alginate is based on the experimental data. Chemical composition, microbiological and organoleptic indexes of the developed products is investigated.

It is determined, that use of sodium alginate for the manufacture of meat products has substantial influence on physical and chemical indexes of the prepared product.

**Keywords:** meat minced products, sodium alginate, gels.

**THE USE MICROBIAL POLYSACCHARIDE XAMPAN FOR RAISING MUFFINS QUALITY ON THE GROUNDS OF WHEAT GERM EXTRACTION**

O. Samokhvalova, K. Kasabova

The possibility of using microbial polysaccharide xampan for raising the quality of muffins prepared on the grounds of wheat germ extraction
cakes with absolute exclusion of wheat flour from the recipe. Wheat germ extraction cakes contain a raw of physiologically functional natural ingredients such as protein, nutritive fibers (cellulose, hemicellulose, lignin), vitamins and minerals. The balanced amount of the preparation required for the provision of quality parameters of the product is determined. It is found that use of microbial polysaccharide xampan allows to improve such structural-mechanical properties of dough as plastic and effective viscosity, modules of immediate elasticity and springiness, adhesion. Addition of the preparation improves organoleptic and physical-chemical parameters of the quality of ready products with xampan, and increases their nutritive quality reducing energetic value.

**Keywords:** muffins, wheat germ meal, quality indexes, xanthan.

**MUCHKA IN FERMENTED BEVERAGES**

M. Odarchenko, Z. Karpenko, A. Sergienko, A. Bobyreva

The influence of the addition of dust middling at quality parameters and biological value of fermented milk beverages namely boiled fermented milk. It is determined that during the boiled fermented milk manufacture it is matured for 3 hour at temperature 95°C that results in the decrease of nutritive and biologically active substances.

Traditionally boiled fermented milk is used as a dietetic and prophylactic product. That is why it is reasonable to enrich it with an additional amount of protein substances and dietary fibers. It is found that dust middling is a source of proteins, starch, cellulose, and can be used as a biologically active component for the enrichment of fermented milk products.

The essence of the experiment is the mixture selection, its preparation, determination of changes in the appearance, consistence, taste, and aroma of the product, titratable and active acidity of boiled fermented milk in comparison with analogic indexes of a control sample. Variation in the amount of additive occurred within the range from 0.1 to 1.0 g per 100 ml of the product. The sample with the addition of 0.5 g of barley dust middling possessed the beat organoleptic parameters.

During the evaluation of quality of the developed boiled fermented milk, the change of consistence and taste was noted. It might be predetermined by the formation of calcium lactate after the introduction of additional amount of starch. Slight increase of titratable acidity and, respectively, reduction of active acidity concerning physical-chemical quality parameters is not sufficient in comparison with the control sample.
**Keywords:** fermented beverages, dust middling, quality, biological value.

**INVESTIGATION OF PROPERTIES OF DEFATTED HEAT-TREATED FLOUR OF AMARANTH**

Z. Kucheruk, O. Postnova, G. Galych

Amaranth (Amaránthus) is considered to be perspective raw material of the XXI century. It is more often used in the production of foodstuffs not only for mass consumption as a fortifier but also for producing special dietary products, in particular, glutenless. It is expedient to use defatted flour of amaranth that is produced by SIA “Zhytomyrbioproduct” (Ukraine) after extracting fat for medical purpose from crumbled grist with further milling to particles of 50–70 mkm.

Organoleptic indices, moisture, fat-binding and water-absorbing abilities of defatted flour of amaranth heat-treated at different temperatures were investigated. It was determined that while treating at the temperature of 120° and 140° during 10–40 minutes flour gains a darker colour (from cream to light beige) and pleasant nut flavour. Increase in duration and temperature of heat treatment in the range of the investigated modes results in reducing moisture of flour by 3,8...4,8 times and decreasing its fat-binding and water-absorbing abilities. At maximum values of heat treatment modes FBA is reduced by 8,7% and WAA – by 12,9%.

