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TECHNOLOGICAL CHARACTERISTICS OF GRAPE VARIETIES SUITABLE FOR DRYING

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Abstract. This article describes the results of research on the agrobiological characteristics of kishmishbop grape varieties suitable for drying. In this, the main indicators of the kishmishbop grape varieties selected for the experiments were analyzed. As a result of the research, scientifically based conclusions were made.

Keywords. Grapes, raisins, productivity, quality, autumn and winter varieties, drying technology

Enter. Today, the volume of grape growing in the world is 72.7 million. tons. Turkey (353,167 thousand tons), USA (332,760 thousand tons), Iran (122,595 thousand tons), Greece (72,861 thousand tons), Chile (51,128 thousand tons), South Africa (37,049 thousand tons) countries are leading. Among the world's leading countries for growing grapes, Spain ranks first with 966,000 hectares, with a gross yield of 56.9 t/ha, followed by China with 855,000 hectares, a gross yield of 154 t/ha, Italy with 782,000 hectares, and a gross yield of 102 ,3 ts/ha., followed by Turkey with 436 thousand hectares, gross yield 96.3 ts/ha. and USA 408 thousand/ha., gross yield 163.7 tons/ha. It is stated that it will be organized. Today, scientific work is being carried out to further increase the efficiency of production of grape products, to improve the methods of processing raw materials, and to apply effective resource and energy-saving technologies to drying processes.

The purpose and specific issues of the research. It consists in developing a science-based technology for obtaining high-quality dried products by improving the drying process of seedless grape varieties grown in Andijan region.

Material and methods. Seedless grape varieties such as "Kishmish belyy", "Kishmish Botir", "Kishmish rozovy", "Kishmish Sogdiana", "Kishmish chyornyy" were selected for research.

According to the method of conducting research:

Studies were conducted to determine the suitability level of seedless grapes grown in Andijan region for drying according to their technological and biochemical composition.

In this experiment, experiments were conducted to study the influence of the technological and biochemical composition of grapes on the drying process and quality. This process was carried out in artificial drying equipment. In this, research was conducted to obtain conclusions on picking grapes for drying at which level of ripeness.

RESEARCH RESULT AND DISCUSSION

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The research was conducted in the vineyards and grape drying area of Hawthorn Bogbon farm, Buloqbashi district, Andijan region, during 2020-2022. First, the technological characteristics of grapes intended for drying were analyzed (see Table 1).

Table 1

Technological indicators of grape varieties (2020-2022)

№	Varieties	Years	Dry matter content, %	Hardness	Nitrate content, %	Weight of one head of grapes, g	Grape seed weight, g
1	Kishmish Botir	2020	19,1	190	59,2	356	1,8
		2021	19,5	230	56,5	348	2,0
		2022	19,6	265	57,3	395	2,1
		average	19,4	228,3	57,7	366,3	2,0
2	Kishmish Rozovy	2020	19,5	203	59,4	400	1,5
		2021	19,6	220	57,8	395	1,7
		2022	19,1	248	57,3	405	1,8
		average	19,4	223,7	58,2	400,0	1,7
3	Kishmish chyornyy	2020	22	205	28,2	418	2,1
		2021	22,4	280	27,8	420	2,2
		2022	22,8	290	26,5	425	2,6
		average	22,4	258,3	27,5	421,0	2,3
4	Kishmish bely	2020	19,1	210	58,3	318	1,6
		2021	19,5	240	58,7	329	1,8
		2022	19,6	250	56,6	389	2,1
		average	19,4	233,3	57,9	345,3	1,8
5	Kishmish Sogdiana	2020	21	200	29,3	526	4,2
		2021	23	210	28,5	559	4,9
		2022	25	260	27,6	647	5,1
		average	23,0	223,3	28,5	577,3	4,7

In the analysis of technological indicators of grape varieties (Table 1), dry matter content, hardness, nitrate content, weight of one head of grape and weight of grape seed of grapes of Kishmishbop grapes Botir kishmish, Kishmish rozovyy, Kishmish chyornyy, Kishmish belyy and Kishmish Sogdiana were obtained in 2020-2022 were analyzed against the results.

According to the analysis, the amount of dry matter was determined in field conditions using a refractometer. Among the studied raisin varieties, Botir raisin, Kishmish rozovy, Kishmish belyi had a dry matter content of 19.1-19.6%, while the remaining Kishmish chyornyi and Kishmish Sogdiana naaves had 21-25% more dry matter than other varieties. In the analysis of the amount of dry matter, the amount of dry matter in the Kishmish rozyviy variety in 2020 was 19.5 percent, while in 2022, this indicator was slightly lower. It can be seen that the amount of dry matter in Batir kishmish and Kishmish bely varieties has increased over the years. As a result of drying Kishmish chyornyy and Kishmish Sogdiana varieties from Kishmishbop grapes, it was found that more finished products can be obtained compared to other varieties.

