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FACTORS AFFECTING THE QUALITY OF THE FINISHED PRODUCT IN DRYING APPLES

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Abstract. This article describes the results of research on drying different varieties of apples. Experiments were carried out to study the criteria of indicators important for evaluating the organoleptic properties of apple fruit after drying. As a result of the research, scientifically based conclusions are made.

Keywords. Apple, temperature, regime, dry matter, sensory assessment, drying method, quality

Кириш. Apple is the most cultivated fruit in the world. It has more than 7500 species. Sources say that the original homeland of apples is Central Asia, and there are about seven thousand species in the world. Apple is the most common and widely consumed fruit in Uzbekistan. Apples are mainly eaten raw. Apples are mostly eaten wet. According to the recommendations of the World Health Organization, it is necessary to eat 700-800 grams of various vegetables and fruits per day. Apple is the most common and widely consumed fruit in Uzbekistan. Apples are mainly eaten raw. Apples are mostly eaten wet. According to the recommendations of the World Health Organization, it is necessary to eat 700-800 grams of various vegetables and fruits per day.

The purpose and specific issues of the research. The criteria of indicators important for evaluating the organoleptic properties of apple fruit after drying were studied. The purpose of this is to research the criteria for determining the organoleptic properties of dried apple fruits.

Material and methods. Research was conducted on the following varieties of apples: Golden Delishes, Jonathan, Kamola, Starkrimson, Pervenets Samarkanda, Renet Simerenko, Rozmarin Belyy, Feruza.

According to the method of conducting research:

1. Establishing the pre-treatment method before drying apples;
2. Determination of the most suitable for drying according to varieties;
3. Analysis of the level of importance of indicators representing the organoleptic properties of dried apples.

RESEARCH RESULT AND DISCUSSION

The study of the organoleptic properties of the fruits of the researched apple varieties was carried out based on the following indicators: appearance, color, taste, aroma and consistency of the flesh. The evaluated indicators were formed in accordance with the specific characteristics of the research object and consumer demand. These indicators are widely used in organoleptic assessment of dried fruit and vegetable products.

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Scale of organoleptic indicators for sensory analysis of dried apples

№	Quality index of apples	Significance coefficient	Ball	Description of scoring
1.	Appearance	3,0	5	The pieces are whole
			4	The pieces are whole, but there are also a small number of broken ones
			3	Lots of broken pieces
			2	Crushed
2.	Color	3,0	5	Yellow, bright
			4	Pale yellow, dense
			3	Green and pale yellow
			2	Brown and mixed
3.	The taste	6,0	5	It tastes very sweet and pleasant
			4	Sweet
			3	It has little sweetness
			2	Not sweet, unpleasant taste
4.	Fragrance	4,0	5	Pleasant, bright, apple-like
			4	Nice
			3	Less noticeable
			2	unknown, unpleasant smell
5.	The consistency of the meat	4,0	5	dry, elastic
			4	dry, low elasticity
			3	dry, not elastic, but сиқилганда бир-бирига ёпишқоқ
			2	hard and stuck together

In order to ensure the difference levels of the score scales, we have developed indicators that allow to accurately determine the evaluation level of each score based on the characteristics of the fruit. When summarizing the opinion of experts on each indicator, it is purposefully evaluated at 4 levels, taking into account the coefficient of importance for individual indicators. Here, the importance of each indicator was taken into account. For example, for dried apples, the highest coefficient of taste is 6, and the appearance is 3. It follows that the taste of the product is twice as important as its appearance.

At the end of the evaluation process, the tasting sheets filled in by the expert commission consisting of 7 people were summarized.

Experiments were carried out on artificially dried fruits in a drying cabinet. Experiments were conducted at different temperatures. The optimal temperature for drying apples is 65-70°C, and the process lasted 6-8 hours. Thus, we have developed a 100-point scale for organoleptic determination of the quality indicators of apple fruits belonging to the experimental varieties. In this case, an

assessment of the quality level based on the Importance coefficient is provided (see Table 1).