**Keywords:** amaranth flour, heat treatment, moisture, fat-binding, water-absorbing abilities, glutenless products.

**BIOLOGICAL VALUE OF BOILED SAUSAGE WITH BLOOD COLOURING AGENT**

T. Kolesnyk, A. Kolesnyk

The technology of boiled sausage with the colouring agent from the blood of slaughtered animals – carboxyhemoglobin (NbSO) is elaborated. Carboxyhemoglobin is result of the interaction of hemoglobin with carbon monoxide and it is characterized by persistent red colour. Use of the colouring agent allows reducing in the recipe of boiled sausage of sodium nitrite to 1.5 g per 100 kg of raw material. The minimum amount of sodium nitrite in sausage forcemeat stimulates the production of the finished product without residual sodium nitrite, which leads to the formation of nitrosoamines as a result of the nitrosing reaction in sausages, which are produced by traditional technology. The colouring agent was applied into
the recipe of sausages in amount of 2% instead of meat raw material. Reduction of meat raw material in the recipe necessitates the study of biological value samples of sausages which contain colouring agent from the blood.

**Keywords:** carboxyhemoglobin, boiled sausage, sodium nitrite, biological value, limiting amino acids, amino-acid score, isoleucine.

**Formulation of the problem in general.** The important feature of meat products, compared with other types of food products is the high revelation of nitrosoamines in their composition. In this regard the content of volatile nitrosoamines in boiled sausage is studied, while nitrosopiperidine was in all investigated sausage samples in an amount of 0,5 ... 3,0 mg / kg.

The amount of nitrosoamines which each person consumes with food per day is calculated in the United States: 1 mg of nitrosodimethylamine and nitrosodiethylamine and 5 mg of nitrosopiperidine and all these substances are completely consumed with meat products.

International norms of low-molecular nitrosoamines tolerance are 5 – 10 mg / kg. However, these amounts are not completely safe because of the existence of additional and synergetic actions which are caused by some groups of carcinogens [1].

For the corresponding color in the production of combined meat products higher concentrations of sodium nitrite should be added in the recipe. Consequently, another problem arises. It is possible formation of nitroso amino acids, products of their decarboxylation are known as drastic carcinogens. Proline, histidine and arginine especially accelerate nitroso amino acids formation.

The above-stated necessitates the elaboration of nitrite-free technology of meat processing.

Perspective way of residual nitrite concentration in the finished product reducing is the introduction of additives which allow to reduce the nitrite content in the initial salting mixtures or those which contribute the most complete its conversion in salting process, such as organic acids with pronounced reducing properties, organic and inorganic compounds, natural and synthetic colouring agents.

Many scientific works are known where scientists recommend the replacement of synthetic colouring agents on natural colouring agents, it connects with two main factors: safety for the body because they are obtained from vegetable raw material which belongs to natural food components, and body adapted to them and prejudice of consumers against synthetic additives. Vegetable pigments such as anthocyanins, carotinoids
which are contained in carrot, saffron, pepper, ginger and grapes were studied as possible color stabilizers of meat products. The researchers of our country conducted researches with use of anthocyanin colouring agents in the production of sausages and found disadvantages of such colouring agents. The main disadvantage of which is the instability of the meat products color, which is destroyed by heat, light and oxygen [2].

The classification of natural colouring agents includes animal origin pigments: blood pigment – hemoglobin and muscles pigment – myoglobin. The problem of natural blood pigments use for meat products coloring is discussed in the literature [3].

Thus the use of natural blood pigments for meat products coloring is very important as it allows reducing or completely eliminating the use of nitrites and nitrates in the production of meat products, especially under the steady raising of the rate of replacement of meat raw material on milk and vegetable proteins which dyes badly by nitrites in combined meat products and therefore requiring the introduction of increasing doses of sodium nitrite.

