Section 1. NEW TECHNOLOGIES OF FOOD PRODUCTS

MARKETING RESEARCH TO IMPROVING THE EFFICIENCY PROMOTION ON DOMESTIC MARKET NEW FUNCTIONAL FOODS

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The work carried out market research on the possibility of increasing the efficiency of promotion to the consumer market Ukraine novel functional foods. The results of a questionnaire survey of managers of food processing industry and trade have shown that they generally have a positive attitude to the production and delivery to the consumer market of functional foods. Established that one of the main obstacles to food and processing industry to produce functional foods is the lack of economic interest and institutional arrangements of local authorities should develop programs that support and maintain the health of the population.

Based on the findings the methodological approaches and principles of effective positioning of innovative functional food products on the domestic market. Thus, the model of increasing the efficiency of communication with the consumer in the derivation of functional foods for the consumer market, and develop interventions for consumers with a negative perception of functional foods due to lack of information, or distorted information about them. Methodological approaches to improve the efficiency of promoting functional foods to the consumer market include identifying the demands of consumers, which vary depending on several factors, and the design of functional foods in the form of evidence of benefits of a new product and new product positioning.

Keywords: marketing, research, consumer, product, functional, survey, efficiency, positioning.

INVESTIGATION THERMOSTABLE HARD EMULSIONS IN THE TECHNOLOGIES OF MEAT MINCED PRODUCTS

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Speaking about the industrial food production it is worth saying that improvement of the population alimentation structure due to the raise of foodstuff with the increased nutritive value is of priority directions of government policy in Ukraine. Special position is given to restructured foodstuff, production of which has a number of advantages comparing with
traditional foodstuff. Large-scale investigations, which are carried out in this direction result in intensive development of structured products’ market.

Use of alginates’ emulsions with the remains of calcium is a perspective raw material for the production of structured foodstuff. Development of structured thermo stable products on the basis of fat emulsions with alginate structure-forming agent will allow using them in the technology of culinary products with high thermo stability.

Chemical reaction of alginic molecules with the remains of calcium lies in the grounds of technological process.

**Keywords:** emulsion, structuring, food technology, meat production, alginates, thermal stability, ionotropic polysaccharides.

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**MOLECULAR WATER MOBILITY IN THERMODURIC MILK-CONTAINING FILLING**

G. Lyubenko, M. Obozna, F. Pertsevoy, O. Dyakov

The technology of thermoduric milk-containing filling, in which low-etherified pectin and modified starch, widely spread in Ukrainian market as structure-forming agents, is developed. Their peculiarity is the ability to add defined functional and technological properties to the product and their usability. Effortless technological process of manufacturing, low cost price, increased competitiveness and high level of demand at the consumer market characterize thermoduric milk-containing filling. It can be used as a semi-finished product for the decoration of cakes, biscuits, confectionery and culinary products.

Molecular mobility of water in model systems is studied by means of a spin echo method of a nuclear magnetic resonance (NMR). The way the process of low-temperature processing influences the changes in hydrocolloids containing is clarified. The compatibility of using structure-forming agents – low-etherified and modified starch as a part of heat-proof milk-containing filling is substantiated. It will allow manage the process of structure-formation, and the possibility to receive top quality product with high sensory characteristics.

**Keywords:** hydrocolloids, thermoduric, gelation, synergism.
ACTUALITY OF MILD CHEESE PRODUCTS WITH HERBAL SUPPLEMENTS AND RESEARCH CONTENT OF FREE AND BOUND MOISTURE IN THE PRODUCT

M. Obozna, F. Pertsevoy, O. Dyakov

The basic organoleptic, physical and chemical, rheological and functional and technological properties of soft cheese product on the stages of its manufacture, storage, freezing and storage in the frozen state because of the effect of vegetable additives were studied. The recipe composition and the technology of production of soft cheese product were grounded and elaborated on the base of these data.