In order to determine the degree of hardness of Kishmishbop grape varieties, the degree of hardness of grapes was observed in the section of varieties during 2020-2022, using a 2.0 millimeter tip of the penetrometer. In 2020, when the researches were observed in Kishmishbop grape varieties, it was

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190 in Kishmish botir variety, 203 in Kishmish rozovy variety, 205 in Kishmish chyornyy, 210 in Kishmish belyy, 200 in Kishmish Sogdiana, and the highest solid level was determined in Kishmish belyy and Kishmish chyornyy varieties. According to the results of observations in 2021, the highest hardness Kishmish chyornyy (280), Kishmish belyy (240), Kishmish Botir (230) had hardness. In the analyzes of 2022, the largest raisin grape varieties Kishmish chyornyy (290), Kishmish Botir (265), Kishmish Sogdiana (260) were hard, and growth was observed in the raisin grape varieties Kishmish Botir and Kishmish chyornyy studied during the years 2020-2022.

In order to determine the content of nitrate in the studied kishmishbop grape varieties, the lowest nitrate content was 28.2-27.8-26.5 percent in the Kishmish chyornyy variety when it was determined with a nitrotomer when it was fully ripened. Similarly, in the Kishmish Sogdiana variety, it averaged 27.5-28.5 percent in 29.3-28.5-27.6 percent. Other Kishmish Botir, Kishmish rozyviy, and Kishmish bely varieties that were studied have a slightly higher nitrate content, i.e. 56.6-59.2% more.

At a time when food safety is a concern, it is important to study nitrate levels in products. Among the kishmishbop grape varieties that we studied, Kishmish chyornyy and Kishmish Sogdiana varieties meet the requirements of food safety and it has been proven that it is possible to obtain a quality product with a low nitrate content compared to other varieties. One of the measures to increase the quality of kishmish made from cultivated kishmishbop grape varieties and the output of finished products is the weight of one head of grapes, and when we analyzed the changed kishmishbop grape varieties in the period of 2020-2022, with a very small difference, the Kishmish chyornyy variety had 418-420-425 g and an average of 421 grams. if he did, Kishmish Sogdiana variety with a big difference, i.e. 526-559-647 grams. The average was 577.3 grams, and there was an increase over the years.

The researchers also measured other Kishmishbop grape varieties, and they found that Kishmish Batir had an average of 356-348-395 grams, 366.3 grams in Kishmish Rozovy, 400-395-405 grams, and Kishmish Belyy had 318-329 grams. -389 grams, the average was 345.9 grams.

Based on the results of observations, Kishmish chyornyy and Kishmish Sogdiana varieties with the highest quality yield and marketability were identified.

In the studied varieties of kishmishbop grapes with high weight, 1.8 grams were observed in Kishmish Bely, and 2.0 grams in Kishmish Batir. Kishmish rozovy averaged 1.7 grams, Kishmish chyornyy averaged 2.3 grams, and Kishmish Sogdiana averaged 4.7 grams. The highest grape grain was observed in the Kishmish Sogdiana variety, and high quality raisins were obtained. Studies on the mechanical composition of one head of grapes for seedless grape varieties intended for drying in 2020-2022. About the number of bunches of kishmishbop grape varieties, whole and damaged grains in bunches, percentage of bunches and bunches, mass studies were conducted (see Table 2).

According to him, the total number of grapes in the Kishmish Batir variety increased from 203-213-225 in 2020-2022, the average number of whole grapes was 193.3 (90.5%), and the number of damaged grapes was 20.3 (10.5%).) organized. In the same variety, the mass of the bunch of grapes was 366.3 pieces on average, the weight of one piece was 1.9 grams on average, the share of grape heads was 9.2 pieces on average, and it was 2.5% of the total share. In the Kishmish rozovy variety in the farm, the number of seeds was 204-216-210, the average number was 210, the number of whole grains was 184.7, and the average number of damaged ones was 25.3, and the percentage was 13.7. As a result, over the years, the mass of the grape cluster of this variety was 400 pieces on average,

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and the average weight of one piece was 2.2 g. The overall average of the share was 2.5 percent. Among the studied kishmishbop grape varieties, in the Kishmish chyornyy variety, in the period of 2020-2022, the total number of grape bunches was 256-262-269, and the total number of grapes was 253-257-261 in the period of years, and it was 257 on average, which is 97.9 percent did.

