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WAYS TO IMPROVE THE QUALITY OF BAKERY PRODUCTS BASED ON MODERN BIOTECHNOLOGY

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Abstract
Bread is considered one of the oldest and most consumed foods in the history of mankind. And its quality is important not only to ensure the health and satisfaction of consumers, but also to the development of the food industry. In recent years, advances in biotechnology have been creating new opportunities to increase quality in bread production. This article provides information on ways to improve the quality of bakery products with the help of modern biotechnology.

Keywords: Bread, biotechnology, yeast, enzymes, microorganisms and genetic modifications, products, factors.

Introduction

Biotechnologies are technologies that use living organisms or their cells, genetic materials, to create or improve products. In the production of bread, biotechnologies are mainly used through yeast, enzymes, microorganisms and genetic modifications. These techniques serve to increase the taste, satiety, shelf life, and nutritional value of bread. The quality of bakery products depends on many factors, the main of which are the structure of the dough, the texture of the bread, taste and smell, as well as the shelf life of the product. Biotechnology allows you to improve the quality of bread by positively influencing these factors. For example, creating new types of yeast or improving the dough with the help of enzymes increases the softness and elasticity of bread.[1] Yeast is one of the most important microorganisms in the production of bread. Traditional yeasts are natural microorganisms derived from plants and animals that produce enzymes in the process of raising dough and baking bread. With the help of modern biotechnology, the genetic composition of yeasts can be modified, which increases their effectiveness. For example, creating high-temperature resistant or fast-fermenting yeast types speeds up the bread production process and improves product quality. Enzymes play an important role in improving the structure of the dough in the production of bread. Enzymes such as amylases, proteases and lipases break down substances present in the dough, which contributes to the elasticity and lift of the dough. With the help of biotechnologies, the efficiency of enzymes is increased, their intended types are selected and included in production processes. Thus, the bread's softness, volume, and taste are improved.[2]

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Extending the shelf life of bakery products with the help of microorganisms is also one of the important areas of Biotechnology. Beneficial microorganisms, such as lactic acid bacteria, slow down the degradation processes of bread and increase its natural shelf life. These microorganisms produce natural preservatives during the fermentation process, which protect the product from harmful microorganisms. At the same time, fermentation improves the taste and aroma of bread. Genetic modifications create new opportunities in bread production. Today, by changing the genetic makeup of wheat, its nutritional value can be increased. For example, by increasing protein levels or reducing allergenic substances, it is possible to produce products that are beneficial for human health. In addition, with the help of genetic modifications, the resistance of wheat to diseases is increased, which serves to improve productivity and quality. Bakery products developed with the help of modern biotechnology are considered useful not only qualitatively, but also environmentally. For example, the use of natural preservatives in the fermentation process reduces the amount of chemical additives, which makes the product healthier. Also, wheat species produced by genetic modifications require less pesticide and fertilizer, which reduces environmental damage.[3]

There are also some problems with the use of Biotechnology in improving the quality of bakery products. There are consumer reservations and legal restrictions on genetically modified products. Therefore, caution and transparency in the production and promotion of such products are necessary. Also, the high cost of biotechnological processes can limit widespread use on an industrial scale. In the future, scientific research in the field of biotechnology will make it possible to further improve the quality of bakery products. The discovery of new microorganisms and enzymes, the development of genetic editing technologies are expected to lead to revolutionary changes in the field of bread production. At the same time, special attention should be paid to the issues of food safety and environmental sustainability.[4]

Conclusion

In conclusion, modern biotechnology is an important tool in improving the quality of bakery products. With the help of yeast and enzymes, the structure of the dough and the taste of bread are improved, the shelf life is extended with the help of microorganisms, and genetic modifications increase nutritional value and yield. At the same time, Biotechnologies also help to create environmentally friendly products. In the future, advances in this area will serve the further development of the bread industry and provide consumers with quality, healthy bakery products.

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