

Application of immune focus phytosyrups in yogurt technology

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Abstract. The work is devoted to studying the possibility of directing the immune phytosyrups "Echinacea" and "Immune" in technology yogurt. Research proved the feasibility of making syrups and method in the production of yogurt. Experimentally the optimal dose for entering phytosyrup the production of yogurt. It is based on the proved result that the use of syrups "Echinacea" and "Immune" dairy drinks in technology expands the product range of health-care areas. Application of immune phytosyrup direction "Echinacea" and "Immune" in technology yogurt does not require the use of additional process equipment.

Keywords: technology, yogurt, echinacea, wild rose, elderberry, mountain ash, organoleptic quality

Introduction. Among the public effective ways of protecting the population in the complex environmental situation it is established food enterprises manufacture of health care supplies, including milk. Given the current difficult environmental conditions, there is an urgent need to improve the structure of nutrition by improving the quality, biological value and taste characteristics of products. An important area in this respect is the fortification of food with vitamins, minerals and immune substances, especially on a natural basis. Milk products are not exception in this regard [3, 6, 10, 13, 14].

According to literature reports recently received considerable attention dairy products with high nutritional value and is enriched with vitamins and minerals through the introduction of functional ingredients. One of the requirements that apply to the latter is their reality.

It is known that the basis of functional food technology is their have high content of nutritional components, ability to influence certain parts of the potential consumer. Dairy products, however, are natural members of the group. Therapeutic and prophylactic properties of dairy products due to the favorable effect on the human body substances and microorganisms (lactic acid, alcohol, carbon dioxide, antibiotics, vitamins), formed as a result of biochemical processes that occur during fermentation of milk. Assimilation of dairy products has higher digestibility than milk because they act on the secretory activity of the stomach and intestines, causing digestive tract cancer intense isolated enzymes that accelerate the digestion of food. As you know, recently very popular in modern conditions become therapeutic and prophylactic products that have medicinal properties. It should be noted that today is rapidly increasing role of fillers in the production of dairy products. This issue is the subject of numerous research scientists [1, 2, 11,12].

So, L. Yamschytka, I. Tryahub, R. Pavlyuk, L. Pavlot-sky offer shortbread recipes enriched wiyh pollen. R. Holub, R. Pavlyuk, S. Stoyev developed functional recipe of ice cream "Vitamin strawberry" and "Vitaminska" were they use kriopast of cranberry and strawberry. K. Kostrova, V. Pogarska, A. Berestova recommend new types of functional beverages based on whey and pumpkin puree. M. Osadcha, V. Pocharska, A. Berestova offer new types of nanostructured with pumpkin puree and citrus and functional ice cream with their use. S. Radchenko, R. Pavlyuk developed and offered the recipes of processed cheese enriched with kriopastam of celery and garlic. New processed cheese "Delicate" and "Hercules" with the addition of nanostructured dietary supplements

with parsley and dill, characterized by a high content of dietary supplements and extended shelf offering by O. Utva, V. Paharska, N. Korobets, I. Yurchenko, and O. Uriyeva developed new kinds of functional health of processed cheese "Laktofit", "Laktokarotynka" and "Laktooranzhyn" enriched with natural dietary supplements of plant material. Mohyla N. and Lysogor T. examined the positive effects of herbal supplements like antioxidants storage spreads. Smagin A. and Bala-shenko M. found that the powder of dried plant material (leaves of nettle, hawthorn berries) are active stabilizers storage ghee. Statutory organoleptic properties of oil when applying powder with carrots explored by T. Rashevsky, O. Vasheka [4, 5, 7, 8, 9].

As for our research, a promising and interesting direction is the use of herbal supplements in various forms: in the form of hoods, and kriopowders, phytosyrup of new generation of well-defined functions. Use phytosyrup in technology such popular products as milk drinks, including use as a milk-based sweet nonfat yogurt, not only expand the range of health care dairy products, but to ensure population immunity.

In view of the above, in our opinion, is the use of appropriate technology in dairy drinks herbal syrups "Echinacea" and "Immune".

Syrup "Echinacea" (TU 15.8-30590731-019: 2011) – produced as a result of extraction of medicinal plants - Echinacea purpurea (Echinacea purpurea), a dietary supplement to diet, creates optimal conditions for improving immunity and overall strengthening of the body. Syrup is recommended for prevention of acute and chronic infectious and inflammatory diseases, respiratory viral diseases, reducing negative impact on the body of radioactive radiation, during prolonged treatment with antibiotics.

Syrup "Immune" (TU 15.8-30590731-019.2011) – a complex of plants classified as medicines is used in the formal, traditional medicine Ukraine and other countries. The structure consists of rose syrup, elder, rowan, echinacea. The syrup contains a set of biologically active compounds that contribute dezintoxic, antiseptic and immunostimulatory effects. It is used to improve the body's resistance to adverse environmental factors, prevention of vitamin deficiencies, as a fortifying agent in acute and chronic infections, malnutrition, physical activity, flu, to prevent respiratory and viral diseases.

