

PROSPECTIVE USE OF FERMENTED β -GALACTOSIDASE FOR BABY FOOD

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Abstract: The modern concept of healthy eating high carbohydrate content is a factor in the development of a number of diseases. This can have a negative impact not only on the consistency of the product, but also limits the use of these products, which have certain dietary needs. This can be attributed to dairy products, which have a high content of milk sugar. A certain part of consumers cannot consume dairy products, which is associated with an insufficient amount of the enzyme lactase in the human body, which is necessary for the breakdown of lactose. This article provides information on lactose-free nutrition for children.

Key words: low lactose, lactose-free nutrition, β -galactosidases, fermented, splitting, baby food.

The only treatment is the method of Diet therapy for this disease. This is due, first of all, to the physiological and metabolic characteristics of the child's body. For diet therapy, specialized products for baby food (low-lactose and lactose-free mixtures) with a reduced lactose content are used or this carbohydrate is completely excluded from the composition

To reduce or completely remove lactose, such technological and biochemical methods are mainly used as fermentation of the milk mixture using a special starter; enzymatic splitting of milk sugar; membrane processing of milk raw materials

One of the promising tasks of scientists in this area is the use of enzymes in the production of dairy products. Many manufacturers of functional ingredients have high-quality enzyme preparations, one of which is beta-galactosidase.

The use of β -galactosidase helps to improve the organoleptic and technological properties of products. It can be of animal, plant and microbial origin. The greatest activity is possessed by β -galactosidase of fungal and bacterial origin. When using lactose fermentation methods, the product acquires a distinct sweet taste, which is due to the presence of glucose, which has a higher sweetness coefficient compared to lactose.

The possibility of partial removal of lactose from milk using membrane processing methods is another method for solving the problem of creating specialized food products.

Depending on the pore size of the membranes used, microfiltration, ultrafiltration, nanofiltration and reverse osmosis are distinguished. The combination of membrane methods for processing dairy raw materials opens up new possibilities in the field of obtaining milk protein concentrates with specified properties, which can then be used in the production of low-lactose products.

With membrane methods of processing raw materials, the obtained milk-protein concentrates are used as a component in the finished product. To achieve the optimal composition, additional fat and carbohydrate ingredients are required.

Some manufacturers use combined methods of processing raw materials, using ultrafiltration followed by fermentation of lactose residues. The product obtained by the combined method has optimal sweetness and contains a minimum amount of lactose.

The increase in the number of people, especially children, suffering from a disease associated with a deficiency of the enzyme for breaking down lactose, actualizes the conduct of research aimed at developing specialized food products. The most in-demand research data in the field of baby food. Without a sufficient amount of lactase, the digestive system cannot properly digest and assimilate lactose - the main carbohydrate of milk and dairy products. Therefore, the development and organization of industrial production of lactose-free and low-lactose dairy products

is the main way to correct the nutrition of children with partial or complete lactase deficiency.

Today, low-lactose and lactose-free formulas are mainly represented on the Uzbek market by foreign manufacturers. These formulas are included in the group of therapeutic nutrition and are as close as possible to breast milk.

When producing low-lactose formulas, manufacturers use ingredients such as demineralized whey; whey and casein protein concentrates, both separately and in combination, as milk raw materials. Vegetable oil mixtures (corn, soybean, coconut in a certain ratio) are used as fat components. Corn syrup, maltodextrin, glucose syrups, etc. are used as carbohydrate ingredients. All formulas are enriched with medium-chain triglycerides, vitamins, minerals, and dietary fiber.

The first developments of low-lactose and lactose-free dairy products in domestic and foreign practice were carried out for children's nutrition.

Specialized nutrition has a decisive influence on the course and outcome of the disease. Such nutrition promotes rapid improvement of health, preventing complications and transition of the disease into a chronic form. The first domestic developments in this group of products were dry low-lactose mixtures: low-lactose milk, low-lactose mixture with malt extract, low-lactose mixtures with various types of flour and oatmeal. Industrial production of products was mastered at a milk canning plant (Republic of Uzbekistan). The basis of all produced mixtures was milk protein - caseinate, obtained by fermentation of skim milk, starter of lactic acid microorganisms. Repeated washing with water achieves a minimum lactose content. Low-lactose mixtures are clearly intended for feeding children of the first year of life.

Long-term research conducted experiments to create a low-lactose baby food product research results obtained from literary analysis of domestic and foreign sources and technologies of products for feeding children with lactase deficiency.

Taking into account the development and implementation of low-lactose mixtures, low-lactose products have been created for feeding children of the first year of life suffering from lactase deficiency. The technology of these products is based on the enzymatic production of a milk base with subsequent mixing of fat and carbohydrate components.

According to the analysis, this product can be recommended as specialized nutrition mainly for children of the first year of life.

There are no products in this category for feeding preschool and school-age children, but low-lactose products for feeding preschool and school-age children are currently being developed.

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