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**CHANGING DYNAMICS OF TOTAL SUGAR CONTENT IN FROZEN CHERRY
FRUIT JUICE**

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Annattocia: in this article, the juice of the cherry "Lyubskaya 15", variety contains reducing sugars 8.6%, sucrose 2.6%, total sugar content 11.2%, "Podbelskaya" fruit juice contains reducing sugars 7.9%, sucrose 2.2%, total sugar content 10.1%, "Samarkandskaya" fruit juice contains reducing sugars 7.2% sucrose 2.4%, total sugar content 9.6%, "Shpanka chernaya" fruit juice contains reducing sugars 8.9%, sucrose 2.9%, total sugar content 11.8%.

Key words: cherry, fruit, freezing, storage, temperature, polyethylene bag, monosaccharide, disaccharide, ascorbic acid,

Introduction

In recent years, certain results have been achieved in the modernization of food industry enterprises, expansion of the types and volume of competitive products, and development of promising and effective freezing technologies for preserving cherry fruits, which are important sources of biologically active substances produced in Uzbekistan. The development strategy of the new Uzbekistan sets important tasks for "deepening structural changes and consistently developing the potential for processing agricultural products, further strengthening the country's food security, expanding the production of environmentally friendly, high-quality products, and significantly increasing the export potential of the agricultural sector."

The purpose of the study is to analyze the dynamics of freezing storage of cherry fruits and changes in the amount of organic matter in the preserved fruit.

Experimental results: during our research, the dry matter, sugar, acidity, and pH indicators of the fruits of cherry varieties were analyzed. As is known, the main energy value of cherry fruits is provided by carbohydrates in the fruit. Carbohydrates have a significant impact on the taste and nutritional value of cherry fruits.

In our experiments, the dry matter content and sugar content of the fruits of the cherry varieties studied were determined in laboratory conditions. During the experiments, a total of 160 cherry fruits of various sizes and shapes, 40 of each cherry variety, were selected as samples.

Determining the dry matter content of the cherry fruits selected for the sample is of great importance in determining the shelf life of cherry fruits and in the food industry. One of the fastest and most convenient methods for determining the dry matter content of fruits is determination using a refractometer.



As is known, the refractometry method is based on measuring the refractive index of the juice squeezed from the fruit, which allows you to determine the amount of dissolved substances in the juice. Therefore, we determined the amount of dry matter in the juice extracted from the fruits of cherry varieties in laboratory conditions.

The refractometry method is one of the optical methods, in which the ability of the juice solution extracted from the fruit is measured. In this case, when the light passes from one medium to another, its direction changes.

This phenomenon is called the refraction of light, and the refractive index changes depending on the concentration of dissolved substances in the juice solution. It was determined in our experiments that depending on the amount of dissolved substances in the cherry juice, the refraction of light is greater or, accordingly, smaller.

The main dissolved substances in cherry fruit juices are sugars. Therefore, the indicator measured in a refractometer is often expressed in Brix units. The sample preparation process is very important for obtaining accurate and reliable results in determining the amount of dry matter, and in our experiments, we paid attention to the degree of ripeness of all samples taken, namely the cherry fruits, in order to achieve accurate results.

The following technological processes were carried out during the preparation of the samples. Initially, the cherry fruits were selected, washed, pitted, crushed and juiced.

The cherry fruits selected for the experiment were 40 pieces of each variety, a total of 160 cherry fruits of various sizes and shapes, washed in clean water and cleaned of external impurities. After washing and cleaning the fruits, they were separated from the pits and crushed. The crushed cherry fruit mass was squeezed through gauze or a press to extract the juice. (See Figure 3.2).



a)

б)

в)

Figure 3.2 a) Sorting cherry fruits, b) Extracting juice by squeezing the fruits, c) Determining the amount of dry matter in the juice using a refractometer.



The refractometer is mainly composed of the following parts: a prism, a light source, a scale, an eyepiece, and a cover. To check the accuracy of the instrument, a drop of distilled water was dropped onto the prism and checked. After the refractometer scale shows 0 Brix, the experiment is carried out systematically.

In this case, the prism is the main part of the instrument, and a drop of cherry juice taken for the experiment is dripped into it using a pipette, then the prism cover is closed, and the juice is expected to spread evenly along the surface of the prism. After that, it was observed that the light passed through the prism, refracted, and formed an indicator on the scale. The result of the amount of dissolved substances in the juice, that is, the amount of dry matter, is reflected on the scale through the refractometer eyepiece.

When viewed through the refractometer eyepiece, the boundary between light and dark areas is visible on the scale. This boundary indicates a certain value on the Brix scale. A specific value indicated on the scale indicated the amount of dissolved solids in the sample. Using this refractometer, the amount of dry matter in the juice squeezed from the fruits of cherry varieties was determined and analyzed between varieties (see Table 3.2).

Table 3.2.

Analysis of dry matter, sugar content and acidity indicators in the fruit of cherry varieties 2023-2025

The name of cherry varieties	The amount of dry matter in the fruit, %	Sugar content, %	acidity indicator, %	pH
Lyubskaya 15,	17,8	11,2	1,2	3,2
"Podbelskaya"	16,9	10,1	1,3	3,4
"Samarkandskaya"	15,3	9,6	1,5	3,5
"Shpanka chernaya"	18,2	11,8	1.1	3,1
EKF ₀₅				
Sx=				

As noted in the table, the dry matter content of cherry varieties varies among cherry varieties, with 17.8% in the juice of the "Lyubskaya 15" variety, 16.9% in the juice of the "Podbelskaya" variety, 15.3% in the juice of the "Samarkandskaya" variety, and 18.2% in the juice of the "Shpanka Chernaya" variety.

In our experiments, the sugar content of the juice of the cherry varieties was also analyzed. The following method was used in laboratory conditions to determine the sugar content of cherry juice. The titrimetric method allows you to determine the total soluble substances and reducing sugars in cherry juice. In order to conduct experiments and obtain accurate results from them, it is necessary to first prepare samples for laboratory analysis.

In laboratory conditions, the preparation of cherry fruit samples for analysis is carried out in several stages. The technological process of extracting juice from cherry fruits was carried out in



accordance with the above experiments, the obtained juice samples were filtered and placed in clean flasks.

The total sugar content in cherry fruit juice was determined by the following formula:

$$Q=R+SQ = R + SQ=R+S$$

In this formula:

Q – total sugar content (%)

R – reducing sugars (%)

S – sucrose content (%)

The total sugar content in cherry fruit juice was as follows, and it was observed that the sugar content in cherry fruit juice, which is the sum of reducing sugars and sucrose, varied among cherry varieties.

Conclusion: As a result of the laboratory experiments conducted, it was determined that the sugar content in cherry fruit juice varied among varieties. It should be noted that some cherry varieties had a high sugar content, which determined their taste and other quality indicators. As a result of laboratory experiments, it was found that the methods for determining the amount of sugar in cherry fruit juice are effective. It should be said that there are significant differences in the amount of sugar in the juice of cherry varieties.

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