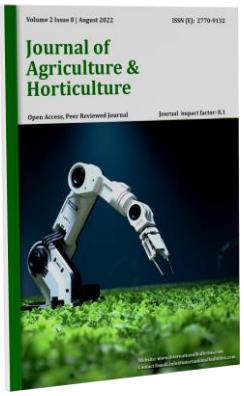

THE TECHNOLOGY OF FUNCTIONAL BREAD PRODUCTION FROM LOCAL WHEAT VARITIES

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Abstract. Functional bread is a type of bread that is fortified with additional nutrients or ingredients to provide specific health benefits beyond basic nutrition. The production of functional bread using local wheat varieties can be an effective way to promote the use of locally grown grains and enhance the nutritional value of bread. Therefore, the article discusses the technology of functional bread production from local wheat varities.

Keywords: functional bread, fortified, additional nutrients, ingredients, health benefits, basic nutrition, production technology, locally grown wheat varieties, sustainable agriculture, nutritional value.

Functional bread is a type of bread that is fortified with additional nutrients or ingredients to provide specific health benefits beyond basic nutrition [3, 90-93]. This production technology focuses on using locally grown wheat varieties to promote sustainable agriculture and enhance the nutritional value of bread.

The first step in this production technology is to select suitable local wheat varieties based on their nutritional composition and suitability for bread production. Factors such as protein content, gluten quality, and baking characteristics are evaluated to ensure the chosen wheat varieties meet the desired criteria.

Once the suitable wheat varieties are identified, they undergo processing to obtain flour. This involves cleaning, milling, and sifting to remove impurities and obtain a fine, uniform flour. The quality of the flour is crucial in determining the final product's texture and taste.

The flour is then mixed with other ingredients such as water, yeast, and salt to form a dough. To enhance the functional properties of the bread, additional ingredients can be incorporated into the dough. These can include whole grains, seeds, nuts, or dried fruits, which provide added fiber, vitamins, minerals, and antioxidants. Other functional ingredients such as omega-3 fatty acids, probiotics, or plant extracts can also be added to provide specific health benefits [5, 30-33].

Once the dough is prepared, it undergoes a fermentation process to allow the yeast to leaven the bread and develop its flavor. This involves proofing the dough at a controlled temperature and humidity for a specific period of time. Fermentation not only improves the taste and texture of the bread but also enhances its nutritional profile.

After fermentation, the dough is shaped into loaves or other desired forms and baked in an oven at a specific temperature and time. This baking process ensures that the bread is cooked thoroughly and develops a golden crust. The final product is a nutritious and flavorful functional bread made from local wheat varieties.

This production technology not only offers consumers a healthier bread option but also supports sustainable agriculture and local farmers. By utilizing locally grown wheat varieties, it reduces the carbon footprint associated with transportation and supports the local economy [2, 29-30].

It is important to mention basic factors affecting to the production of functional bread from local wheat varities.

The first factor is the availability and accessibility of local wheat varieties suitable for functional bread production can impact the feasibility and scalability of producing such bread. Limited availability of local wheat varieties may restrict the production capacity and market potential of functional bread.

Then, the availability and quality of infrastructure and equipment required for functional bread production, such as mills, ovens, and packaging facilities, can affect the efficiency and quality of production. Inadequate infrastructure and equipment may limit the ability to produce functional bread from local wheat varieties at a large scale.

Next, the development and adoption of appropriate processing technology for producing functional bread from local wheat varieties can impact the quality, consistency, and cost-effectiveness of production. Efficient processing technology can help optimize the utilization of local wheat varieties and enhance the overall production process.

Moreover, the availability of trained personnel with knowledge and skills in functional bread production technology from local wheat varieties is crucial. Adequate training and education programs can help improve the technical capabilities of producers, ensuring consistent quality and efficient production [1, 110-126].

Furthermore, implementing robust quality control and assurance measures is essential to maintain consistent quality standards for functional bread produced from local wheat varieties. This includes monitoring and testing for factors such as moisture content, protein levels, gluten content, and overall product safety.

Also, the cost-effectiveness of producing functional bread from local wheat varieties compared to commercial wheat varieties is an important factor. Factors such as the cost of raw materials, processing technology, labor, and packaging can impact the overall cost structure and profitability of production.

The production technology of functional bread from locally grown wheat varieties is important for several reasons.

Firstly, it promotes sustainability by utilizing sustainable agriculture practices. By growing wheat locally, the need for transportation and long-distance shipping is reduced, thereby reducing the carbon footprint associated with the production and distribution of the bread. This helps to mitigate climate change and preserve the environment.

Secondly, supporting local farmers is crucial for the local economy. By purchasing locally grown wheat varieties, consumers contribute to the economic growth and stability of their community. This helps to create jobs, support small-scale farmers, and strengthen the local food system.

Furthermore, the use of additional nutrients and ingredients in the production process enhances the nutritional value of the bread. Fortifying the bread with fiber, vitamins, minerals, antioxidants, omega-3 fatty acids, probiotics, and plant extracts provides consumers with a healthier option. These added nutrients can help improve digestion, boost immune function, and support overall health and well-being [4, 87-91].

The fermentation process involving yeast and leaven not only adds flavor to the bread but also contributes to its nutritional profile. Fermentation helps to break down complex carbohydrates, making them easier to digest and increasing nutrient availability. This process also enhances the taste and texture of the bread, making it more enjoyable to consume.

Thorough cooking in the oven at the appropriate temperature and time ensures a golden crust while preserving the nutritious and flavorful qualities of the functional bread. Proper cooking techniques help to retain the nutritional value of the ingredients and ensure food safety.

However, there are some drawbacks of the technology of functional bread production from local wheat varities:

Firstly, local wheat varieties may not be as readily available or as abundant as commercial wheat varieties. This can limit the scalability of functional bread production using local wheat varieties, making it difficult to meet the demand of a larger market.

Secondly, local wheat varieties may require more intensive farming practices or specialized processing techniques, which can increase production costs compared to using commercial wheat varieties. This can make functional bread produced from local wheat varieties more expensive for consumers.

Lastly, consumer preferences and market demand for functional bread produced from local wheat varieties may vary. Some consumers may not be familiar with or willing to pay a premium for bread made from local wheat varieties, which can limit the market potential for these products.

In conclusion, the production technology of functional bread from locally grown wheat varieties offers numerous benefits for both consumers and the environment. By utilizing sustainable agriculture practices and supporting local farmers, the carbon footprint associated with transportation is reduced, and the local economy is stimulated. The use of additional nutrients and ingredients in the production process enhances the nutritional value of the bread. Fortified with fiber, vitamins, minerals, antioxidants, omega-3 fatty acids, probiotics, and plant extracts, functional bread provides a healthier option for consumers. The fermentation process involving yeast and leaven not only adds flavor to the bread but also contributes to its nutritional profile. The proofing stage, influenced by temperature and humidity, further enhances the taste and texture of the bread. Thorough cooking in the oven at the appropriate temperature and time ensures a golden crust while preserving the nutritious and flavorful qualities of the functional bread. Overall, the production of functional bread from local wheat varieties promotes sustainability, supports local farmers, and offers consumers a healthier and more environmentally friendly bread option.

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