**Analysis of recent researches and publications.** Using of blood as color forming ingredient is based on the physical and chemical and color forming properties of complex protein hemoglobin, it consists of globin protein part (96%) and prosthetic part – heme (40%), and it is major coloring substance. Red color of red blood cells depends on the presence of hemoglobin and causes their name («eritros» – red). Hemoglobin changes its color depending on the valence of iron and the nature of its bond with the protein. It is established that the iron in hemoglobin is coordinated by four nitrogen atoms of protoporphyrin IX pyrolytic rings and nitrogen atoms of imidazole ring of histidine residues, which is part of the polypeptide of hemoglobin. The possibility of colouring agent from the blood of slaughtered animals obtaining is determined by the presence in it of hemoglobin. The structure of hemoglobin can effectively coordinate oxygen, carbon monoxide, nitrogen, carbon dioxide; these compounds are able to change the properties of protein and its color. Carboxyhemoglobin (HbCO) and carboxymyoglobin (MbCO) are most effective in this respect; they combine with ferroics and prevent oxidation of Fe$^{2+}$ in Fe$^{3+}$ of hemoglobin and myoglobin to brown color metpigment. Carboxyhemoglobin which is formed by the interaction of hemoglobin with carbon monoxide is more stable compound than oxyhemoglobin [4].

The ability of hemoglobin instantly to form strong pink compound – carboxyhemoglobin was used for elaborating of natural food colouring agent for intensification of boiled sausages color.
The purpose of the research paper. Study of biological value of the boiled sausage, colour formation of which is achieved by natural colouring agent from the blood of slaughtered animals – carboxyhemoglobin with simultaneous reduction of sodium nitrite concentration in the recipe of sausage.

The main material of the research. The technology of boiled sausages traditional color of which is achieved by the introduction to the recipe of colouring agent from blood of slaughtered animals, with reduced in five times concentration of sodium nitrite, which is introduced into sausage meat by traditional technology in quantities of 7.4 g is elaborated. Arguments against the use of sodium nitrite connected with nitrosoamines’ carcinogenicity, specifics of the technology of sausages at the stage of salting and smoking, introduction some spices further the formation of nitrosoamines and the result is the presence of residual nitrite in the sausages. Often meat products contain denitrifying bacteria which can restore the nitrates in nitrites and cause the formation of nitrosoamines. The process of amines nitrosification significantly increases under increasing of reaction time and temperature. It plays significant role in the nitrosoamines’ formation in the process of cooking food products which contain nitrites. For example, increasing the length of the heating in 2 times in the sausages production increases the content of nitrosodimethylamine. Nitrosoamines formation occurs in different ways. Thus, nitrosoamines formation (nitrosopiperidine and nitrosopyrrolidine) occurs during spices such as pepper, onion, garlic storage [5].

It is found that processes of nitrates recovery to nitrites and endogenous synthesis of nitrosoamines are in human body, the presence of an acidic environment and activity of certain types of microorganisms improve this process. Since it is impossible to avoid of nitrosoamines and their precursors getting in food products and into the body it is necessary to reduce the level of nitrosing agents in food and water.

At the same time, it is known that for formation of «useful» colouring pigment nitrosomiochromogen in the sausages no more than 10% of the amount of nitrite is used. It is introduced into the product. It allows elaboration of the technology of boiled sausages with reduced amount of sodium nitrite from 7.4 g to 1.5 g per 100 kg of raw material, and the rest is replaced with colouring agent from blood of slaughtered animals. This colouring agent is treated with gaseous carbon monoxide, causing the blood pigment hemoglobin turns into carboxyhemoglobin (HbCO). It is characterized by steady red colour. Colouring agent on the base of slaughtered animals blood meets acceptable levels of natural and man-made pollution with alien substances, and also hasn’t strong sensitizing properties which can cause allergy of human body, it is especially important in childhood and adolescence, because blood is familiar to human population.
for a long time and can not be considered as alien substance for metabolic systems of homeostasis control of internal human environment [6].

The object of the study is boiled sausage «Stolovaia» of first rate, the coloring of which achieves by introducing of 2% carboxyhemoglobin in combination with sodium nitrite in an amount of 1,5 g per 100 kg of meat raw material. The control sample is boiled sausages «Stolovaia» of first rate which is produced in accordance with state standard of Ukraine. It contains 7,4 g of sodium nitrite in accordance with recipe. Carboxyhemoglobin was introduced into raw material during minced meat producing.

It should be noted that 2% of colouring agent is introduced as replacement of meat raw material, it allows saving of meat raw material and rational use of blood in food purposes. But in connection with the replacement of meat raw material the necessity of studying the biological value of boiled sausage with colouring agent arises.

