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PHYSICO-CHEMICAL PARAMETERS OF WINE MATERIALS FROM LOCAL GRAPE.

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Annotation: the article analyzes the biochemical composition of various grape varieties grown in the Bukhara region, determining the sugar content, acidity of grape varieties, ethyl alcohol in wine materials, volatile acids, SO_2. It has been analyzed that these physicochemical indicators meet the requirements of GOST.
Key words: grape varieties, Saperavi, Kaberne, Hindogni, Tavkveri, acidity, sugar content, ethyl alcohol, volatile acids, wine materials, wort, physico-chemical indicators, red wines, smell, taste, color.

Introduction. Grape varieties serve as a starting point for the production of any wine, and therefore, the type and individual character of each wine largely depends on them. The grape varieties used to make a particular wine determine the genetic structure of this wine and its reaction to all operations performed on it by the winemaker [1].

Sugars and soluble sugars form the energy value of grapes and the flavor composition of wines. Excess sugars reduce the quality of wine less than increased acidity [2]. At the same time, their mutual ratio (interaction effect) in grapes has a great influence on the wine tasting assessment [3].

Organic acids of grapes affect the taste, active acidity, enzymatic and microbiological processes during processing. One of the defining indicators of technological evaluation of grapes is its titrated acidity [4]

The amount and ratio of wine and apple acid determines the degree of cultivation of grapes and its primary functioning. Unripe grapes have a high content of malic acid, which creates a sour taste in the wine. During the ripening period of grapes, the amount of wine acid increases, and it gives the wine a soft taste [5]. The wine acid and its salts sink to the bottom of the capacities (container) during storage and cooling of the wine, and it is separated [6]. The active acidity of the wine varies from pH 3,6 to 4,2. Acidity, in combination with ethyl alcohol in wine, prevents it from spoiling under the influence of bacteria [7].

When the amount of volatile acids in the wine is higher, it has a bad effect on the quality of the wine [8]. He makes the wine taste pungent and makes it look like a mirrored wine. For this reason, the amount of volatile acidification in the wine is limited-if there is not enough acidity in the wine, the wine will remain tasteless[9].

Research part. The objects of research were wort and table wine materials from grapes of black-berry varieties Saperavi, Tavkveri, Hindogna, Cabernet grown in the Bukhara region.

In the course of the research, the physico-chemical parameters of grapes were determined using generally accepted methods, namely: soluble dry substances (CB), titrated acidity and the indicator of technical maturity (PTZ).

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To determine the physico-chemical parameters, wort samples of the studied grape varieties were selected. The accumulation of sugars occurred in different ways depending on the characteristics of the grape variety. The harvest of all the studied grape varieties had sufficient sugar content and acidity and was suitable for technical processing. The sugar content of red grape varieties varied between 19,5 (Tavkveri) - 22 g/100 cm^3 (Saperavi), and the titrated acidity was 4,2-4,6 g/dm^3. A greater amount of sugars accumulated in the wort of the red Saperavi grape variety - 22 g/100 cm^3 with a titrated acidity of 4,2 g/dm^3 (Table 1).

Table 1. Physico-chemical parameters of the wort of the studied grape varieties

Grape variety	Sugar content, g/100 cm^3	Titrated acidity, g/dm^3	pH
Hindogna	21,8	4,3	3,0
Cabernet	21	4,6	3,1
Saperavi	22	4,2	3,0
Tavkveri	19,5	4,4	3,2

The tasting score of red wine materials from the studied grape varieties in the study period was 8,2 points, with the exception of the Tavkveri sample. These wine materials have a thick and distinctive taste — notes of prunes, pomegranate, blackberries, cherries, and black currants are perceptibly caught in their flavor range. They are stringy, heavy, bright and fragrant. Light tones of oxidation were detected in the wine material from Tavkveri grapes, so its score was lower and amounted to 7,4 points. The red wine material from the Hindogna grape variety had consistently high organoleptic properties, had a rich dark ruby color. The aroma is complex and over the years of research, its tasting score was an average of 8,2 points.

Tasting evaluation of table wine materials. Currently, the quality of wines for compliance with standards is determined by several normalized physico-chemical indicators, including the volume fraction of ethyl alcohol, the mass concentration of sugars, titrated and volatile acids, the reduced extract, the content of citric acid and sulfur dioxide. All indicators of the studied table wine materials, dry as red, were within the limits required by GOST (Table 2).

Table 2. Physico-chemical parameters of table wine materials

The name of the rubber material	Volume fraction of ethyl alcohol, %	Mass concentration			
		Titrated acids, g/dm^3	Volatile Acids,g/dm^3	SO2, mg/dm^3	Reduced extract, g/dm^3
Hindogna	12	4,3	1,2	200	16,0
Cabernet	12	4,6	1,1	199,6	15,9
Saperavi	13	4,2	1,1	199,7	15,8
Tavkveri	11	4,4	1,0	199,2	15,8

The values of the volume fraction of ethyl alcohol in the studied wine materials ranged from 11 (Tavkveri) to 13% by volume (Saperavi), which indicates the high sugar content of

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the studied grape varieties. It should be noted that there is a wide range of values for the content of titrated acids - from 4,2 (Saperavi) to 4,6 g/dm^3 (Cabernet).

The titrated acidity in the range of 4,0±1,0 g/dm^3 and all types of wine materials did not exceed the permissible norms can be considered harmonious acidity for dry red wines (see Table 2).

The content of volatile acids, in response to acetic acid, did not exceed the permissible norms and ranged from 1,0 to 1,2 g/dm^3 (see Table 2). Also, the content of sulfur dioxide, which is the main antioxidant in wine, was within the normal range (see Table 2).

Conclusions

1. The harvest of all the studied grape varieties had sufficient sugar content and acidity and was suitable for technical processing not only for table wines, but also for special wines, in particular, dessert wines. According to the organoleptic properties, all the studied wine materials from grapes were of high quality, which was confirmed by their tasting assessment.
2. According to the studied physico-chemical parameters, all experimental wine materials met the requirements of GOST.
3. Wine material from Hindogna grapes accumulates a large amount of biologically active substances in its composition.

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