IMPROVEMENT OF THE TECHNOLOGY OF A PASTRY SEMI-FINISHED PRODUCT ENRICHED WITH DIGESTABLE CALCIUM COMPOUNDS

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Improvement of the technology of producing pastry semi-finished product by using protein and mineral supplement is suggested in the article. The review of the literary data, which prove the expediency of the improvement of these products nutrient composition, particularly its enrichment with scarce mineral elements, is proposed. The improved protein and mineral additive that contains calcium in protein-bounded and citrate forms, as well as chondroitin sulphates, which effect positively on calcium absorption processes, was chosen as a source of digestible calcium compounds. Rational conditions for the addition of the supplement are determined. The authors substantiate rational conditions for the supplement pre-hydration in the cow's milk environment in order to realize technological properties of the supplement and to eliminate sensory perception of the supplement presence in the finished product composition. It is proved that the rational hydration time is 10-14 minutes at a temperature of 18...20°C. A number of studies have been conducted to determine the influence of the supplement on moisture content, wettability and durability of finished products.

It is found that the durability of finished products made with the use of the supplement is greater than that of the control sample. The replacement of the part of flour with potato starch in the amount up to 15% of flour weight is realized in order to reduce the proportion of hydrated proteins of flour gluten. It is proved that under such conditions the durability of products is maximally close to the control. The addition of starch in the amount more than 15% is not rational. Studies of wettability and humidity of finished products have proved compliance with the requirements of DSTU 3781. The decrease in the cookie’s wettability at 1-1,5% occurs due to the decrease in the product porosity, but organoleptically these changes are not felt.

On the basis of the conducted research, the recipe is offered and technological scheme of the manufacture of the pastry semi-finished product with the use of protein and mineral supplement is developed. It is proved that the use of the supplement in the amount of 5% of flour weight allows to provide standard quality indicators of the finished product and the content of calcium compounds at the level of 200–230 mg per 100 g. Thus, use of the supplement allows to ensure high quality of the finished product and to improve its nutrient composition at the same time.

Keywords: flour confectionery, pastry semi-finished product, protein and mineral supplement, calcium compounds.