Nutritional value of the product is determined by quantitative ratio of nutrients in it and total energy value. As food substances are sources of biologically essential substances, it is important to study the rate of biological value of boiled sausage protein with colouring agent from the blood. It is stipulated by the degree of amino acids composition balance.

Preliminarily the colouring agent amino acid composition of proteins was studied by chromatography method. The results are presented in table 1.

Table 1

**Amino acid composition of blood colouring agent proteins**

<table>
<thead>
<tr>
<th>Amino acids</th>
<th>Content, g per 100 g protein</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>In the blood colouring agent</td>
</tr>
<tr>
<td>Isoleucine</td>
<td>0,9</td>
</tr>
<tr>
<td>Leucine</td>
<td>13,2</td>
</tr>
<tr>
<td>Lysine</td>
<td>9,7</td>
</tr>
<tr>
<td>Methionine + cystine</td>
<td>2,6</td>
</tr>
<tr>
<td>Phenylalanine + tyrosine</td>
<td>10,7</td>
</tr>
<tr>
<td>Threonine</td>
<td>4,8</td>
</tr>
<tr>
<td>Tryptophan</td>
<td>1,4</td>
</tr>
<tr>
<td>Valine</td>
<td>8,7</td>
</tr>
</tbody>
</table>

Analysis of the tables’ 1 data shows that colouring agent proteins according to their amino acid composition are complete proteins and contain the full range of essential amino acids. The content of lysine in the colouring agent can satisfy the human need for this amino acid to 129,4% for leucine respectively 236%, but the content of the colouring agent protein
is lack of isoleucine and sulfur-containing amino acids methionine and cystine.

Table 2

**Amino acid composition of boiled sausage «Stolovaia» with blood colouring agent**

<table>
<thead>
<tr>
<th>Indices</th>
<th>Experimental sample</th>
<th>Control sample</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AA Score, %</td>
<td>AA Score, %</td>
</tr>
<tr>
<td>Protein, %</td>
<td>4,1</td>
<td>13,9</td>
</tr>
<tr>
<td>Total amount of AA (mg per 1 g of protein) including:</td>
<td>10371</td>
<td>10185</td>
</tr>
<tr>
<td>Valine</td>
<td>69,79</td>
<td>139,44</td>
</tr>
<tr>
<td>Isoleucine</td>
<td>35,0</td>
<td>87,5</td>
</tr>
<tr>
<td>Leucine</td>
<td>73,32</td>
<td>105,03</td>
</tr>
<tr>
<td>Lysine</td>
<td>72,41</td>
<td>131,65</td>
</tr>
<tr>
<td>Methionine + cystine</td>
<td>22,01</td>
<td>62,9</td>
</tr>
<tr>
<td>Threonine</td>
<td>40,36</td>
<td>100,9</td>
</tr>
<tr>
<td>Phenylalanine + tyrosine</td>
<td>70,2</td>
<td>117,0</td>
</tr>
<tr>
<td>Limiting AA, score, %</td>
<td>Isoleucine – 87,5</td>
<td>Methionine + cystine – 62,9</td>
</tr>
<tr>
<td></td>
<td>Methionine + cystine – 59,2</td>
<td></td>
</tr>
</tbody>
</table>

The coloring agent is source of iron – its content is 30 mg% (for comparison in beef its content is 2,6 mg%) [7]. It is established that in case when heme iron is part of the food product, it is easily digested, so introduction of colouring agent in boiled sausage allows to enrich it with iron.

Amino acid composition of boiled sausage «Stolovaia» with blood colouring agent (carboxyhemoglobin) is determined by the standard method and presented in table 2.

