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Technology Improvement and Expansion Range of Bread and Bakery Products

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Abstract
A review of the literature on the production of bakery products is presented. Problems, tasks, promising directions of development of the industry, as well as the use of whey in the production of bread are considered.

Keywords: assortment, bread, bakery products, whey, fast - track method, production, protein component.

Introduction

Modern bakery production is a dynamic, constantly developing system, including logistical, informational, organizational and scientific support. An important trend in the development of this production in the world is to increase the nutritional value of bread and bakery products. This is achieved by expanding the range of bakery products for dietary purposes (therapeutic, prophylactic and therapeutic purposes), mainly due to the enrichment of products with vital essential nutrients.

In Uzbekistan, bread is traditionally considered one of the main food products, consumed all year round, regardless of the season, by all groups of the population [1].

Due to the consumption of bread, a person satisfies almost half of the body's need for carbohydrates, and a third for proteins of plant origin.

It is known that bakery products in Uzbekistan are more and more consumed food products [2] . The nutritional value of bread is determined primarily by its calorie content, digestibility and the content of additional nutritional factors in it: vitamins, minerals and essential amino acids. At the same time, regular intake of bread with food also has a great physiological meaning, since bread gives the mass of food consumed a favorable texture and structure, which contributes to the most efficient work of the digestive tract and the most complete wetting of food with digestive juices [3]. The decline in the last decade in the volume of consumption of bread, as well as changes in the structure of the assortment towards an increase in the share of bread and bakery products from flour of the highest grades, increased Reducing the intake of essential food substances into the human body, the carriers of which are bread products. Bread produced according to traditional recipe technologies does not

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meet the concept of a healthy food product [4]. And at the same time, the increased, especially in recent years, the need for bakery products for dietary, preventive, functional, children's, school nutrition is practically not satisfied. Currently, dietary bread products are divided into the following groups:

- ✓ salt-free , with low acidity
- ✓ low carbohydrate, low protein,
- ✓ with a high content of ballast substances,
- ✓ with the addition of lecithin,
- ✓ high in iodine

Therefore, the creation of bakery products of the so - called healthy assortment is very important [5].

In accordance with the " Fundamentals of the state policy of the Republic of Uzbekistan in the field of healthy nutrition of the population for the period up to 2020 " the most important task is the preservation and strengthening of the health of the population , the prevention of diseases caused by malnutrition and unbalanced diet [6 , 7] .

Adjustment of the composition of bakery products in order to reduce the shortage of essential substances is possible as a result of a complex and the change in raw materials of plant and animal origin, characterizing the increased mass fraction of protein, which tamines, minerals and the content of other valuable food products [8] .

At present, in the bakery industry, various methods of preparing wheat dough are used . Ways of preparing dough from wheat flour can be multi - phase and including steam methods, when preparation of the dough is preceded by the preparation of the steam, and the preparation of the dough in the special semi - finished products, which may differ in terms of moisture content and content of microflora. Dough preparation methods can also be single - phase. These methods include non - paired and accelerated methods [9 , 10] .

The essence of accelerated methods of preparation is the intensification of microbiological , colloidal and biochemical processes , o n d e s t o n t o n t o r t o r s t o t

It is advisable to use accelerated methods in the production of bakery products from wheat flour of the highest and first grades . Among the accelerated methods are distinguished : and whey , on liquid dispersed semi - fabric , and also on whey [11] .

In the practice of baking , natural curd , casein or non - salt is used under cheese whey with a dry matter content of not less than 5.5 % (cottage cheese , casein) or 5.6 % (not with deer under cheese) .

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Milk whey is a good source of various enzymes (protease , peptidase , lipase , phosphatase , lactose , etc.) ; vitamins (especially in and there and new groups B) ; organ and chemical acids (lactic , acetic , formic , propionic , oily , etc.) ; mineral elements (potassium , calcium , magnesium , etc.) ; indispensable amino acids and other valuable substances . The main component in the composition of whey is lactose , which is 70-75% in dry matter. 6.3-12.4% fat passes into milk whey, and its absolute content, depending on the fat content of the feedstock and technology, varies widely from 0.05 to 0.5%. 100 g of whey contains 0.135 mg of nitrogen, including about 2/3 protein 1/3 non-protein nitrogen compounds [12].

The composition of the carbohydrate complex of whey includes monosaccharides , oligosaccharides , amino sugars . Curd whey contains 0.7-1.6% glucose, which is due to the hydrolysis of lactose during the production of cottage cheese.

Of the amino sugars in the serum, neurominic acid, sialic acid, ketopentose were found . Oligosaccharides are represented by lactose, lactulose , serologically active sugars close to blood composition [13].

The content of lactic acid in the serum reaches 1.24%, and up to 4/5 of it is in a bound state.

