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## Contents

### **QUALITY AND SAFETY OF CONNECTIVE TISSUE PROTEINS CONCENTRATE "BELPRO" IN THE PRODUCTION OF SAUSAGE GOODS**

*Z.V. Vasilenko, E.N. Rogova*

The article reports about the studies on the qualitative parameters of the connective tissue proteins concentrate «BELPRO» from cattle hidesplit. Chemical composition, basic functional and technological properties and safety indicators of the concentrate «BELPRO» during the storage process were determined. It was found out that connective tissue proteins concentrate «BELPRO» can be used in the production of sausage goods and stored for three years.

### **STUDIES INTO THE POSSIBILITY OF THE USE OF PEA FLOUR IN THE PRODUCTION OF BOILED SAUSAGE GOODS**

*Z.V. Vasilenko, T.N. Bolashenko, O.A. Vetoshkina*

Chemical composition of flour from peaseeds of variety Pharaon was determined. There was studied pH, moisture-binding and moisture-retaining capacities of model minced meat systems with the introduction of flour from pea seeds of variety Pharaon. Organoleptic quality indices of boiled sausage goods with different concentration of flour from pea seeds of variety Pharaon were examined. It is shown that the flour from pea seeds of variety Pharaon can be used in the production of sausage goods instead of semi-fat pork meat in the amount of 9 %.

### **OBTAINING OF THE FERMENTED RYE FLOUR SEMI-FINISHED PRODUCT WITH INTRODUCTION OF BACTERIAL CONCENTRATES**

*T.A. Gurinova, A.G. Avramenko, A.G. Piskizhova*

A study was made into the effect of various doses of bacterial concentrates on the accumulation of acidity in a rye high-acidity semi-finished product. Optimal amount of bacterial concentrates for barm obtaining was determined as well as the most rational way of introducing them into the nutrient medium was established.

### **STUDY INTO THE BAKERY PROPERTIES OF FERMENTED WHEAT GRAIN FLOUR USED AS RAW MATERIAL INGREDIENT FOR BREADMAKING**

*R.G. Kondratenko, E.M. Parkalova*

Bread-making properties of the flour produced from fermented wheat grain and the mixtures obtained on its basis containing first grade wheat flour in an amount of 10 to 50% were examined. A comparative analysis was performed on the bread-making properties of various types of flour. Recommendations were formulated on the use of fermented wheat flour in breadmaking.

### **CHARACTERISTICS OF THE QUALITY INDICATORS OF LINSEED CAKE AS A NEW INGREDIENT IN FOOD MANUFACTURING**

*Z.V. Vasilenko, T.N. Bolashenko, E.N. Kucherova*

Chemical composition and physicochemical quality parameters of linseed cake were studied. Amino acid composition of proteins and fatty acid composition of fat in linseed cake were examined. Mineral composition of linseed cake was also analyzed. The possibility of using flax processing product as an ingredient that improves the nutritional value of meat products is shown.

### **INFLUENCE OF THE DEGREE OF SIZE REDUCTION IN BERRY POMACE ON THE QUALITY OF PUREE**

*Z.V. Vasilenko, N.A. Mogilevchik V.I. Nikulin*

The results of the studies into organoleptic and physicochemical parameters of the quality of puree made from black chokeberry, black currant, cranberry pomace obtained according to the technology developed by the authors are reported. The dependence of the degree of size reduction on the mash ratio is investigated. The influence of berry pomace puree on the foaming capacity of an egg white and foam-holding capacity is revealed.

### **EVALUATION OF THE INFLUENCE OF ENZYME PREPARATION ON THE PROPERTIES OF DOUGH AND THE QUALITY OF HARDTACK MADE WITH LEAVENING AGENTS**

*S.N. Vislavukhava, I.A. Mashkova*

The article describes the method of hardtack production based on short-time dough-making process. To achieve this aim the use of leavening agents instead of yeast is proposed and the feasibility of adding proteolytic enzyme preparation is proven. The influence of enzyme preparation and dough-making technological parameters such as moisture and fermentation time on the rheological properties (elasticity, extensibility, compressive deformation) and protein-proteinase dough complex (quantity and quality indicators of wet gluten), quality characteristics of hardtack (swelling in water, density) is studied. Dosage of the enzyme preparation and technological parameters of dough making are optimized. Using the proposed method of hardtack production makes it possible to shorten time of technological process and reduce the loss of dry matter by 1% due to the elimination of fermentation stage of sourdough and dough.

