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STUDY OF THE QUALITY OF FRUIT PASTELA PRODUCTS

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Abstract: The scientific article substantiates the importance of enriching the pastille with useful substances for the human body and including biologically valuable substances in the recipe of this confectionery product. The technological scheme of finished product production is selected. The results of microbiological, sanitary-chemical analyzes of raw materials and finished products are presented. In order to study the microbiological indicators of fruit lozenges, samples were prepared in laboratory conditions. In order to determine the shelf life of these samples, sanitary and microbiological analysis was carried out. In order to determine the shelf life of lozenges, the dynamics of microbiological indicators were observed for 210 days, and the shelf life was set at 180 days. At the same time, the optimal conditions for its storage Pastila confectionery met the requirements of GOST 6441-2014 and the storage temperature was (18 ± 3) ° C and relative humidity (not more than 75%).

Keywords: microbiological indicators lozenge, assortment, enriched products, prevention, functional product, recipe.

Introduction. Confectionery products are widespread in the world, among which pastilla products occupy a special place, and it is important to develop or improve the methods of expanding the assortment of these products, that is, reducing the calories of the products, as well as increasing their energy and nutritional value [1;2; 3].

Pastila is a confectionery product made from fruit and berry puree, which contains pectin, essential micro- and microelements and other biologically active substances that improve liver, gastrointestinal tract and cardiovascular function.

Lozenges special agar-sugar-molasses syrup to strengthen the sticky, foamy and small-porous consistency of the fruit puree; gluten-free - made from fruit puree and whipped proteins.

The urgency of improving the technology of pastila preparation is determined by the fact that the studied confectionery products are in high demand among the population of our country. Also, for the purpose of prevention, it is to strengthen the human body's fight against viral and infectious diseases [4].

Today, the population's diet consists of food products with different and complex recipes. Accordingly, a new direction of the food industry is developing - designing food products. Designing food products means the production processes of complex multi-component food products that can fully satisfy consumer demand, meet the requirements and principles of standardized nutrition, and have a set of necessary nutritional properties. understood [5;6] .

Methods. Designing new food products with a complex polycomponent composition allows solving a number of problems [7]:

-provides the human body with the necessary set of physiologically useful nutrients;

- formation of this direction, taking into account the possibility of enriching the human body with compounds and various biologically active substances, micro- and macroelements of products with a physiological effect;

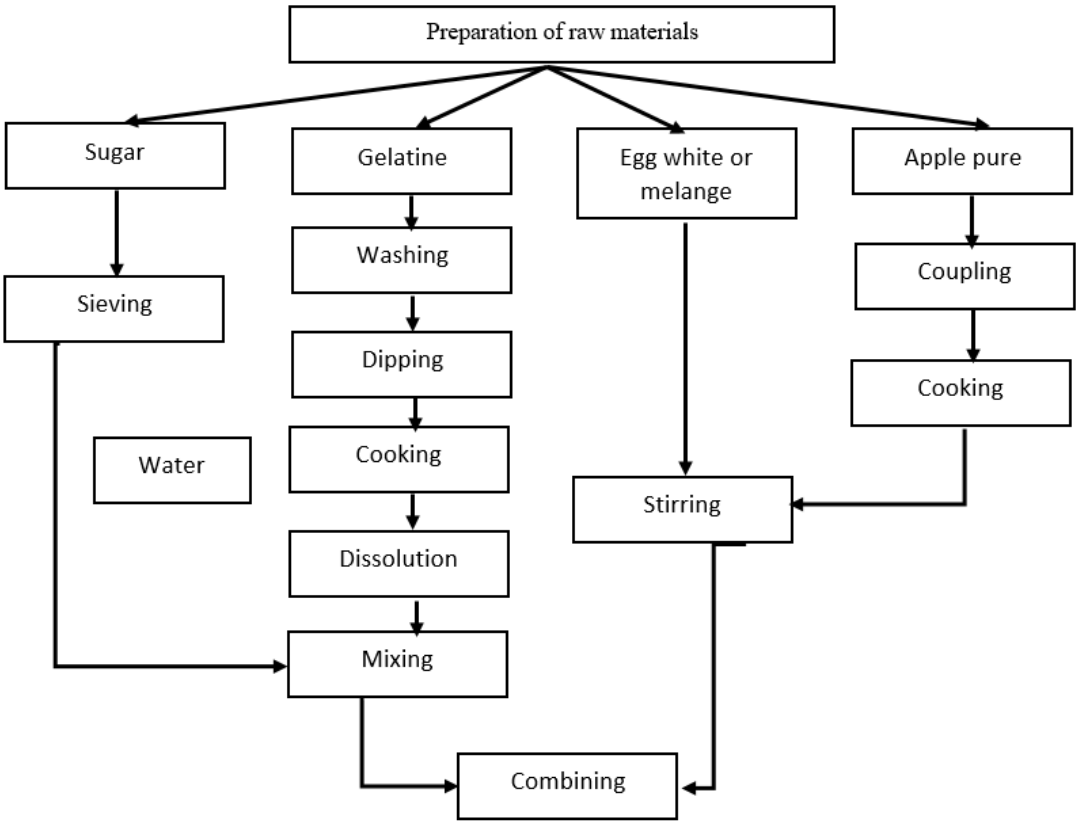
- modeling of finished product safety, quality indicators, consumer properties and predictons.

