

44. Prospects for the use of various sugars to produce fondant with reduced glycemicity

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Introduction. The traditional sugar used in the manufacture of fondant is sucrose disaccharide. But today, one of the priority areas identified by the World Organization of the World Food Organization (WHO) is the reduction in the share of sugar in products, reducing the caloric content and glycemicity of products.

Sugar tagatose has a unique combination of important technological characteristics and properties to improve human health, making it one of the most promising substitutes for traditional sugar. Thus, tagatose during its use does not cause caries, has a prebiotic effect, causes a very low glycemic response, has a reduced caloric content compared to other mono- and disaccharides (1.5 kcal / g). Its long-lasting intake improves blood glucose and cholesterol levels, reducing the risk of developing obesity and type 2 diabetes. In addition, it is considered potentially useful in the treatment of anaemia and haemophilia, infertility, has cryoprotective and antioxidant properties [1]. Therefore, we are offering the development of candy technology for crystalline structure based on this sugar.

Materials and methods. The manufacture of a new kind of sweets was carried out by replacing traditional raw materials - white crystalline sugar with new generation sugars - tagatose. For the study of the quality of semi-finished products and finished products, conventional organoleptic and physico-chemical methods were used. Glycemicity of finished products was determined by their glycemic index.

Results. During the development of a new recipe for sweets, tagatose was used in the complete replacement of white crystalline sugar. Studies have shown that solid crude crystalline structure of candies, with tangible crystals of solid phase, is formed. Further research was aimed at investigating the effect of treacle on the process of fondant formation on the basis of tagatose. The expediency of the use of starch treacle in the amount of 10-15% to the formulation of fondant is established. But during storage, candies made on the very tagatose quickly acquired a solid consistency, which greatly worsened their quality. In the course of further research, it was suggested to use a mixture of tagatose and hygroscopic fructose. It was established a rational ratio of these sugars, which allows to obtain the fine crystalline structure of fondant mass and provide longer storage of manufactured candies without degradation of their quality. The introduction of fructose allowed to reduce the dosage of treacle in the formulation of sweets, which positively influenced the decrease in the glycemic index of the developed products.

Conclusion. A recipe of fondant candy based on tagatose in combination with fructose monosaccharide has been developed, which is 5 times less glycemic in comparison with sucrose-based sugar control. The offered candies will expand the assortment of low-calorie confectionery products and can be recommended for patients with diabetes mellitus.

Resources

1. Polumbrik M.O. Carbohydrates in food products and human health. / M.O. Polumbrik. - K.: Academiperiodica, 2011. - 487 pp.