AMERICAN JOURNALS
Open Access, Peer Reviewed Journals

American Journal of Technology and Applied Sciences
ISSN (E): 2832-1766 Volume 22, March - 2024

ENRICHMENT OF THE COMPOSITION OF YOGURT: THE USE OF BIOLOGICALLY ACTIVE FOOD ADDITIVES BASED ON SPROUTED WHEAT AND BARLEY

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ABSTRACT

This article delves into a transformative approach to yogurt enrichment, exploring the incorporation of biologically active food additives derived from sprouted wheat and barley. The significance of these additives in enhancing the nutritional profile of yogurt is elucidated, emphasizing the unique contributions of sprouted grains. The article provides insights into the preparation and utilization of these biologically active additives, offering a practical guide for enriching yogurt at home. Through a combination of nutritional science and culinary innovation, this research opens a flavorful pathway to elevate yogurt's health benefits, establishing a connection between dairy products and the wholesome goodness of sprouted wheat and barley.

KEYWORDS

Yogurt Enrichment, Biologically Active Food Additives, Sprouted Wheat, Sprouted Barley, Nutritional Enhancement, Dairy Innovation, Culinary Health, Functional Foods, Yogurt Composition, Homemade Enrichment.

Introduction

The highest activity of amylolytic enzymes is observed among legumes and grains, more in barley and wheat. These enzymes help to saccharify starch and increase its digestibility. That is why it is desirable to use spiked grains collected in the technology of fermented milk products [1].

When using harvested wheat and barley grains in the production of dairy products, it is also important to study the effect of by-products on the organoleptic properties of the product. It is also important to determine the optimal dose of harvested grains, and the effect on the shelf life of the finished product [2].

The abundance of exchangeable amino acids in the composition of milled wheat and barley makes it a convenient, inexpensive additive for food fortification [3]. Milled grains are also of particular importance due to their rich carbohydrate content. For this reason, various porridges, desserts, and

pastries are made from them. These products are semi-finished products widely used in the European and Russian consumer markets. It is also recommended in the treatment of cardiovascular diseases.

Experience part

Experiment 1. Grains with spikes are collected in a special traditional way. (collected at 18-25℃, 36-56 hours in humid conditions) 0.5 mm buds are dried by heat treatment after germination. The mixture of grains is crushed to a size of 3-5 mm. Such a product is considered a biologically active substance and has a long shelf life. Ready talkan can be easily consumed with water or milk. Such dried malt flakes can be used to enrich various foods.

Experiment 2.Under laboratory conditions in an extremely high frequency electric magnetic field, under the following processing conditions: extremely high frequency - 2450 mHz; processing power - 150 W; processing time - 8-10 min; material humidity - 24-30%; temperature - 45-50 ℃; material thickness - 50-70 mm; processed malted wheat and malted barley were used.

After processing the wheat and barley grains used in the production of yoghurt in the above conditions, the particle size is 0.4-0.6 to the level of 80-85% when sifted through a 1 mm sieve for 10 minutes at a moisture content of 8-10%. It was milled until fine, made into flour, and added to the ready-made yoghurt prepared traditionally in different proportions relative to the yoghurt mass.

Execution of work: The malt of spiked grains harvested for yoghurt is ground into flour and processed in the above manner. Yoghurt is made according to traditional technology: preparation of raw material for production, determination of standards, pasteurization, homogenization, cooling, fermentation (fermenting), enrichment of the product with additives, packaging, and storage. In enrichment with additives, the flour and yeast of the recovered grains are added together.

Yoghurt mass with food additives prepared based on malted wheat and malted barley was fermented at 40 ℃ for 5-6 hours.

Results and Discussion

The results of the research showed that in the production of yoghurt, it is sufficient to add food additives made based on malted wheat and malted barley in the amount of a maximum of 5% of the mass of yoghurt. The following table lists the organoleptic indicators of fortified yoghurt:

Table 1. Organoleptic indicators of yoghurts prepared by adding food in different proportions.

No	*Amount of food additive*	*Organoleptic indicators*			
		appearance	colour	taste and smell	homogeneity
1	1.5	A viscous mass of uniform thickness.	The same milky white colour throughout the mass	It has the unique smell and taste of pure fermented milk without extraneous odours and tastes.	Homosexual
2	3	A viscous mass of uniform thickness	The same milky white colour throughout the mass	Pure original fermented milk without extraneous odours and flavours and has a weak malty smell and taste.	Homosexual

3	5	A viscous mass of uniform thickness	The same milky white colour throughout the mass	Pure original fermented milk without extraneous odours and flavours and has a pleasant malty smell and taste.	Homosexual
4	7	A viscous mass of uniform thickness	The same milky white colour throughout the mass	Pure original fermented milk without extraneous odours and flavours and has a strong malty smell and taste.	Homosexual

It can be seen from the table that when 1.5-3% of the food additive is added to the yoghurt, the taste and smell of the yoghurt are preserved, when 5% is added, a weak pleasant taste and smell of the spiked grain malt is felt in the yoghurt. As the amount of food additive increased, the flavour of the food additive became dominant instead of the taste of yoghurt.

The organoleptic and physicochemical parameters of yoghurts enriched with spiky grains collected for the experiment are presented in the following tables:

Table 2. Organoleptic and physicochemical indicators of yoghurt obtained for the experiment

Indicator name	*Tawifi*
Appearance	A viscous mass of uniform thickness. When stabilizers are added, it can be jelly-like or creamy. When using food additives that give taste and smell - their mass percentage can change.
Taste and smell	It has the unique smell and taste of pure fermented milk without extraneous odours and tastes. It gives a moderately sweet taste when processed with sugar or sweeteners. Flavouring agents provide the corresponding taste and aroma of the added component in the production of food additives.
Colour	The same milky white colour throughout the mass. Produced with flavouring and food colouring, it is determined by the colour of the added ingredient.

3 – table. Physico-chemical parameters

Name	*Norm*
Mass fraction of fat, %	
Low-fat dairy	0.1 to 1.0
Medium fat milk	1.0 to 2.5
Milk and cream	4.7 to 7.0
Creamy milky	7.0 to 9.5
Creamy	Not less than 10
Mass fraction of milk protein	*not less than %*
For yoghurt without additives	3.2
For yoghurts with fruit, spiked malt (vegetable).	2.8
Mass fraction of sucrose and total sugar by inverting sugar	Technical documents provide specific information for yoghurts made with sugar berries and other additives.
Acidity, 0T	From 75-140
Phosphatase	It shouldn't be
Harora in production, ℃	+4±2

Conclusions

The results of the experiment showed that the organoleptic and physico-chemical indicators of yoghurts enriched with harvested spiky grains fully meet the requirements given in the normative legal documents, which were determined by chemical analysis. This food additive can be used in folk medicine for the purpose of obtaining goods recommended for use as a digestive, normalizing the activity of the intestinal system, and as a rich source of vitamins.

Yoghurts obtained in this way have a taste and smell typical of pure yoghurt, without extraneous tastes and smells, and the colour is uniform throughout the mass. Such enriched yoghurts are more popular due to their healing properties.

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