On the basis of the evaluation of functional and technological and chemical properties of the concentrate of peanut kernels and corn flour the expediency of their combined use as functional factors was proved.

The effect of freezing on the changes of protein substances and fat fractions, physical and chemical properties of the soft cheese product was researched; the shelf life in frozen state was grounded.

The standard and technological documentation was developed and approved, the arrangements for the introduction of new technology in enterprises of restaurant industry were made, and data of cost-effectiveness of the introduction of soft cheese product into production was presented.

Based on the analysis and generalization of experimental results proved and experimentally demonstrate the feasibility of establishing a new technology product soft cheese from skimmed milk contains as prescription supplements concentrate peanut kernels and corn flour. Definitely contents of free and bound water in the soft cheese product.

Keywords: soft cheese product, herbal supplements, free and bound moisture.

THE INVESTIGATION OF CONDITIONS OF THE ETHANOL- AND WATER-SOLUBLE SUBSTANCES EXTRACTION FROM CULTIVATED MUSHROOMS

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The properties of mushroom ethanol- and water-soluble fractions are being investigated all over the world. However, there are no the proved conditions of extracting these substances from mushrooms. The purpose of this research was to determine the conditions of the ethanol- and water-soluble substances extraction from cultured mushrooms (Agaricus bisporus,
Pleurotus ostreatus). It was shown that the rational conditions of the ethanol-soluble substances extraction from mushrooms are treatment of the raw materials with 70% ethanol during 30-45 min at 60°C. The maximum possible yield of water-soluble substances was obtained while processing the mushrooms with water at boiling temperature during 60 min. Carbohydrates, protein substances and melanins were macrocomponents of the extract. The weight fraction of carbohydrates in the solution increases during the decrease in temperature from 100 °C to 40 °C.

**Keywords:** ethanol-soluble substances, water-soluble substances, Agaricus bisporus, Pleurotus ostreatus.

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**SAFETY OF NEW FLOURY PRODUCTS ON THE BASE OF GERMINATED WHEAT**

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Flour is a daily-used product, however, compared to the grain which it is received from, it has lower biological value. The main reason for this is removing outer shell, rich in minerals, vitamins and dietary fibers, from grain while milling. To obtain high-quality floury products, application of natural food stuff of plant origin with high biological value is topical nowadays. Particular attention might be paid to germinated grain that has high biological value. That’s why the development and scientific substantiation of new technologies of floury products with the use of germinated grain and investigation of their quality indexes including safety is important.

On the base of previous studies it is determined that the rational concentration of sea salt in solution for germination of wheat is 2%. Technology of producing flour from wheat, germinated in this solution, and products on the base of this flour is developed during series of experiments. It is determined that the organoleptic score of new products is close to check ones. It is proved that safety indexes for both check and developed products within storage time do not exceed acceptable health standards.

**Keywords:** germination, flour, carrageenan, dough, products, organoleptic, safety.
INVESTIGATION OF CONTEMPORARY FISH REW MATERIAL AND DEVELOPMENT OF TECHNOLOGY FOR FISH MEALS

S. Iurchenko

The present situation of food raw material which is used for the production of culinary products is characterized by great variety. Establishment of restaurant industry try to maximize the attraction of potential customers and take various measures, which include the production of culinary products from modern raw material is not specified in the traditional regulation such as «The Collection of Recipes». That is why, it is necessary to research the properties of raw material, which is not in the regulations, for studying its consumer characteristics.

Technological properties of modern fish raw material (Dorado, Chilean sea bass, black cod, Irish salmon), which is widely represented in Ukrainian and is in demand of customers, are studied. The value of losses during mechanical culinary processing of obtaining semi-finished fish fillet with the skin is determined. It is detected that the Irish salmon has the smallest value of losses – 35%, and Dorado has the largest value of losses – 70%. The researches of moisture-retaining power selected objects were conducted. It is noted that Chilean sea bass has bass has largest value of water-retaining power, it is 70%.