Research of amino acid composition of boiled sausage experimental and control samples shows that the control sample which is produced by traditional technology, as limiting amino acid has amino acids sum – methionine + cystine (score 59,2). Introduction to the recipe of sausage colouring agent from blood of slaughtered animals enriches the product with all amino acids, increases the score of methionine + cystine to 62,9% because of their natural content in the blood. Exception is isoleucine, its score in the experimental sample of sausage reduces compared with the control sample of sausage on 12,5%.
Preliminary study of the residual amount of nitrite in the experimental samples of the product showed that it reduced on 93.5% compared with the control sample of sausage under complete absence of nitrosoamines. It is identified by chemiluminescence method. Mark of organoleptic indices of the experimental sausage quality was higher than the mark of control sample on 0.1 points. So isoleucine limit in the experimental sample does not significantly reduce its biological value because the daily human need in this amino acid may be covered by other products in the daily diet on the base of safety and high organoleptic characteristics of boiled sausages with coloring agent from blood.

Conclusions. Thus, the use for coloring of boiled sausages of natural colouring agent from the blood of slaughtered animals simultaneously with low concentration of sodium nitrite allows obtaining of biologically valuable finished product, where limiting amino acid is isoleucine. Amino acid score in the experimental sample of sausage reduces compared with the control sample of sausage on 12.5%.

Список джерел інформації / References


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At present effective is the introduction of natural components with alco-protective and antioxidant properties into the recipe of soft alcoholic drinks (SAD).

The expediency of using fruit and berry cultivated and wild growing raw material, spices, herbs and extracts on their basis without spirit for the manufacture of SAD is considered in the article. The practicability of using the components accelerating elimination of spirit and toxic substances from the body, which slow down the speed of their penetration from stomach to blood, is proved.

It is proved that the use of wild growing spicy-aromatic raw material with a high content of vitamins is perspective during the manufacture of soft alcoholic drinks.

The possibility of using gooseberry, beetroot, honeyberry, kiwi, chokeberry, peppermint, Melissa, marjoram, clove, cardamom, cinnamon, lemon peel for the manufacture of SAD is considered after the analysis of chemical composition, nutritive value and antioxidant properties of natural raw material.

The use of natural raw material and extracts on its ground will allow to create products with good organoleptic qualities and high nutritive value. Raw material used for the manufacture of SAD should contain the components speeding up extrusion of spirit and toxic substances from the body. The use of natural raw material and extracts on its ground will help to deal with the defined problem.

**Keywords:** raw materials, fermentation extract, quality, drinks.

**TECHNOLOGY OF PUREE-BASED DISHES FROM LENTILS**

V. Atanasova

The article is scientifically justified. The technology of puree dishes from beans lentils is developed. It is shown that lentil is a valuable raw material with high content of proteins and carbohydrates. It is proved that the germination of lentil greatly improves the digestion of proteins, included in its composition, increases the mass fraction of vitamins, reduces the duration of thermal processing of the product, but leads to the decrease of
mass fraction of dry substances in raw materials (25.5%). So, to make the product taste a combined treatment of lentil (germination and extrusion), increasing the mass fraction of dry substances in the finished product and its taste is applied.

The best composition of lentils for soup "Health" (sprouted grains is 70%, the extrudate – 30%) and the technology of its manufacture are determined.

**Keywords:** lentil, protein, puree mass, organoleptic characteristics.

**PROSPECTS FOR ENHANCING BIOLOGICAL VALUE OF NEW PRODUCTS**

M. Kalakura, O. Schyrska

Today there is a need of such foods possessing dietary or curative properties by enriching vitamins, minerals, polyunsaturated fatty acids, dietary fiber and more. To ensure physical, biological and functional properties of food, it is necessary to apply methods to improve technologies through the use of non-traditional recipes with certain ingredients curative properties. Our research found that in order to reduce the deficit macro- and micronutrients, dietary fiber, vitamins in the diet of the population in confectionery formulations can be used bee products. Bee products, including royal jelly and bee-glue are natural biologically active substances with complex chemical composition. They contain sugars, enzymes, proteins, vitamins, minerals, lipids, flavonoids and so on. The article is devoted to the research on the use of bee-glue and royal jelly biscuit bases in the production of sweet products for the improvement of their biological value. It is possible to reduce the deficit of macro- and micronutrients, dietary fiber, vitamins in the diet of the population in the formulations of confectionery by the introduction of technology of bee products. Organoleptic and rheological parameters of dough dessert semis are studied. Past rheological and sensory research of dough semis showed greater biological value of the new product without changing its viscosity and organoleptic characteristics. New semi-finished products to be included in preventive nutrition are designed.

