

IMPROVEMENTS AND THEIR FUNCTIONAL SIGNIFICANCE IN BREAD PRODUCTION: MODERN TRENDS AND PROSPECTS

Mustafaev O.Sh

TSTU PhD student

Ravshanov S.S

TCTI, Ph.D., Assoc

Karimov D.T

TCTI, master

Abdullayeva F.B

TCTI.

Ensuring the quality and stability of bread products is especially important in the hot climate of our republic. In recent years, due to climate change and increasing global demand, the need to achieve consistent quality and stable results in bread production has increased. Therefore, various improvers are used to improve the technological and rheological properties of bakery flour and dough, and to increase the volume, structure, and organoleptic characteristics of bread [1].

Leavening agents increase the elasticity and gas-holding capacity of dough, and extend the taste, color, and shelf life of bread. Their composition can be natural (plant or animal sources), enzymatic, or chemical, and their choice depends on the type of flour and the quality requirements of the finished product [2, 3].

Types of improvers in improving the quality of bread

Improvers used in the improvement of bread products are divided into:

1. Substances with an oxidizing effect: oxygen, hydrogen peroxide, potassium bromate, potassium iodate, ascorbic acid, urea, calcium peroxide have a positive effect on the size and texture of bread [2, 3].

2. Substances with a reducing effect: sodium hyposulfate and sodium thiosulfate improve dough elasticity and structure.

3. Enzyme preparations: accelerates the dough preparation process and increases the quality of bread [3].

4. Surfactants and modified starches: improves dough properties and bread quality, slows down aging of bread.

5. Organic acids and mineral salts: controls dough acidity, activates yeast and enzymes.

6. Comprehensive Enhancers: increases efficiency through synergism of several components, simplifies application.

Chemical improvers of technological and organoleptic quality indicators of bread products, including emulsifiers, hydrocolloids, oxidizing agents (for example, ascorbic acid) and regenerating agents significantly improve dough stability, size, structure, and shelf life. These substances increase technological efficiency by controlling fermentation processes, strengthening gluten frames and retaining moisture.

Natural enhancers

The demand for natural and “clean-label” products is growing. This is due to consumers' interest in products with minimal processing and organic ingredients. Therefore, plant proteins, enzymatic mixtures, and improvers based on natural fermentation are being used in bread production.

Future prospects in bread production

Technological, organoleptic and functional improvers are important in the modern bread industry. In the future, it is expected that the development of innovative and multifunctional enhancers, as well as their integration into production systems, will be the main direction.

Such additives enrich low-flour bread products functionally and organoleptically, creating a stable and environmentally safe product.

USED LITERATURE:

1. Prieto-Vázquez Del Mercado P, Mojica L, Morales-Hernández N. Protein Ingredients in Bread: Technological, Textural and Health Implications. *Foods*. 2022;11(16):2399. doi:10.3390/foods11162399. PMID: 36010405; PMCID: PMC9407068.
2. Lensky N., Saidov A., Kalitka D., Eseeva G., Balguzhina Z. Study of industrial enzyme improvers of the rheological properties of baking flour and the quality of finished products. *BIO Web of Conferences*. 2024;82:02018. doi:10.1051/bioconf/20248202018.
3. Alireza S., Maryam E., Elham A., Seid Mahdi J. Application of edible insects in bread enrichment; emerging techno-functional opportunities and potential challenges. *Future Foods*. 2025;11:100638. doi:10.1016/j.fufo.2025.100638.