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The Biochemical Properties of the Grape Bunches from Collection of Technical Sort Sample of Grapes

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Abstract: *This article summarizes the results of the study of biochemical parameters during the technical ripening process of grape bunches from collection of technical sort sample varieties. Investigations show that varieties belonging to the East group Bassar, VIR-1, Garmus, Krasnyanskiy, Lkeni black, Muscat Uzbek, From the Black Sea Group Aliy terskiy, Buera, Jananura, Mustaosa, Muskat vengerskiy, Tita kartalinskaya, Tavkveri, and belonging the western European group Verdelo, Gold risling, Dyurbe de marsel, Kosorotovsky, Muscat Jurassic, Muscat Hamburg, Muscat earl black, Morastel varieties are different with their high acidity and sugar content. These varieties are recommended as the most promising varieties for wine making.*

Key Words: *grape, bunch, technical varieties, collection, juice, sugar content, acidity.*

1. INTRODUCTION:

In recent years Uzbekistan has been paying particular attention to the development of wines and expanding the export of competitive wine brands. Therefore, the Decree "On Measures to Improve the Wine Industry and Alcohol Provision", adopted in the country, is an important legal basis of the reforms in this area [6].

It should be noted that the technical varieties of grapes, which provide exportable wine production, imported from abroad and are being produced. It has a number of negative consequences. Particularly, with imported seedlings can be brought very dangerous pests and disease-causing sources of external quarantine for our republic. In addition, it is necessary deep study of adaptation of new seedlings to the soil-climatic conditions of the country. In the collection of technical varieties of grapes in our country, there are samples that can completely compete with those varieties that are imported from abroad and need to be thoroughly studied. So, in experiments, about 100 varieties of this collection were studied and 57 of them were selected for further research.

2. MATERIALS AND METHODS:

In the selection of primary sources, 26 varieties of grape from eastern group, 13 from the Black Sea group and 20 varieties of western European clusters were studied [7]. Evaluation of the biochemical properties of the samples were revealed by the methods recommended by scientists such as A.G. Amirjanov and others [1, 2], M.A.Lazarevsky [4]. Mathematical-statistical analysis of experimental results were conducted by B.A. Dospekhov [3] recommendations.

3. RESULTS AND DISCUSSION:

It is known, the quality of wine and the efficiency of the wine industry are directly related to the mechanical composition and biochemical properties of the raw-grape harvest. According to some researchers, good knowledge of the biochemical properties of grape raw materials for wine determines the effectiveness of subsequent technological processes in wine making. The quality of the wine depends on the stability of grape juice, sugar, organic acids, phenol and dyestuffs and other organic compounds. [4].

In our experiments, the sugar content and the total acidity content of the grape bunch varied from the among sort groups to the following boundaries:

	sugar %	*acidity, g/l*
East group	21.4-26.2	5.0-7.6
Black Sea Group	21.0-25.1	6.0-8.8
Western European Group	20.8-26.0	5.8-7.0

As can be seen, the variation in the amount of sugar and acid has been almost identical to all the groups. The only acidity of the Black Sea group of varieties was a little higher than others.

The following varieties are distinguished by the high sugar content (24-26%).

From the East group*:* Vishneviy VIR, Muskat Denauskiy, Muskat Susanna, Muskat Vostochniy, Muscat white, Muskat desert and Surkhak Khrozmani;

From the Black Sea Group: Gimrinskiy, Djananura, Shiroko Melnishka;
From the Western European group: Verdeja, Donzelino and Dyurbe de Marseille.

As you can see, these conditions indicate the expediency of using these varieties for desert wines.

It is known that almost all the varieties of grapes can be used for wine making. High acidity and at the same time its stability is the most important technological measure of wine making. Studied collection varieties of grapes till the end of August - mid September gathered 18-23% sugar in clusters. During this period, the total acidity of the bunches is much higher and stable (7-12%). As can be seen, most of the varieties studied during this period can be used for the preparation of table wines.

