

# Study of the effect of natural fruit fillers on the taste of fermented dairy beverages

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## Abstract

The article deals with the enrichment of sour-milk drinks with natural fruit fillers. The effects of quality nutrition on human physiology and mental abilities are investigated. The indispensability of natural foods for human health and vitality is noted.

**Keywords:** fermented milk drinks, fruit fillers, quality nutrition, food sources, and vitamins.

## INTRODUCTION

Relevance. As society develops, the level and quality of life of people change, and, accordingly, the principles of nutrition organization. The study of the impact of quality nutrition on the physiology and mental abilities of the person is an urgent problem.

In a market economy, the nutrition of the population is an indicator of the quality of life. At the same time, the food industry finds an optimal solution to the problem of product shortage with the help of new technologies, the socio-economic effect of which is not fully investigated. The study of this direction should be taken into account in the organization of nutrition of modern society.

In recent years, a considerable amount of data has accumulated on the importance of human microbial ecology in the development of certain diseases of the blood system and hematopoietic organs.

The role of nutrition, in such a widespread disease in our region as iron deficiency anaemia is not excluded.

There is a tendency to an increase in pathological conditions, which without a doubt can be associated with a disturbance of the micro-ecological balance of the intestine and in almost all cases requires correction. Iron deficiency in the body causes several symptoms that affect almost all systems and functions of the body. Deterioration of performance, weakness, rapid fatigue is typical signs of iron deficiency. (M. Laurisse., 1974; L. Hallberge., 1974). The pathogenesis of iron deficiency includes disorders of amino acid metabolism, which is reflected in the metabolism of vitamins such as, A, E and C. A major role in this may play a change in the processes of their absorption in the gastrointestinal tract (Shelepova O.G. 2007).

Researchers (4, 5) noted the need for food enrichment with antioxidants, vitamin-mineral premixes, food sources rich in biologically and physiologically active substances, the lack of which leads to disruption of nutritional status.

Among the huge variety of products of animal and plant origin, the most valuable in nutritional and biological respect are milk and dairy products whose value is determined by a rich and balanced composition of its components and high digestibility of all nutrients. In this respect, dairy products, including yoghurts in the diet and therapeutic nutrition are superior to milk in their functional properties. They contain all the constituents of milk, in the most digestible form (6). As a result of biochemical processes, fermented dairy products are digested much easier and faster than conventional milk. For example, in 3 hours milk

is assimilated by the body by 44%, but yoghurt by 95.5%. These processes are associated with biochemical transformations of the main components of milk - carbohydrates, proteins, lipids and salts, which accelerate their assimilation.

The problem of shortage of raw materials, first of all, quality milk, increasing dairy productivity of cows for the production of dairy products is quite urgent. This is because the dairy industry requires raw materials with high technological properties from producers. The quality and quantity of milk obtained from cows and its suitability for the production of dairy products are influenced by natural and climatic conditions.

It is known that our region is characterized by a hot and dry climate, which harms metabolic processes in the animal body, their productivity and the quality of milk.

From the above, it follows that numerous factors influence the level of milk productivity of cows, the content of components in milk, the values of physical indicators and the properties of milk.

A. Tepel (1979; cited by N.V. Barabanshchikov, 1983) attributes the change in the composition and properties of milk, depending on the season of the year, to the conditions of feeding and housing the animal. In studies by L.D. Gerasimchuk, V.I. Klemenok (2003), K.E. Aitmukhanbetova (2006), depending on the season of the year, milk yields of cows naturally decreased from spring to autumn and the autumn milk was the richest in chemical composition.

Based on studies conducted by E.M. Kislyakova, E.V. Achkasova (2009), E.V. Achkasova (2009) it was found that feed intake in ration and type of feeding has a significant influence on the chemical composition of milk and its technological properties. The positive influence of the level of energy and protein nutrition on the chemical composition and technological properties of milk was studied [7].

Consequently, for the production of dairy products, the quality of raw materials and the influence of certain factors are of great scientific and practical importance.

The indispensability of natural foods has long been understood abroad. An important problem for human health is the use of various food additives in food technology, including dairy products: preservatives, antioxidants, food coloring agents, emulsifiers, sweeteners and others. Studies have shown that several such substances, when constantly consumed, depending on the individual influence, pose a serious threat to health.

It follows from all of the above that for the health of the nation, it is essential that a person get only natural food, both adult and child, in accordance with age. This primarily applies to milk and dairy products. According to scientific data, 30-40% of the total caloric value of human food intake should be milk and dairy products. The technology of milk and dairy products (8).

