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ENRICHMENT OF WHOLE GRAIN BREAD WITH HERBAL ADDITIVES

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Bread and bakery products are in high consumer demand in all social segments of the population and are prominent in the food diet. It is known that in the process of production, varietal types of flour lose a significant share of valuable micronutrients, which are contained in the peripheral parts of the grain and removed when grinding. Therefore, it is advisable to increase the use of whole grain flour in the technology of bread-bakery products, as well as the use of promising natural enrichers, in particular herbal raw materials, which are the source of the necessary nutrients (Bazhay-Zhezherun et al. 2022).

The purpose of the work is to substantiate the feasibility of inclusion in the recipe of whole wheat bread of high-protein raw materials - hemp flour and sweet potato puree, as a source of antioxidant compounds and natural sorbents to increase the nutritional value of the finished product.

A comparative assessment of the chemical composition of whole grain and hemp flour was carried out. The content of the main energogenic substances: proteins, fats, carbohydrates, as well as the content of important micronutrients – vitamins C, E, β -carotene, B₁, B₂, PP was investigated in flour samples. The moisture content and acidity of raw materials are determined.

It is found that hemp flour contains in three times more protein, in seven times more fats and five times more fiber, compared to wheat whole grain flour; the amount of vitamins, in particular tocopherols, carotenoids, B₁, is also much higher in hemp flour.

We investigated the organoleptic parameters of sweet potato fruits and puree from it, as well as the chemical composition of the specified raw materials. Sweet potato puree is a source of natural antioxidants – ascorbic acid, rutin, carotenoids, phenolic compounds.

We researched the influence of hemp flour and sweet potato puree on physico-chemical quality indicators of dough and whole grain bread.

Enrichment of whole wheat bread with hemp flour and sweet potato puree does not impair the porosity structure of products. If hemp flour is added in an amount of 4-8%, and sweet potato puree in an amount of 2-6%, the taste and aroma remain not only acceptable, but also acquire a pleasant light shade of enrichers.

Whole grain bread enriched with hemp flour and sweet potato puree is a functional food product. It was found that the degree of provision of daily demand for macro- and micronutrients, adult population of the first group of intensity, due to the consumption of 100 g of whole grain bread enriched with hemp flour is: proteins – 15 %, fats – 3.1 %, carbohydrates – 15.6%, dietary fiber – 11 %; vitamins: E – 18 %, β -carotene – 11.5 %, B₁ – 17 %, B₂ – 5.8 %.

References:

Bazhay-Zhezherun S., Simakhina G., Bereza-Kindzerska L., Romanovska T. (2022). Use of lupine flour and cavbuz puree in bread technology. *Ukrainian Food Journal*, 11(4), 573-587.