Whey is a biologically valuable food product, especially due to the significant content of lactose. Slowed down in comparison with other carbohydrates, the hydrolysis of lactose in the intestine limits fermentation processes, normalizes the vital activity of beneficial microflora and prevents autointoxication [14] .

Whey proteins are an important component of whey, optimally balanced in terms of amino acids, especially sulfur-containing amino acids - cystine , methionine , which creates good opportunities for the regeneration of liver proteins, hemoglobin and blood plasma proteins. Milk fat is of particular value - with a small content, it is more dispersed than in whole milk. The mineral salts of whey are almost identical to whole milk [15] .

The theoretical yield of milk whey is at the level of 90% of the volume of processed raw materials. Taking into account the standard losses, which can be significantly reduced, the whey yield in practice is 65-80% of the processed raw materials.

The inclusion of whey in the recipes of bakery products allows you to have a positive effect as well as on the quality of the finished product to qi , and to the technological process of production .

The main obstacle to the widespread use of milk whey in practical baked bread is extremely Poor storage stability of this product . The acidity of milk whey significantly increases literally in just a few hours of injury in conditions of increased temp . Cross - U.S . milk whey becomes unsuitable for use [15] .

In the course of the research , it was found that milk whey has a significant effect on the tse with fermentation , properties of adhesives of sheep and rheology and yu test . On the one hand , whey helps to increase the activity of the fermentation microflora , on the other hand , the addition of whey leads to some deterioration in the quality of the adhesive .

When milk whey is added to the gas formation processes in the steam and the test , they noticeably intensify . Dough with the addition of whey ripens about 30 minutes earlier than without whey .

The volume of dough pieces with the addition of whey appears to be higher than without it , however , the form stability of the test preparations with whey are noticeably lower than those without whey [17] .

The more whey is contained in the dough , the lower its form o - y stability . Despite the increased the spreadability of dough pieces , the specific volume of finished products with an optimal amount of whey is higher , crumbs the product is elastic and chne e , in taste it smells better .

The decrease in the forms of stability under the influence of whey is associated with the lactic acid contained in the whey . Lactic acid contributes to the swelling and peptization of proteins , as a result of which part of the glutinous proteins are strong n o- hydrated form transitions into a solution . The gluten is compacted , the degree of its hydration decreases , the elasticity of the gluten decreases , the dough liquefies [18].

A change in adhesiveness leads to a decrease in the viscosity and elasticity of the dough . The more whey added to the dough and the higher its acidity , the greater the reduction in viscosity and elasticity te with ta. With the passage of time , the rheological characteristics of the test only worsen .

The dual effect of whey on the properties of the dough and finished products requires the right approach to using this ingredient a [19].

Whey yields a wide range of ingredients used in the food industry . Its diverse protein components are isolated and used as functional ingredients and to increase nutritional value . The value of many types of food products , including bakery products .

Now offering whey protein concentrate , the innovative whey protein hydrolysate , a wide range of end products . intro duced milk protein (milk ingredients which include whey and milk protein concentrates intended to replace such ingredients as case calcium inate , whey protein hydrolyzate and whole milk protein) [20] .

Not so long ago , another product of whey processing has received wide recognition - whey processing t . This is a dry powder obtained as a result of the extraction of proteins from milk , cheese and sweet whey by the ultraf and l t r a t i o n . After thickening and drying of the permeate , about 97 % of milk solids remain in the product . The main component of whey permeate is lactose .

Lactose contributes to a good coloring of the surface of the crust of bakery products . Lactose is a reduced sugar that enters into the reaction of melano and dyno formation itself Other acids of the slot m and (Mayer 's reaction) . It is also caramelized under the influence of high temperatures .

U s e s s h o r m e t a t and has an economic expediency , since they can replace more expensive dairy ingredients , as well as pure varnish toza , whey powder , maltodexter and nidectroza . Studies have shown that with the use of permeate in the amount of 5–8 % in the production of bakery products the product will be no worse than the product with skim milk .

Since whey permeate contains a small amount of protein in the preparation of traditional bread using accelerated technology (protein has a great influence on the structure of the finished product) , permeate not a good substitute for more expensive ingredients . However , its uses whole grains from Delhi x with a high content of fiber or with a low content of fat makes it possible to obtain products of good quality [20] .

Conclusion

The priority direction in the development of the assortment of bakery products for children 's food is the use of natural n u tary fortifiers . Such innovations include the use of fermented dairy products – kefir , cottage cheese , cheese , etc. , which are It is also a source of protein and calcium deficient in baby food .

Milk - based ingredients such as skim milk , lactose and whey are widely used in bread e car production. Food ingredient manufacturers are trying to modify these standard dairy - based ingredients in a way that the use was effective both for small volumes of production and for enterprises with large volumes and output to a pro d u to qi and .

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