The research of selection of optimal method of heat treatment for each type of fish raw material whit indicating of the production losses was conducted. Frying by the method with following processing in the steam convector for culinary readiness if it is necessary was suggested for Chilean sea bass, Irish salmon and black cod, baking was suggested for Dorado. The obtained results are the base for elaboration of recipes dishes and technological process of the production. Four recipes of fish dishes which allow expanding the assortment of this group of products were elaborated.

Keywords: fish, raw materials, rubbed, half-finished product, technology, meals.

IN VITRO RESEARCHING THE DIGESTIBILITY OF CARBOHYDRATES OF NON-PROTEIN BREAD

Ye. Tsukanova, Z. Kucheruk

Consumer properties of product except the organoleptic and physico-chemical quality indexes, defined by its nutritional value and
physiological effect on the human body. Carbohydrates are main components of the new non-protein bread. And it was interesting to investigate their digestibility. The research were conducted in the conditions of in vitro. This method approximately reproduce the conditions of carbohydrate digestion in humans. For research was used the preparation “Pancreatin” with enzymatic activity of lipase 8000 MO FIP, amylase 5600 MO FIP, protease 370 MO FIP.

Different types of starches are different by degree of digestibility and therefore it realizes any carbohydrate load on the human body. Researches of digestibility the carbohydrates of non-protein bread, which was made on the base of corn starch, was conducted in comparison with the digestibility the carbohydrates of bread, which was made on the base of wheat flour. It was founded that carbohydrates of non-protein bread are digested more slowly than carbohydrates of bread on the base of wheat flour. The amount of reducing sugars, which was accumulated as a result of non-protein bread hydrolysis are almost two times less than the amount of reducing sugars, which was accumulated as a result of wheat bread hydrolysis. This is positive factor in non-protein diet because the carbohydrate load on the body was reduced. And for the producing of non-protein bread it`s expedient to use exactly corn starch but not wheat starch.

**Keywords:** non-protein bread, carbohydrates, digestibility, in vitro.

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**INFLUENCE OF VEGETABLE CRYOPASTES ON THE TIME OF SPIN-SPIN RELAXATION IN PASTA DOUGH**

**D. Nabokov, N. Grevtseva, A. Dyakov, O. Morgun**

The worsening of ecological situation in the world causes an increase of popularity of food products of preventive action. We developed the technology of pasta with the use of cryopastes made of carrot and pumpkin which have high content of free β-carotene. The alcohol extracts of calendula and oak bark were used for stabilisation of β-carotene. We researched the effect of the selected additives on the mobility of water in the dough because it contain large amount of hydrophilic fiber. The research was conducted by the method of the spin-spin echo of nuclear magnetic resonance (NMR). As the objects of research the samples of pasta dough with the addition of carrot cryopaste and pumpkin cryopaste without extracts and with extracts of calendula and oak bark. Were used free of additives pasta dough as a control. The results of the research presented that an increase from 0% to 15% of cryopaste concentration to the weight of flour leads to a decrease of the mobility of water in the dough. It is worth
mentioning that carrot cryopaste has the stronger effect than pumpkin cryopaste. The addition of alcohol extracts does not significantly affect the mobility of water.

**Keywords:** cryopaste, extracts, dough, β-carotene, water, mobility.

THE USAGE OF THISTLE FRUIT OIL CAKE IN THE TECHNOLOGY OF BUTTER BISCUIT

E. Shidakova-Kamenyuka, A. Rogovaya, N. Gogulko

The secondary raw materials of oil and fat industry - shrots - are a valuable source of useful substances for the human body. Therefore, the possibility of usage of shrots of oilseeds in the technology of flour confectionery products is relevant to research. The properties of the dietary supplement "Food oil cake of thistle fruits" were researched. It is found that in comparison with the wheat flour the supplement has lower moisture, a larger particle size and a high water absorption capacity. The changes in physical-chemical indexes of butter biscuit quality after the addition at 4, 8 and 12% by weight of the raw materials were studied. It was found that a sample containing 12% of dietary supplement "Food oil cake of thistle fruits" does not respond the requirements of regulatory documents in terms of moisture, it has a low coefficient of lift and an increased crumbling, is characterized by low organoleptic properties. That is, the most expedient is the introduction of the supplement to the composition of the butter biscuit in the amount of 8% by the weight of raw materials.