Table 2. Mechanical composition of one head of grapes for seedless grape varieties intended for drying (2020-2022)

№	**Varieties**	Years	Number of bunches of grapes, pcs					Grape head mass, g		Grape head band (greben)	
			Total, pcs	Whole		Damaged					
				Piece	%	Piece	%	Total	1 lump mass	Massa-si, g	share, %
1	Kishmish Botir	2020	203	187	92,1	16	8,56	356	1,9	9,00	2,53
		2021	213	192	90,1	21	10,94	348	1,8	9,10	2,61
		2022	225	201	89,3	24	11,94	395	2,0	9,40	2,38
		average	213,7	193,3	90,5	20,3	10,5	366,3	1,9	9,2	2,5
2	Kishmish Rozovy	2020	204	182	89,2	22	12,09	400	2,2	9,60	2,40
		2021	216	190	88,0	26	13,68	395	2,1	10,00	2,53
		2022	210	182	86,7	28	15,38	405	2,2	10,70	2,64
		Average	210,0	184,7	87,9	25,3	13,7	400,0	2,2	10,1	2,5
3	Kishmish chyornyy	2020	256	253	98,8	3	1,19	418	1,7	9,20	2,20
		2021	262	257	98,1	5	1,95	526	2,0	11,00	2,09
		2022	269	261	97,0	8	3,07	538	2,1	13,10	2,43
		average	262,3	257,0	97,9	5,3	2,1	494,0	1,9	11,1	2,2
4	Kishmish bely	2020	227	221	97,4	6	2,71	318	1,4	7,60	2,39
		2021	233	226	97,0	7	3,10	329	1,5	8,50	2,58
		2022	240	229	95,4	11	4,80	389	1,7	8,80	2,26
		average	233,3	225,3	96,6	8,0	3,5	345,3	1,5	8,3	2,4
5	Kishmish Sogdiana	2020	120	118	98,3	2	1,69	526	4,5	13,00	2,47
		2021	138	133	96,4	5	3,76	559	4,2	14,80	2,65
		2022	142	136	95,8	6	4,41	647	4,8	15,60	2,41
		average	133,3	129,0	96,8	4,3	3,3	577,3	4,5	14,5	2,5

The percentage of damaged grains is 2.1%, the number of grapes in the mass of a bunch of grapes has increased from 418-526-538, on average it is 494, and the average mass of one grain is 1.7-2.0-2.1 grams. , averaged 1.9 grams. If we pay attention to the percentage of the head of grapes, the mass increased by 9.2 grams in 2020, 11.0 grams in 2021, and 13.1 grams in 2022 with an average of 11.1 grams. Their share was 2.2 percent on average.

Continuing the mechanical structure of grape heads in the Kishmish Belyy variety, according to it, the total number of grape bunches was 227-233-240, or 233.3 on average. During the study of all the pieces, we observed that they were 221-226-229 pieces, which consisted of 225.2 pieces on average, which was 96.6 percent. The average number of damaged grains is 8, and the percentage is 3.5%.

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The number of grains in the mass of a bunch of grapes has increased from 318-329-389 to 345.3 on average, and the average mass of one grain is 1.4-1. It was 5-1.7 grams, with an average of 1.5 grams. If we pay attention to the percentage of the head of grapes, the mass increased by 7.6 grams in 2020, 8.5 grams in 2021, and 8.8 grams in 2022 with an average of 8.3 grams. Their share was 2.4 percent on average.

In the period of 2020-2022, the total number of grape bunches was 120-138-142 grapes of the Kishmish Sogdiana variety grown at the "Hawthorn gardener's fruit" farm. The whole grains were 118-133-136 grains, average 129 grains, which was 96.8 percent of the harvest, and the number of damaged grains was 3.3 percent. We continued our analysis with respect to the mass and number of bunches of grapes, according to which the mass of the bunch of grapes increased rapidly from the total number of 526-559-647 pieces, on average it was 577.3. The mass of one cluster was 4.5-4.2-4.8 grams, with an average of 4.5 grams. If we pay attention to the percentage of grape head band, it was observed that the mass will be 10.5 grams in 2020, 11.2 grams in 2021, and 11.5 grams in 2022, with an average of 11.1 grams. Their share was 1.9 percent on average.

As a result of the research and analysis of the technological characteristics of Kishmishbop grape varieties suitable for drying, it can be concluded as follows:

Kishmish chyornyy and Kishmish Sogdiana varieties were found to have the best yield and high marketability. In terms of the size of the cluster, the highest indicator was observed in the Kishmish Sogdiana variety, and it was noted that the mass of one cluster is up to 4.7 g.

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