Over time, there has been an increase in sugar levels and decrease of acidity in grape bunches. It is recommended to prepare desert wines from sorts of more than 24-25% of sugar content. In our experimental varieties, the following parameters were recorded (Table):

Table: Analysis of the biochemical composition of the grape samples of technical varieties, 2015-2018

№	Sort samples	The color of the bunch	Biochemical composition	
			Total sugar content, %	Titrable grape acidity, acid,%
East group				
1	Bayan shirey *St*	yellowish-green	21.4	7.6
2	Khindogny	dark purple	22.0	7.0
3	Bassar	dark pink	21.8	7.0
4	VIR-1	Black	23.8	6.6
5	Vishneviy VIRa	Black	24.8	6.4
6	Garmus	yellowish-green	23.6	6.5
7	Karmrashat	dark purple	23.6	6.4
8	Krasnyanskiy	dark purple	22.8	6.7
9	Kuljinka black	black	23.6	7.0
10	Lkeni black	black	23.0	6.8
11	Magarachsky	black	23.6	6.2
12	Muscat VIRa	dark red	23.3	6.0
13	Muskat Armenian	dark pink	23.0	6.4
14	Muscat Susanna	white	24.0	6.2
15	Muskat Denauskiy	yellowish-green	24.6	6.4
16	Muskat Vostochny	white	25.0	5.8
17	Muskat Beliy	white	24.6	6.2
18	Muskat Kibrayskiy	yellowish white	23.8	6.0
19	Muscat Uzbekskiy	white	23.2	6.5
20	Muskat Desertniy	white	26.2	5.4
21	Plechistic	dark blue	23.0	6.0
22	Rubinoviy	blueish black	23.8	5.8
23	Rodina	black	23.7	5.4
24	Record	black	23.9	5.6
25	Slava	black	23.6	5.8
26	Surxak Khrozmani	yellowish-green	24.0	5.2
Black Sea Group				
1	Rkatsiteli *St*	yellowish-green	22.6	7.0
2	Saperavi *St*	black	22.2	7.8
3	Scarlet ter	dark blue	22.8	7.3
4	Buera	yellowish-green	21.0	8.8
5	Gimrinskiy	yellowish-green	25.1	5.4
6	Jananura	black	24.8	8.0
7	Mustaosa	black	23.6	7.0
8	Muscat Vengerskiy	blackish green	22.3	7.1
9	Tita kartalinskaya	yellowish-green	23.6	7.1
10	Shiroka melnishka	black	24.0	6.0
11	Tavkveri	dark blue	22.6	7.2

Western European Group				
1	Burgundsky *St*	White	23.5	6.8
2	Kaberne fran *St*	black	22.0	5.8
3	Albile	White	20.8	6.3
4	Aspiran chyorny	black	24.0	5.9
5	Verdeya	White	26.0	5.9
6	Verdelo	White	22.9	6.8
7	Grand noir de la kalmet	black	23.8	6.1
8	Donzelino	White	22.3	6.2
9	Gold risling	White	24.6	7.0
10	Dyurbe de marsel	golden yellow	24.0	6.6
11	Cabernet sovinon	black	23.0	6.2
12	Kosorotovsky	whitish green	22.8	7.0
13	Muscat Jurassic	White	24.6	6.9
14	Muskat bifera	White	22.8	6.4
15	Muscat Gamburgskiy	purple	24.0	6.8
16	Muscat ottonel	smoky yellow	24.8	6.2
17	Muscat chyorniy ranniy	black	24.7	6.9
18	Morastel	yellowish green	22.3	6.8
19	Portugezer	dark blue	24.8	6.0
20	Ribe	dark pink violet	21.8	5.8

It should be noted that along with a large number of sugars, acidity ensures the highest quality wine production. In our experiment, such results in following sorts have been mentioned :

From the East group Bayan shirey, Khindogni, Bassar, Lkeni black and Krasnyanskiy;

From the Black Sea Group Rkatsiteli, Saperavi, Scarlet terskiy, Buera, Djananura, Mustaosa, Muskat vengerskiy, Tita kartalinskaya, Tavkveri;

From the western European team Verdelo, Gold risling, Dyurbe de Marsel, Kosorotovskiy, Muscat yursky, Muskat gamburgsky, Muskat chyorniy ranniy, Morastel varieties were found to be suitable for any table wine. In these varieties, was recorded acidity in the range of 6.8-8.0% titrable acidity (grape acids) and total sugar more than 21-22%.

4. CONCLUSION:

All grape varieties studied to its biochemical composition collection technical clusters of grapes suitable for the preparation of the table wine. Бироқ, юқори сифатли десерт шароблар тайёрлаш учун эса таркибидаги қанд ва умумий кислоталилиги юқори бўлган қуйидаги навлар тавсия этилади: ***for white wines:*** Bayan shirey, Rkatsiteli, Buera, Tita kartalinskaya, Verdelo Gold Risling, Dyurbe de Marsel, Kosorotovskiy, Muscat Jurski, Morastel ***for red wines:*** Khindogni, Bassar, Lkeni black, Krasnyanskiy, Saperavi, Scarlet ter, Djananura, Mustaosa, Muskat vengerskiy, Tavkveri, Muskat gamburgsky, Muscat earl black.

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