One of the main issues in designing a multi-component food system.

- in the development of new types of confectionery products with functional properties, it is considered to provide the proportions and optimal combinations of the composition of the recipe [8;9].

Taking into account the above, we offer a technological scheme for the production of fruit and vegetable pastilles with high biological value. Ready-made products are aimed at ensuring the lack of vitamins, minerals and other necessary macro- and micronutrients in the human body [10].

Scheme 1. Technological scheme of pastille preparation technology.



Samples of fresh and dried local plant raw materials: apples, plums and apricots, beets, grapes, quinces, carrots, beets, as well as medicinal plants were selected as objects of the study. In this scientific research work, we have modeled and developed recipes of new types of pastilles with specific chemical composition and functional orientation. The recipe includes freshly picked and dried fruits, as well as local medicinal plants. Such dessert products are mainly products consisting of 60 to 80% fruit mass. Low-waste innovative technologies for obtaining new types of fruit lozenges using effective technological methods that reduce the loss of biologically active substances in the finished product have been developed [11;12].

Table 1. Fruit pastille recipe

N	FRUIT PASTILLE KOMPONENTS	QUANTITY
1	PLUM PUREE OR PLUM PEEL	**20**
2	APPLE PUREE	**60**
3	PATOKA	**10**
4	PLANT SUPPLEMENT	**4,5**
5	AGAR AGAR	**5,5**

According to organoleptic parameters, lozenges should meet the requirements listed in Table 2 [13].

Table 2. Organoleptic parameters of fruit pastille prepared in laboratory conditions.

Name of indicators	Comment
Taste and smell	It is characteristic of the main and additional raw materials used, with a moderate level of sweetness, without extraneous flavors. The smell is characteristic of raw materials. Foreign taste and no smell is allowed
Colour	Characteristic of the color of the raw material used. Dark or light bright color is allowed
Consistency	The particles of crushed fruit and additional components are in a dense state, and easy disintegration is allowed. It is slightly soft when crushed will be
Appearance	Rectangular or round, smooth surface, uniform thickness, intact edges unbroken, retains its shape during packaging and transportation

Results. In order to study the microbiological indicators of pastilles, test samples were prepared in laboratory conditions. In order to determine the shelf life of these samples, sanitary and microbiological analysis was carried out.

Determining the shelf life of food products involves experimental testing of the process of deterioration of the food product, which ends with the determination of the time at which it reaches the end of its shelf life [14;15]. The basis of the process of justifying the shelf life of food products is to evaluate the organoleptic characteristics of the product samples during storage at the temperatures specified in the normative or technical documents, and conduct microbiological, sanitary-chemical studies. Microbiological analysis of raw materials and finished products used in the complete sanitary-epidemiological assessment of pasta was carried out for all controlled groups of microorganisms. During the storage of pastilles, microbiological studies were conducted on the following and the amount of QMAFAnM and yeast (zamburu) in the finished product was determined. In order to determine the shelf life of lozenges, the dynamics of microbiological indicators were observed for 210 days, and the shelf life was set at 180

days. At the same time, the optimal conditions for its storage Pastila confectionery met the requirements of GOST 6441-2014 and the storage temperature was (18 ± 3) ° C and relative humidity (not more than 75%). The obtained results are presented in Table 3.

Table 3. Microbiological indicators of the finished product.

INDICATORS	RUIT PASTILLE	Permissible limit according to SanQvaM 6441-2014, from mg/kg not much
BGKP (100 g -da)	NOT AVAILABLE	It is not allowed
Pathogens include salmonella	NOT AVAILABLE	It is not allowed
BGKP in 100 g of product (in 100 g)		
Yeasts not more than KOE/g	NOT AVAILABLE	100
Fungi more than KOE/g	NOT AVAILABLE	100

Opinions. Fruit lozenges prepared in laboratory conditions based on the technological scheme of fruit lozenge production given above were evaluated as meeting the requirements of SanQvaM. Also, the product was stored for 210 days, every 30 days samples were taken from the stored fruit lozenges and their microbiological parameters were checked, and no development of microorganisms and spoilage were observed in the product for 180 days.

Summary. Thus, the situation in the world confectionery market shows a stable trend to increase the volume of production, expand the range of products, improve the quality of raw materials, reduce their cost, and increase the consumption of confectionery products.

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