**Keywords:** thistle fruits, oil cake, butter biscuit, quality.

THE IMPROVING OF THE TECHNOLOGY OF THE USE OF SPICY AND AROMATIC MIXTURES IN MEAT DISHES PRODUCTION

B. Botshtein, N. Chorna

As result of researches the taste indices of vegetable ingredients which are the components of new spicy and aromatic compounds are determined by authors; the recipe composition and rational ratio of mixtures components for meat dishes are elaborated and grounded; the technology of spicy and aromatic compounds is developed. Study of the effect of new spicy and aromatic compounds on organoleptic indices of meat dishes is the separate direction of researches. It allows improving and
diversifying the assortment of dishes which have high demand among different customer segments.

**Keywords:** spices, seasonings, mixtures, meat, poultry, frying

**DEVELOPMENT OF NEW TECHNOLOGY OF DESSERT PRODUCTS FORTIFIED WITH FUNCTIONAL INGREDIENTS**

M. Kalakura, O. Schirkaya

The work presents the country's problems in the structure of nutrition. It is mentioned that the desserts are the products of the utmost importance for satisfying consumer's taste and needs. The article includes analysis of publications on the use of dry mixes for the production of functional desserts fortified with functional ingredients. The objectives of the work is to investigate the basic functional ingredients in the manufacture of new dessert products and their functional and technological properties, in particular, the basic parameters of the new dessert products with functional ingredients. It is shown that new desserts have improved organoleptic properties and extended shelf life up to 48 hours. These results provide new opportunities for extending investigation in order to determine the desserts rheological, microbiological and biological characteristics.

**Keywords:** Dessert, products, mixes, ingredients, semi-finished products, hydrocolloids

**BASICS OF TECHNOLOGY OF OBTAINING COLLAGEN FROM COLLAGEN CONTAINING FISH RAW MATERIAL**

N. Kushnir

Current technological processing of fish products is accompanied by the formation of large quantities of waste, which contain a high concentration of protein (bones, fins, skin, scales, entrails, etc.) which make from 30 to 70% by weight of the source raw material. Prevalence in the food industry due to the fact that the use of animal collagen becomes dangerous. Furthermore, the fish collagen is hypo-allergenic (as it is 96% identical to the human protein). In this regard, developing of science-based technology of processing of collagen containing fish raw materials is important and essential.
The purpose of the research is to develop technology of easily digestible collagen from collagen containing raw materials.

Collagen preparation was obtained from collagen containing fish raw materials by alkaline treatment according to the method described in the patent of Ukraine for useful model № 79357. Electrophoresis showed that collagen preparation contains many molecules of medium and low molecular weight that suggests that obtained collagen preparation is easily digestible.

Determination of the molecular weight of protein subcomponents of collagen preparation showed that it contains both high-protein components (1.2...1.3) % and low molecular weight fractions (40.0...42.0) % of the total amount. Medium molecular weight fractions account for (56.7...58.8) % of the total.

The amino acid composition of collagen preparation is characterized by a high content of glycine (33.5 g/100 g), proline (11.82 g/100 g) and hydroxyproline (9.21 g/100 g) that indicates obtaining collagen hydrolyzate. Low methionine and tryptophan content in hydrolyzate presupposes a high degree of purification of raw ballast protein fractions of collagen containing fish raw materials.

Therefore, the results of alkaline hydrolysis of collagen containing fish raw materials show that obtaining of collagen preparation is efficient during alkaline hydrolysis.