To increase the nutritional value of sour milk products, various fillers and additives are introduced into their composition, which increases their therapeutic and dietary properties. The use of food additives and fillers rich in dietary fiber, which are pectins, vegetable and fruit additives, allow to give them additional functional properties. Such a variety of plant raw materials used in the production of liquid sour-milk products indicates the wide possibilities of creating their wide assortment and balanced composition.

Intensive development of the production of food ingredients has opened up unlimited opportunities for producers of dairy products with new consumer properties - nutritional value, the balance of constituent elements, taste, odour, consistency, and shelf life, therapeutic and dietary indicators (9).

## The aim of the study

Study of the production technology of sour-milk products with the use of natural fruit and berry fillers. In recent years, our market has significantly increased the range of dairy products to meet consumer demand. But, unfortunately, low-quality products of some producers, non-compliance with the standards for storage and sale can lead to undesirable consequences. Manufacturers use additives of chemical origin in liquid dairy products, particularly in yoghurt, which is a violation of the

organoleptic properties of the finished product. Taking into account that in most cases yoghurts are consumed by children, such a product can have a negative impact on their health.

The quality of yoghurts largely depends on the method of their production. Preferable and useful are "live yoghurts", in the production of which the product is heated not more than 80 ° C, while the vitamins and enzymes are preserved as much as possible.

## Materials and methods

Milk contains almost all the vitamins necessary for normal human development. They enter it from the food eaten by animals and are synthesized by the rumen micro flora. The content of vitamins in milk varies depending on the season of the year, the stage of lactation and the individual characteristics of cows. In addition, the content of some vitamins changes during the storage and heat treatment of milk [10]. To provide the population with vitaminized products throughout the year, it is necessary to enrich products with fillers.

The study used recipes with different amounts of cherry and apricot syrups and their effect on the taste of the finished product. Syrup concentration was calculated according to "Technology of fruit and vegetable preservation and quality control" (11). Testing and determination of sour-milk product indicators were carried out in the laboratory of the Dairy mini-factory "Family", on the analyzer brand - "Expert Profi" (LactoscanSP).

In the process of fermentation with the formation of a milk-protein clot, the product reaches an acidity of 75 - 80 T. At the stage of cooling the product to 250 C, fillers are added, the product is thoroughly mixed to a homogeneous consistency and left for storage until realization in cooling chambers at 0 - 6 0 C. Results of the analysis are given in table 1.

Fruit sour milk drink - nonfat, 1%; the fillers are cherry and apricot syrup.

Table 1. The main indicators of fermented milk drinks

№	Product type	Mass fraction of fat, %	Fermentation temperature, °C	Amount of syrup per 100 ml of product, in ml	Titrateable acidity, °T
1	Fermented milk drink with cherry syrup	1	37	5	75
2	Fermented milk drink with cherry syrup	1	37	7	75
3	Fermented milk drink with cherry syrup	1	37	10	75
4	A fermented milk drink with apricot syrup	1	37	5	75
5	A fermented milk drink with apricot syrup	1	37	7	75
6	A fermented milk drink with apricot syrup	1	37	10	75

Organoleptic properties of dairy beverages:

- sour milk drink with cherry syrup for the product with syrup in a volume of 5 ml: appearance and consistency - homogeneous; color - white; taste, smell, aroma - pleasant, unsweetened with a pronounced fruity taste of cherries;

- sour milk drink with cherry syrup for the product with syrup in a volume of 7 ml: appearance and consistency - homogeneous; color - white; taste, smell, aroma - pleasant, with a fruity taste of cherries;
- sour milk drink with cherry syrup for the product with syrup in a volume of 10 ml: appearance and consistency - homogeneous; color - white; taste, smell, aroma - rich sweet, with a pronounced fruity taste of cherries;
- sour milk drink with apricot syrup for the product with syrup in a volume of 5 ml: appearance and consistency - homogeneous; color - white; taste, smell, aroma - pleasant, unsweetened with a pronounced fruit flavour of apricots;
- sour milk drink with apricot syrup for the product with syrup in a volume of 7 ml: appearance and consistency - homogeneous; color - white; taste, smell, aroma - pleasant, with a fruity taste of apricots;
- sour milk drink with apricot syrup for the product with syrup in a volume of 10 ml: appearance and consistency - homogeneous; color - white; taste, smell, aroma - rich sweet, with a pronounced fruit flavor of apricot;

## Conclusion

Thus, producers of dairy products have a very important task: to improve the dietary structure of the population by increasing the output of whole milk and other products, the range of which should be constantly expanding. While preserving and improving nutrition, it is necessary to take into account the fact that it replenishes the body with necessary natural vitamins and had no harmful effects on the human body.

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