### **NEW APPROACHES IN THE EVALUATION OF TECHNOLOGICAL PROPERTIES OF KVASS PRODUCTION MICROORGANISMS**

*E. A. Tsed*

New criteria for evaluating the technological properties of microorganisms used for kvass wort fermentation and bread kvass production are formulated. They consist in determining the coefficients of acid formation  $K_k$  and aroma forming  $K_a$ , which allow evaluating the ability of the microorganism used to ensure acidity and aromatic profile of the beverage at the desired level.

### **COMPONENT COMPOSITION OF THE DISTILLATES FROM BLACK AND RED CURRANT FERMENTED JUICE**

*A.V. Yakauleva, S.V. Volkova, E.A. Tsed*

Qualitative and quantitative compositions of the volatile components of the distillates from fermented black and red currant juice during their fractional distillation have been studied depending on the use of various fermenting components. The most important volatile components of the distillates that affect their organoleptic characteristics have been identified.

## **EVALUATION OF PERSPECTIVE VARIETIES OF TRITICALE OF THE BELARUSIAN SELECTION FOR FOOD ALCOHOL PRODUCTION**

*A.A. Mirontseva, E.A. Tsed, S.V. Volkova*

General and special quality indices of six varieties of triticale of the Belarusian selection- Antos, Kastus, Dubrava, Run, Prometey, Impuls have been studied in relation to the conditions of alcohol production. Quality indices of alcohol wort and fermented wash from six varieties of triticale of the Belarusian selection have been investigated. Fractional composition of the volatile impurities of fermented wash distillates is analyzed. The expediency of using three varieties of triticale of the Belarusian selection such as Antos, Dubrava, Impuls making it possible to run effective biochemical processes of alcohol wort fermentation, to get high alcohol yield in fermented washes and low content of accompanying impurities in distillates is shown.

## **CHARACTERISTICS OF BAKING PROPERTIES OF BELARUSIAN WHEAT GRAIN OF DIFFERENT VARIETIES**

*E.V. Nelyubina, D.M. Sycheva, Ya.A. Kravchenko*

Characteristics of baking properties of 8spring and winter wheat varieties of the Belarusian selection are studied. The results obtained show that the wheat varieties under study have a sufficiently high gluten content of the second quality group and low autolytic activity, which reduces the baking properties of the studied varieties and requires appropriate adjustments in the formation of grinding batches as well as in bread baking.

## **STUDIES ON THE INFLUENCE OF ISOTONIC SOFT DRINKS OF ADAPTOGENIC ACTION IN EXPERIMENTAL ANIMALS BY MEANS OF PHYSIOLOGICAL TESTS**

*L.A. Melnikova, K.S. Ryabova, I.A. Zhukova*

The influence of new types of isotonic soft drinks on the emotional and behavioral reactions of experimental animals, muscle tone, neuromuscular coordination, motor activity, physical endurance has been studied. The power of the investigated beverages to enhance physical performance in animals has been established.

## **QUALITY OF THE PRODUCTS RECEIVED FROM FRESHWATER BROAD WHITE FISH (COREGONUS NASUS PALLAS) CAUGHT IN THE LOWER YENISEI BASIN BY FOOD VALUE CRITERIA ASSESSMENT**

*A. A. Gnedov*

The results of biochemical studies in the samples of products received from broad whitefish (*Coregonus Nasus Pallas*) inhabiting the Lower Yenisei basin are presented. The content of a wide range of biologically active substances, including macro- and microelements, fatty acids, amino acids and vitamins is determined. Food value of broad whitefish meat is determined in accordance with generally accepted criteria: energy value, biological value, biological effectiveness, physiological value. Indicators of liver quality and non-edible parts of broad whitefish are determined according to the criteria of nutritional value due to their perspective use for the production of fodder products.