Table 2

Organoleptic properties of apples when dried in different ways (2020-2022)

Drying method	Indicators					Overall grade, points
	Appearance	Color	Consistency	The taste	Fragrance	
	Significance coefficient					
	3	3	4	6	4	
Golden Delishes						
I	4,71±0,45	4,57±0,49	4,71 ±0,45	5,00±0,00	5,00±0,00	96,71
II	4,29±0,45	4,29±0,45	4,29±0,45	4,57±0,49	4,57±0,49	88,57
Jonathan						
I	4,43±0,49	4,43±0,49	4,86±0,35	4,86±0,35	4,86±0,35	94,57
II	4,14±0,35	4,14±0,35	4,43±0,49	4,43±0,49	4,29±0,45	86,29
Kamola						
I	4,29±0,45	4,43±0,49	4,29±0,45	4,14±0,35	4,14±0,35	84,71
II	4,00±0,00	4,00±0,00	4,00±0,00	3,71±0,45	3,71 ±0,45	77,14
Starkrimson						
I	4,29±0,45	4,14±0,35	4,14±0,35	4,57±0,49	4,57±0,49	87,57
II	4,14±0,35	4,14±0,35	4,00±0,00	4,00±0,00	3,86±0,35	80,29
Pervenets in Samarkand						
I	4,14±0,35	4,29±0,45	4,29±0,45	4,43±0,49	4,57±0,49	87,29
II	4,00±0,00	4,14±0,35	4,00±0,00	4,00±0,00	4,00±0,00	80,43
Renet Simerenko						
I	4,29±0,45	4,14±0,35	4,14±0,35	4,57±0,49	4,57±0,49	87,57
II	4,14±0,35	4,14±0,35	4,00±0,00	4,00±0,00	3,86±0,35	80,29
Rosemary bely						
I	4,14±0,35	4,57±0,49	4,57±0,49	4,57±0,49	4,7,1±0,45	90,71
II	4,00±0,00	4,00±0,00	4,14±0,35	4,14±0,35	4,29±0,45	82,57
Feruza						
I	3,86±0,35	3,86±0,35	3,57±0,49	3,43±0,49	3,71±0,45	72,86
II	3,00±0,00	2,50±0,00	2,00±0,00	2,00±0,00	2,00±0,00	44,50

*I - Peeled and seeded

II- Unpeeled

The data obtained from the organoleptic analysis were summarized and presented in Table 2.

In this experiment, the standard deviation for each indicator did not exceed 0.5 and ranged from 0.0 to 0.45. Therefore, the overall ratings were the same. The organoleptic value of the dried product with the skin removed and the seeds removed was higher than the product cut and dried without peeling the skin. This result was the same in all varieties tested.

When the quality of dried apple fruits was analyzed organoleptically, the quality indicators differed among the varieties. Golden Delishes, Jonathan and Rosemary Belly varieties have the highest score among the peeled and deseeded products, which were 97.71, 94, 57 and 90.71 points, respectively. The lowest indicator was observed in the Feruza variety and was 72.86 points. Also, it was 84.71 points in the Kamola variety, while it was in the range of 85-87 points in other varieties. In all varieties, among the parameters studied, the taste and aroma (aroma) indicators were rated the highest. Especially the Golden Delishes variety has the maximum score.

Golden Delishes and Jonathan varieties have the highest score among the products dried without peeling the skin and made 88.57 and 94.57 points, respectively. The lowest indicator was observed in the Feruza variety and was 44.50 points. It should be noted that this indicator means that the product is not suitable for consumption. It was 77.14 points in Kamola variety, while it was around 80 points in other varieties.

- In all varieties, among the parameters studied, the taste and aroma (aroma) indicators were rated the highest. Differences in indicators among varieties showed that not all varieties are suitable for drying.

- As a result of the organoleptic evaluation of dried apples, it can be concluded as follows:

- Drying the apple skin with the skin removed and the seeds removed ensures that its organoleptic properties are high.

- Among the varieties selected for research, Golden Delishes, Jonathan and Rosemary bely varieties are the most suitable for drying.

- The Feruza apple variety is not suitable for drying, and it is recommended to eat it mostly fresh.

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