**Keywords:** pastry, dessert products, of bee products, bee-glue, royal jelly.
SYSTEM ANALYSIS IN THE SOLUTION OF ISSUES CONCERNING QUALITY OF DESSERTS WITH CAPSULATED PROBIOTIC MICROORGANISMS

N. Kondratjuk

The article, from practical and theoretical points of view, deals with modern aspects of quality control of encapsulated products with probiotic microorganisms. It is proved that the quality control of the data objects is a system in a technological environment that enables the company to coordinate activities with the aim of achieving operational and strategic goals. The essence of the concept of «quality control of encapsulated products with probiotic microorganisms and the types of control subsystems” that will be included in the common control objects is systematically analyzed. The place and importance of system analysis in security matters of semi-fabricated desserts «encapsulated product with probiotic microorganisms» is specified.

It is proved that the provision of technological security encapsulated products is an integral part of their promotion on the market and must be included in the system of process control.

Keywords: system analysis, desserts, probiotics, encapsulated products, quality.

SUBSTANTIATION OF THE ROLE OF «NEApectin–Ca^{2+}» SYSTEM IN ASSORTMENT OF LOW CALORIE CULINARY PRODUCTS

T. Stepanova

In modern conditions of the development of Ukraine economy the particular importance belongs to the issues of creation and introduction of energy saving technologies of food products. It largely depends on innovative science and knowledge, allowing the most efficient use of resource the capacity to improve the competitiveness of products. Thus a scientific approach is an essential component in the process of formation of innovative product ideas and strategies of promoting it on the market. The article analyzes scientific approaches to the definition of «structure formation in the system «NEApectin–Ca^{2+}» as a range of low-calorie jelly-like culinary products, as a determining factor.

The article describes the processes of gel formation in food systems based on low-esterified midirunner of pectin, a substance and results.

The author identified the priority areas and the types of products that have a competitive advantage among the competitors on the market of such products.
Keywords: pectin, calcium, gelation, complexation, low calories product.

JUSTIFICATION OF RECIPE SPECIAL – PURPOSE FONDANS

O. Dudkina, S. Gubenko, A. Gavrysh, O. Nemirich

This article is dedicated to the research and to argument of selection of raw materials for fondans, for special purposes. A significant segment of products presented as hot desserts, are in high demand and popularity among different age groups. This leads to the further development of improvement the technological process production of recipe compositions using mathematical modeling. Diversification of raw materials for fondant will improve or modify the organoleptic quality indicators of the dessert, such as taste, flavour, color, appearance and perfect the nutritional and biological value of dessert. Therefore, it is reasonable to conduct the experimental research and develop the technical documentation for new types of fondant desserts with alternative raw materials.

Keywords: fondans, rice flour, celiac disease.

DETERMINATION OF THE IMPACT OF FOOD INGREDIENTS ON QUALITY AERATED SEMI-FINISHING

S. Omelchenko, A. Horalchuk, O. Grinchenko

In this work the influence of food ingredients on physical and chemical and structural and mechanical features of finishing semi-finished products on the basis of vegetable oil is studied, namely the influence of raw materials which include sugar (white sugar, icing sugar, sugar syrup), raw materials which include fat (butter), raw materials which include protein (cottage cheese sour-milk), pH is defined.

Foam-forming ability, stability of foam, mechanical durability of a shaken-up semi-finished product the finishing depending on the look and the content of food ingredients that allows to form a range of creams for confectionery are investigated.

It is established that indicators of foam-forming ability, stability of foam, mechanical durability of the system of a shaken-up semi-finished product the for the production of creams differs depending on the type of food ingredients and number of their introduction.

The conducted researches allowed defining the rational content of food ingredients for receiving creams on the basis of the shaken-up semi-finished product. It is defined that rational maintenance of white sugar makes 7...12%, cottage cheese sour-milk to 15%, pH not lower than 5.0.

Keywords: finishing semi-finished product, foam systems, foam capacity, foam stability and technological factors.