Procedia of Theoretical and Applied Sciences
Volume 3 | Jan 2023
ISSN: 2795-5621 Available: http://procedia.online/index.php/applied/index

APPLICATION OF NEW TYPES OF RAW MATERIALS IN RUSH PRODUCTS

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Annotation: In modern conditions, the production of crackers is one of the ways to solve food security, due to the need to provide the population with long-term storage products living in remote regions, including those with harsh climatic conditions, in crisis and emergency situations, as well as socially serviced contingent and other factors. In recent years, the range of crackers has expanded significantly due to the use of new types of raw materials. The influence on the technological process of preparing dough for rich crackers and the quality of raw materials, improvers and enzyme preparations was studied. So, in order to identify the possibility of replacing margarine with anhydrous fats, their influence on the quality of finished products was studied.

***Keywords*:** sweet crackers, lactose, non-dough dough, improvers, crackers, whey, molasses, malt preparations.

This article discusses the possibility of using new types of raw materials in the production of crackers, contributing to the expansion of the range and increase in nutritional value. In modern conditions, the production of crackers is one of the ways to solve food security, due to the need to provide the population with long-term storage products living in remote regions, including those with harsh climatic conditions, in crisis and emergency situations, as well as socially serviced contingent and other factors. In recent years, the range of crackers has expanded significantly due to the use of new types of raw materials. The influence on the technological process of preparing dough for rich crackers and the quality of raw materials, improvers and enzyme preparations was studied. So, in order to identify the possibility of replacing margarine with anhydrous fats, their influence on the quality of finished products was studied [1,2,3,4].

As a result, the possibility of such a replacement has been established, provided that anhydrous fat is used for kneading dough in the form of an emulsion. However, to obtain crackers with good swelling, this replacement is advisable only for products containing up to 10% fat [5,6]. It has been established that eggs added to the dough, especially in the form of a mass beaten with sugar and fat, improve the physical properties of gluten. The dough becomes more elastic, thin-walled and uniform pores are formed in the dough pieces, the volume of crackers increases during baking, swelling, brittleness, as well as the taste and aroma of finished products improve [7,8].

As a result of the experimental work on the use of milk whey as an improved in the preparation of dough and non-dough dough for rich crackers, it was found that when whey is added, the maturation process of the dough is accelerated and its lifting force improves, but the dough relaxes and its elasticity decreases. Further studies have shown that when preparing sponge dough for cracker slabs, whey can be added in an amount of 19–20% to the mass of flour, but only with chemical leavening agents: 0.3% sodium bicarbonate and 0.15% citric acid [9,10, 11] Lactose is functionally the most important whey ingredient in baking. Lactose allows you to enhance the coloring of the crust when baking products. During dough fermentation, lactose is not fermented like other sugars, therefore, remaining in the dough, it, as a reducing sugar, can take part in the Maillard reaction during baking.

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Lactose has unique properties that contribute to the development and enhancement of aroma and taste. The addition of lactose gives the product a more delicate and refined aroma and taste. Lactose is used to replace sucrose. It can replace shortening by 50%. Lactose allows you to increase the volume of yeast products with a large amount of muffin. The addition of lactose does not affect the water absorption capacity of the dough, but slightly increases the kneading time. Lactose also shortens the proofing time, especially when there is a lot of sugar in the product. Dough with added lactose during the initial proofing stage rises faster and shows greater stability and gas retention. Products from such a dough rise evenly in the oven and increase well in volume. In the manufacture of crackers from "strong" flour, voids and cavities of side crusts appear in molded cracker plates [12,13,14].

Therefore, it is recommended to use flour with little gas-holding capacity or to "weaken" the flour by adding rye flour starch, sodium bicarbonate. Adding salt to the dough an hour before kneading the dough has a positive effect on the quality of crackers, accelerating their swelling. Considers flour with weak gluten unsuitable for the production of crackers. However, when using flour with strong gluten, he recommends lengthening the kneading, fermentation and proofing times for the dough pieces.

He established that in order to obtain good quality crackers, margarine with a melting point of 38-39 0C should be used and slightly softened should be introduced into the dough. Margarine, added to the dough in molten form, reduces the volume, worsens the quality of crackers. Fat in a certain way affects the structure of crackers and undergoes significant changes during their preparation [15,16].

The uniform distribution of fat globules depends on the presence of emulsifiers, the duration of kneading and fermentation of the dough, the proofing of dough pieces, the baking conditions of the cracker rows and the drying of the slices. To improve the quality of dough for rich crackers abroad, ready-made cracker creams or jellies are widely used, which include in the form of a well-emulsified mixture; sugar (30-50%), fat (10-40%), lecithin (2-10%), water (20-30%) and acid phosphate, which is neutralized by the introduction of citric or tartaric acid. Mono- and diglycerides of fatty acids are used as emulsifiers [8]. Molasses, malt preparations and others are also added to the rusk dough as no more than 3% by weight of the flour. To obtain a more uniform and fine porosity, 1% sugar is replaced by 1% gelatinized starch. For better friability, 0.3% sodium bicarbonate is added to the dough [17,18,19]. In Germany, at the Detmold Research Institute, a study was conducted on the use of starch syrup, which is added in quantities (4-10%). The syrup contains easily fermentable sugars (glucose and fructose) and is added both in pure form and mixed with cracker cream when kneading dough. In addition to sodium bicarbonate, the so-called "Marseilles soap" is used as an emulsifier abroad, which is usually included in the finished mixture called "rusk jelly". The mixture contains fat, sugar, glucose syrup and salt [20]. In Germany, to improve the friability of crackers, it is proposed to use pork lard, separately and together with 2-3% olive or peanut oil. In this case, the fat is added 5 minutes before the end of the dough kneading. Pre-fat can be mixed with flour [21]. It is proposed to use a complex protein fortifier consisting of lupine flour and a dry semi-finished protein product in the technology of rich rusks. To expand the range of diabetic products using domestic raw materials, a recipe for dietary rusks was developed, including: first-grade wheat flour, barley flour (20% of the total), pressed yeast (3%), pectin (1% by weight of flour), vegetable oil (5%) and whey powder (2% by weight of flour), granulated sugar (2%), vegetable oil (5%), salt (1%) [21,22].

Thus, the analysis of the scientific, technical and patent literature showed that research on the use of new types of raw materials in the production of rich rusks is still promising and will be continued.

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