

EFFECT OF SECONDARY FOOD RESOURCES IN THE FORMATION OF THE QUALITY OF FLOUR CONFECTIONERY

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Abstract

The popularity of flour confectionery products among different categories of consumers stipulate its high potential for expanding the range of products enriched with physiologically functional food ingredients in the form of combinations of animal and vegetable raw materials, including milk and nuts. The authors of the article have proposed a technology for producing a functional milk-nut drink by mixing and infusion of chopped walnuts and skimmed cow milk with subsequent separation into liquid (a functional milk-nut drink) and solid fraction (dehydrated milk-nut paste). The volume of solid fraction was about 20% of the total volume of raw materials used.

There were prototypes of sponge cakes based on milk-nut paste worked on the origin recipes, control - according to the standard recipe from wheat flour with adding of walnuts. As materials for this research there were used following samples: dehydrated milk-nut paste, sponge dough and sponge semi-finished products. To substantiate the formulation and technology of sponge cakes based on dehydrated milk-nut paste there were determined quality indicators: mass fraction of moisture in vacuum oven method at 105 °C and porosity of biscuit semi-finished products. Density of biscuit products was determined as the ratio of mass fragment of a baked semi-finished product to volume of it. According to the Russian State standard there were defined next indicators: the baking loss of sponge semi-finished products as the ratio of the difference in the mass of the dough piece and the baked semi-finished product to the mass of the dough piece; the dampness (ability of saturating with water) is characterized by the ratio of the mass of products after wetting to the mass of dry products and is expressed as a percentage and indicates in accordance with the Russian State Standard 10114-80; the specific volume of baking sponge semi-finished products as the ratio of the difference in the mass of the dough piece and the baked semi-finished product to the mass of the dough piece. The nutritional value was calculated according to the reference data. The tasting assessment of milk-nut spread and biscuit cakes samples was carried out in accordance with the Russian State Standard 31986-2012. Organoleptic analysis of baked sponge cakes was conducted according to a 5-point scale. To comparative organoleptic evaluation there was developed system of indicators which included appearance, color, texture, aroma, and taste.

The paste looks like a finely dispersed mixture consisting of crushed nuts and a residual amount of milk, light gray color with brown blotches, with a pronounced milky nutty taste and aroma. Compared to walnuts, dairy-nut paste contains protein - 4.2% less, fat - 2.7 times less, in this regard, the calories content of the paste is 2.3 times lower. Organoleptic assessment has showed that all three baked sponge cakes samples have a flat smooth surface, a thin crust, and an elastic crumb. The products have uniform porosity, there are no voids or traces of impurities in the cut. In terms of dietary fiber content, the paste is practically not inferior to walnuts. It is have to be noticed the mass fraction of moisture in the paste is 56 %, which is significantly higher than that of walnuts. This indicator have to be taken into account when developing recipes for semi-finished products and baked goods.

The use of valuable food secondary product such as milk-nut paste (finely dispersed nut mixture with an admixture of milk) to produce sponge cakes allows the manufacturer to expand up the range of products without additional costs, since the paste is a by-product of production. Ready experimental biscuit semi-finished products have high organoleptic indicators and can be recommended for inclusion in production.

Key words: *Sponge cake semi-finished product, Secondary food sources, Milk-nut paste.*