## **FORMATION OF THE CONSUMER PREFERENCE IN THE SELECTION OF FISH PRODUCTS USING THE ANALYSIS OF QUALITY INDICES OF RESIDENT AND SEMI-ANADROMOUS FORMS OF SIBERIAN WHITEFISH (COREGONUS LAVARETUS PIDSCHIAN (GMELIN))**

*A.A. Gnedov*

The results of comparative biochemical studies of edible and non-edible parts in resident and semi-anadromous form of Siberian whitefish (*Coregonus lavaretus pidschian* (Gmelin)) inhabiting the Lower Yenisei basin are presented. The content of a wide range of biologically active substances, including macro and micronutrients, fatty acids, amino acids and vitamins is determined. Food value of meat and nonedible parts of fish is determined in accordance with generally accepted criteria: energy value, biological value, biological effectiveness, physiological value. Semi-anadromous form of Siberian whitefish is found to be higher in the content of mineral substances, essential amino acids and vitamins. Resident form of Siberian whitefish is a source of essential unsaturated acids and particularly polyunsaturated ones characterized by provitamin activity. The two forms nutritionally have both poor and beneficial qualities that do not affect the traditional preference of the consumer and are valuable food and fodder products.

### **PRODUCTION OF CRUDE ALCOHOL IN SUB-CRITICAL WATER EXTRACTION OF GRAPE POMACE**

*V.A. Sukmanov, I.S. Rogovoi, A.G. Fariseev*

The process of obtaining crude alcohol from grape pomace extracted with sub-critical water is considered. Extraction was carried out in the temperature range  $t = 100-160\text{ }^{\circ}\text{C}$ , at the pressure  $P = 12\text{ MPa}$ , during the exposure time from 30 to 90 minutes, at mash ratio: 5 and 1:10. The results obtained in the studies have shown that the highest yield of extractive substances (primarily due to the sugars and their decomposition products) is observed at high temperatures (140-160  $^{\circ}\text{C}$ ). At the same time, contamination of the sugar solution with substances harmful to microorganism activity occurs. Purification was carried out by blowing off volatile compounds (furfural, formic acid, etc.) and subsequent filtration. The extraction solution was additionally subjected to inversion to increase the amount of fermentable carbohydrates. The highest yield of crude alcohol is produced for the purified extract obtained with the following process parameters:  $t = 160\text{ }^{\circ}\text{C}$ ,  $P = 12\text{ MPa}$ ,  $\tau = 90\text{ min}$ , mash ratio: 10. In translation this yield was  $\sim 160$  (1 of absolute alcohol) / (t of absolutely dry pomace).

### **STUDIES INTO THE MOVEMENT OF THE KERNEL ON THE VIBRATING RING SURFACE**

*A.B. Ospanov, A.V. Akulich, S.M. Ergalieva, B.O. Tohanbaeva*

The results of the experimental studies into the motion of a model particle (a kernel) on the ring surface performing rotational oscillatory motions about a vertical axis are presented. The values of setting-out and kinematic parameters of the ring separating element are determined depending on the relative velocity of the model particle.

### **HEAT TREATMENT OF GRAIN UNDER THE ACTION OF ELECTROMAGNETIC FIELDS**

*A.N. Vasiliev, A.B. Ospanov, D.A. Budnikov, A.A. Vasiliev, D.A. Karmanov, D.B. Shalginbaev*

The results of software design of microwave treatment area and simulation of the intensity distribution of electromagnetic field in the area of microwave action on grain material are presented. A scheme for power supply of the electromagnetic field (EMF) based on the wave characteristics of EMF distribution is proposed for the development of the facility for electrophysical drying and grain disinfection.

### **RISKS IN THE SYSTEM OF FOOD MARKETS**

*A. A. Mirenkov*

On the basis of the system approach there were considered the main directions of identifying production and financial risk factors that determine the development of the domestic food markets in the first place, taking into account economic security and food safety as well as the relationship with agricultural sector of economy, quality and standard of living of the population. The procedure of risk management for implementation of managerial decisions aimed at monitoring market indicators and developing preemptive actions to keep market activity of economic entities directed at the volumes of supplies on the domestic and foreign food markets was determined. The research confirms the conclusion that in the formation of food markets the role of state control that has to make active the state defensive functions on the guaranteed level of food safety for the population increases, thus preventing risks of negative impact on the level and quality of their lives.

## **CORRUPTION IN THE SYSTEM OF HIGHER EDUCATION: SOCIOLOGICAL ANALYSIS EXPERIENCE**

*S. P. Gribanovsky*

The problem of corruption in the system of higher education of the Republic of Belarus is studied. Corruption relations between students and teachers are analyzed. The main factors of corruption are also revealed. The recommendations on counteraction against bribery at institutions of higher education are given.