In this context, **the aim** of this study was to investigate the possibility of using herba immunel syrups "Immune" and "Echinacea" as prescription constituents in sweet technology skimmed yogurt.

Materials and methods. Experimental studies were conducted in the laboratory department of technology of milk and milk products Lviv National University of Veterinary Medicine and Biotechnologies named after S. Gzhyskyj and PAS "Galicia".

Production of sweet fat-free yogurt is used with a sweet additions syrups special purpose "Immune" and "Echinacea" carried reservoir method, with a sour normalized mixture with constant stirring syrups added "Immune" and "Echinacea".

There were held two series of studies. In the first series we examined the applicability of the proposed phytosyrup the production of yogurt, the second developed his industrial recipes.

As a result of experimental studies found the best recipe yogurt with proposed phytosyrup immune direction (respectively 10% syrup "Immune" and 9% for syrup "Echinacea"). Developed recipes are listed and submitted for industrial production (at a rate of 1,000 kg of finished product excluding production losses).

In parallel, we studied organoleptic, technological, biological and commodity properties, safety skimmed yogurt with sweet syrups "Echinacea" and "Immune".

Results and discussion. As a result of our experiments we found optimal yogurt recipes with the proposed phytosyrup immune orientation. Table 1 shows the recommended recipe for yogurt (fat mass fraction of 1%) of phytosyrup "Immune" and "Echinacea."

Table 1. Recommended recipes for yogurt (m.p. of f. 1%) of the phytosyrups "Immune" and "Echinacea"

The components of the recipe	Kinds of low-fat yogurt		
	low-fat yogurt (1 % m.p.of f.) without phytosyrup	low-fat yogurt with syrup "Immune"	low-fat yogurt with syrup "Echinacea"
Whole milk (3.4 %)	285,13	286,57	285,46
Skimmed milk (0.05%)	601,77	500,33	511,40
Low-fat milk powder (100% solubility)	30,0	30,0	30,0
Hamulsion SM	4,0	4,0	4,0
Hamulsion RKN	9,0	9,0	9,0
Pasteurized water	70,0	70,0	70,0
Sourdough of direct introduction	0,1	0,1	0,1
Phytosyrup "Immune"	–	100	–
Phytosyrup "Echinacea"	–	–	90
Total	1000	1000	1000

Analysis of digital material shows that the type phytosyrup significantly affect its compounding amount of (respectively 10% syrup "Immune" and 9% for syrup "Echinacea"). A smaller number of prescription phytosyrup "Echinacea" due to the influence of the latter, more specific the smell and taste caused by it available components.

We also studied the organoleptic, technological, biological and commodity properties, safety skimmed yogurt with sweet syrups "Echinacea" and "Immune".

Table 2 shows organoleptic sweet yogurt (m.p. of f. 1%) using a sweet fillings of phytosyrup "Immune" and "Echinacea" and the basic manufactured at the plant.

Table 2. Organoleptic yogurt with added phytosyrups "Immune" and "Echinacea"

Indicator	Regulatory Requirements	Prototypes yogurt (m.p of f. 1 %)	
		syrup "Immune"	syrup "Echinacea"
Appearance and texture	Homogeneous, with impaired clot for drinking, with the presence of small pieces of fruits and berries	Homogeneous, without impurities, slightly watery	Homogeneous, slightly watery, without impurities
Taste and smell	Milk, without the tastes and smells of the appropriate taste and aroma made excipients or flavorings as sweet	The scent of wild rose; sweet taste with a touch of filler	Clean, fresh smell, taste slightly sweet, sour milk, with a taste of echinacea
Colour	Milky-white colour caused by introduced filler (in the manufacture of fruit fillings, uniform throughout the mass)	Homogeneous, uniform throughout the mass with a light cream colour	Cream homogeneous, uniform throughout the mass

The organoleptic characteristics of the data show that the prototypes had a yoghurt regulations organoleptic characteristics: homogeneous, slightly watery, creamy consistency, without lumps and grains, possession of yogurt with fresh scent with a slight taste of addition (flavor hips and echinacea). Prototypes of sweet yogurt are characterized by white, cream or slightly creamy, homogeneous throughout the mass.

It should also be noted that the suggested types of yogurt characterized by a high content of vitamins. Analysis of amino acid composition showed the changes in the ratio of individual groups and individual amino acids in the application of the proposed syrups. This indicates an increase in biological activity of prototypes.

Conducted tastings have shown high taste and mer-

chandising characteristics prototypes.

Thus, the results of complex studies, recommended herbal syrups special purpose "Immune" and "Echinacea" as sweet fillings in the technology lowered fat yogurt to expand domestic production range of health care areas. Patents were granted.

It should be noted that the use of syrups immune destination "Immune" and "Echinacea" yogurt in technology does not require the use of additional process equipment.

Conclusions. Thus, the technology of manufacturing yogurt using phytosyrup "Immune" and "Echinacea". As a result of experiments established the best yogurt recipes with the proposed phytosyrup immune direction (respectively 10%for syrup "Immune" and 9% for syrup "Echinacea").

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