

TECHNOLOGICAL PROPERTIES OF WHEAT FLOUR WITH HERBAL SUPPLEMENTS

Kostetska K.V., PhD, Associate Professor

Uman National University of Horticulture, Uman city

Today, providing people with traditional types and varieties of wheat bread remains very important, with the growing demand for bakery products of therapeutic and prophylactic and functional purposes.

Inclusion of herbs in the formulation will ensure the improvement of consumer properties of food, which predictably improves their chemical composition, organoleptic parameters, energy value and assimilation of nutrients.

Extension of the range of bread with high content of biologically active substances can be accomplished by introducing food mixtures into the formulation, which must enrich the finished products necessary for the human body substances: tomato powder, sunflower seeds, sesame seeds, cumin, corn flour, wheat gluten, dextrose, spices, etc. For example, the introduction of wheat germ into the formulation of bakery products not only raises their nutritional value, but also provides a beautiful appearance.

When considering the characteristics, it can be argued that the addition of natural vegetable components to the recipe can enrich it with additional shades of taste and smell, change the color of soft part of bread and loaf heel, and also lead to changes in physical and chemical parameters.

So, having analyzed the modern directions of production technology improvement and improvement of the quality of bakery products, and also taking into account the state of health of the population, today the issue of introduction of new types of bakery products of functional purpose is relevant.

Research objective is to carry out a technological evaluation of wheat flour mixture with herbal supplements and to determine their suitability for the production of bread, which will expand the range of bakery products.

The following plants were used: *Chenopodium quinoa* L., *Cyperus esculentus* L., *Physalis tomentosa* L., *Cosmos sulphureus* Cav., *Pycnanthemum virginianum* L., *Pycnanthemum trifolium* L., *Agastache rugosa* (Fisch. & C.A. Mey.) Kuntze), *Agastache urticifolia* (Benth.) Kuntze, *Mentha spicata* L. «Moroccan, *Achillea setacea* Waldst. Et Kit.), *Isodon japonica* var. *Glaucocalyx* (Maxim.) H. W. Li, *Satureja montana* L., *Teucrium scorodonia* L., *Ruta montana* L., *Nepeta argolica* Bory et Chaub., *Nepeta grandiflora* L., *Nepeta mussinii* Spreng. Ex Henckel., cv. *Posviata Meisu*, *Nepeta nepetelia* L.

We analyzed wheat flour of wheat of Midas variety and mixtures of wheat flour with herbal supplements. The control sample had a taste characteristic of wheat flour, without odd-flavors, not sour, not bitter, when chewing crunch was not felt; the smell is characteristic of wheat flour, without odd-smells, not stale, not moldy; the color is white with a yellowish tinge. Samples with herbal supplements had a taste

characteristic of wheat flour, with a taste of supplements, not sour, not bitter, when chewing crunch was not felt; the smell is characteristic of wheat flour with the smell of supplements, not stale, not moldy; the color of different tinges.

It should be noted that, according to baking indicators, the flour mixture that has been tested has good value. Thus, the value of falling number is determined within the limits of 214–384 s, acidity – 1.4–1.8 %, whiteness – up to 37.4 standard units of Skyb-M device. The humidity of the experimental samples of flour varied within the limits of 12.37–13.36 %, and the value of protein in flour mixtures with herbal supplements – 9.22–11.04 %, which is less than control by only 12–27 %.

The amount of raw gluten in control sample is 26.24 %, which corresponds to the highest grade of flour, as well as in samples with herbal supplements of catmint *Musina* and *nephetella*, spearmint "Moroccan", woodland germander, *achillea setaceous*, *ruta montana*. In samples with herbal supplements of *kenwa*, yellow nutsedge, strawberry tomato, yellow cosmos, common mountain mint and narrowleaf mountain mint, nettleleaf giant hyssop less than 21 % of gluten was washed out.

The compliance of gluten quality of all studied samples with standard norms for wheat flour was determined, and first and second groups of gluten quality were established, which are characterized as satisfactory hard, good and satisfactory weak.

It was recorded that samples of flour with powder of common mountain mint and narrowleaf mountain mint, according to the value of FDM device, respectively, 32 and 36 units, are characterized by a satisfactory solid gluten, at the same time they had the least blurring of gluten, respectively, 9,0x8,5 and 8,5x8,5 cm, as well as unsatisfactory index of sedimentation, respectively, 12 and 10 cm³.

The efficiency of the use of herbs in the technology of bakery products as an enrichment of nutritive value and nutrient medium for yeast was established, which in turn was reflected as finished products – porosity, acidity, specific volume.

Thus, use of potherbs in bakery production is promising. We have established the effectiveness of using herbs in the technology of bakery products, as a nutrient enrichment agent and nutrient medium for yeast, which in turn was reflected as finished products – porosity, acidity, specific volume. In order to develop an effective technology for its use, creating new types of products with properties that meet the current needs of consumers in Ukraine and the world, it is necessary to clarify the relation of potherbs with other components.

It is advisable to include powder in wheat dough in a dosage of 0.5 % of *isodon japonicas* to the mass of flour; up to 2 % of *agastache*, *ruta montana* and winter savory, catmint of *nephetelli*; not more than 5 % of catmint *Musina*, *polihimnia*, *amaranthus tricolor*, *pyrethrum grand*, yellow cosmos; up to 10 % of mountain mint, *kenwa*; up to 15 % of yellow nutsedge and strawberry tomato, as it is with these dosages that the bread was evenly colored from light yellow, green to dark brown crust without destructions and cracking, elastic soft part, thin-walled porosity, pronounced bread taste and pleasant aroma of supplements unlike other prototypes.