THE TECHNOLOGY OF FUNCTIONAL FOOD PREPARATION FROM YIELDING WHEAT VARIETIES

Kosbergenova Bibinaz Muratbaevna
Assistant-teacher of the Department of Chemical Technology,
Karakalpak State University
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Abstract. Currently, the functional food market is one of the youngest and fastest growing markets in the food industry. One of the most modern functional foods is bread. A distinctive feature of the production of bread from sprouted grains is the production of high-quality natural products from raw materials with maximum speed and minimum losses and maximum yield. The properties, functional and mineral composition of the flour production medium with sprouted grains also increase. The purpose of this product is to produce non-productive wheat varieties. According to the results of the article, the functional and technical characteristics of the sprouted wheat product were studied, and its physico-chemical technical, organoleptic parameters were determined.

Keywords: functional food, sprouted wheat bread, sprouted wheat, technology, to implement.

Introduction. A new food product enriched with dietary fibers and minerals is a functional food product obtained by adding one or more physiologically functional food components to traditional products. With occasional consumption, such products have a targeted effect on the functional activity of individual organs, systems and the body as a whole, stimulating their work for specific preventive and therapeutic purposes. One of the oldest functional food is bread. Bread and other cereal flour products are the main suppliers of carbohydrates - the main energy component of food. When eating 500 g of wheat bread of the first or higher grade, the body receives from 21 to 64% of the daily need for vital amino acids (except for lysine) [1.332-345].

The biological value of bread is low. But it can be increased by replacing the flour with sprouted wheat grains. Bread and bakery products occupy a large place in our diet. Especially in our country, where bread production is connected with deep and long traditions, bread occupies an important place in the human diet.

The traditional technology of baking bread is to use flour. And flour loses a large part of microelements and vitamins after grinding and sifting, it is necessary to regulate the activity and vital functions of enzymes in the human body. The goal of our research is to develop a technology for baking bread from sprouted wheat grains, as a result of which all valuable substances are preserved in such bread. When grinding wheat into flour, the inner part of the grain - endosperm, the remaining parts - fruit and seed coat, aleurone layer and seeds rich in proteins, sugars, fats, important microelements, vitamins and microelements are used. In this case, the enzymes are not cut and fall into the bran.

An important part of the grain is bran, its nutritional value is determined not only by the caloric content, but also by the amount of biologically active substances necessary for human life, dietary fiber (fiber). With the crust, an element such as selenium is also lost, without which the entire mineral metabolism is disrupted. In this regard, our technology allows you to save all useful and valuable parts of the grain and enrich the product with them. [4.430-433]

The technology of making baked bread from sprouted grains corresponds to the classic technology of simple bread production: kneading, cutting, proofing and baking. A technological method such as soaking is always used in the preparation of grain for the production of cereal bread, its modes are very diverse. This process is characterized by the interaction of grain with excess water and lasts for a long time - 36 hours and at a temperature of 20 ° C. Dry cereal seeds have a moisture content of up to 15%, i.e. water tightly bound to proteins (hydration), in which normal respiration occurs. With an increase in humidity, free water appears, which significantly increases the intensity of respiration and other metabolic processes [6.87-92].

Under the influence of free water, the permeability of cell walls improves. Water molecules entering the grain form a hydration shell around proteins, as a result of which enzymatic hydrolysis of macromolecular substances in the grain occurs (primarily starch; proteins, pectins, fats), as a result of which they turn into simple substances. The resulting compounds are easily absorbed by the human body. Starch turns into sugar, protein into amino acids, and fats into glycerol and fatty acids. [5.30-31]. After germination and 1.5 mm long seedlings are obtained, the aqueous medium moistened with grain is filtered and drained. This is necessary to remove the characteristic acidity from sprouted grain, which has a negative effect on the taste and smell of ready-made bread, as well as on its porosity. To enhance this effect, the grain should be additionally washed with water. Then the grain is subjected to crushing with the removal of the extracted liquid, which is not related to the resulting grain mass.

Extracted liquid fraction rich in nutrients (sugar, amino acids, dextrins, pectins and minerals) should be used as a component in dough making. The resulting grain mass consists of the crushed aileron layer of grains and whole, intact germ. Then it goes through all the stages of traditional technology (mixing, cutting, checking and cooking). During kneading, only yeast, salt, sugar and water are added to the dough mass.

Flour is not used in the technological process of making baked bread from sprouted grains. Instead of water, you can use the liquid fraction collected during the grinding of swollen grain to get the dough of the desired consistency. The finished dough will be elastic, well seasoned, slightly loose. Enrichment of dough with a liquid fraction (instead of ordinary water) provides a "technological function": the gluten protein transferred to the liquid fraction of the aqueous suspension of the grain mass provides additional cohesion of the structure during kneading. This affects the development and uniformity of the porosity of the bread and is the key to achieving high organoleptic indicators. The resulting dough is cut into molds and sent for inspection. the dough is proven for 40 minutes at a temperature of 35 ° C and 75% moisture balance in the "dough-atmosphere" system for a final acidity of 5 degrees. The end of the test is set based on the time determined visually and empirically. [3.74-77].

The following stages and indicators were taken into account in the development of technology:[7.421-436].

- production losses in product preparation
- heat treatment;
- temperature mode of processing;
- level of readiness of the product;
- production of finished products;

Conclusion. The following conclusions can be made as a result of the conducted experimental researches:

1. The technology of bread production from germinated grains was developed based on the conducted researches and obtained experimental data. The proposed technological solutions provide the population with functional products based on vegetable raw materials that work with minimal losses during cooking.

2. According to its organoleptic characteristics, sprouted grain bread does not differ in appearance and taste from ordinary bread - its crust is thin, appetizing and tasty.

3. We can say that the functional product developed on the basis of physico-chemical and structural-mechanical research meets the standards for bakery products.

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