

USE OF MUSCATURI RKATSITELI IN WINEMAKING

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Abstract

Georgia has 525 autochthonous grape varieties, despite this, in the 20th century, the process of selection of Georgian grape varieties was actively going on, one of the results of which is Muskaturi Rkatsiteli.

Keywords: selection, breeding, Georgian grape variety, Muskaturi Rkatsiteli, enology

1. INTRODUCTION

There are more than 500 vine varieties in Georgia and according to Vavilov's theory [1], the South Caucasus, including Georgia, is considered the center of vine domestication.

The main Georgian grape varieties are obtained through public selection, because in ancient times people used both: seed sowing and vegetative propagation [2].

Fundamental studies and works in the field of selection in Georgia were created in 1946-1970 and today we have more than 30 selective Georgian varieties. The aim was to obtain resistant, high-yielding and aromatic varieties [3]. Muscat grapes are still widely used in different European countries to prepare mainly the fortified, dessert and sparkling wines. Muscat grape varieties are characterized by sweet, floral tones that are felt even in the grapes, they have high content of monoterpenoids (geraniol, linalool and neroli [4].

Muscat grapes also characterizes with high rates of both wine and table purposes since ancient times but their free terpenes in the environment are easily subjected to transformations [5].

At the end of the 20th century, V. Kantaria and N. Chakhnashvili bred a new variety “Muskaturi Rkatsiteli” for table and wine use through selection. According to the authors' data, the grapes of this variety are distinguished by their external beauty and normal sugar-acidity content and the wine produced from them is of high quality with a pronounced Muscat aroma.

2. MATERIALS AND METHODS

To perform the research-experimental part provided by the master's thesis plan, the following were used:

1. Normative technological schemes for the production of table wines, fortified wines, sparkling wines and wines intended for blends;

2. Physical-chemical analyzes of grapes and wine (method of determining sugar in grapes using refractometers and hydrometers; standard methods for determination of tartaric acid, volatile acidity, pH, residual/unfermented sugar in wine, total and free sulfur), extract and phenols;

3. Tasting method of organoleptic evaluation of wine.

The research has been carried out since 2017 in the 2 leading viticulture zones of Georgia: Kartli and Kakheti. Based on the fact that this grape variety is characterized by the content of free Terpenes, which determines the Muscat aroma, we wanted to prove the positive aspects of making Muscat varieties in the direction of dessert wine. At the beginning of the research, we had this as our focus, however, in some European countries, light, dry wines are made from Muscat varieties, which are mainly for summer and quick consumption.

Muskaturi Rkatsiteli, as well as Muscat of Alexandria, is characterized by a dense, fleshy pulp and a special aroma, this gave us the reason to try to make good quality light, aromatic dry wines as well which can be used as a base wine for sparkling wines. Another properties received from its parent Rkatsiteli, were a prerequisite for us to try a Georgian traditional method, full-bodied wine fermented on skin with long time maceration.

Due the experiments were made climatic-soil impact on wine, similar wines from Muskaturi Rkatsiteli parent couple: Muscat of Alexandria and Rkatsiteli for comparing and studying similarities and differences between them.

3. RESULTS

From the revealed results, it is worth noting, first of all, the fact that Muscat has heterogeneous bunches, parthenocarpic berries with an underdeveloped seeds, and in visually different bunches, Muscat aromas are also different. Based on the analysis of sugars, the Muscat tones are much more pronounced in the Muskaturi Rkatsiteli when the sugars range between 18-19%, and in the clusters with 19-21% sugar content, the Muscat aromas are reduced.

The consistency of measured sugars, tartaric acid and pH in grape sweet and wine allows us to determine the optimum ripeness limit of grapes (Figures 1-2).

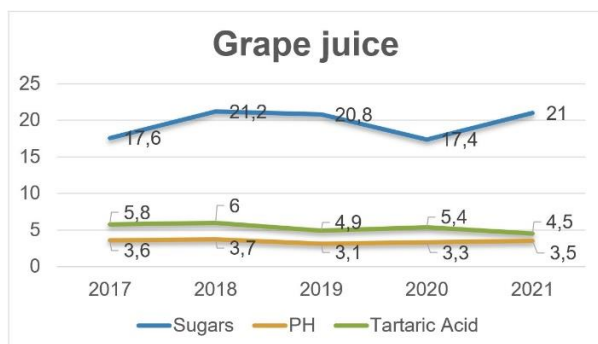


Figure 1. Table of the relationship of sugars, tartaric acid and pH to each other by years into the grape juice

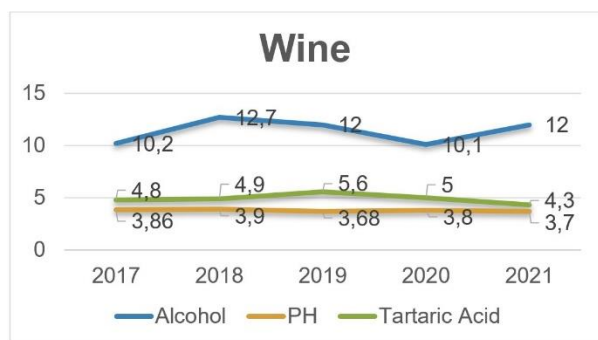


Figure 2. Table of the relationship of sugars, tartaric acid and pH to each other by years into the wine

As a result of the study, it was determined that the nutmeg is poor in phenolic compounds, which was probably due to the parthenocarpic seeds. A comparison was made between the wines made by the classical method and the wines made by long maceration with the skin. The wines were made under equal conditions, under one harvest year, from one location (Table 1).

Classic	10.0	19.01	210.5
Skin Contact	10.0	22.5	397.5
	Alcohol	Total Extract	Phenols

Table 1. Alcohol, total extract and phenolic compounds in mg/l of Muskaturi Rkatsiteli from 2017 vintage

At the final stage, an organoleptic study of the wines made under equal conditions was carried out to see the characteristic aromas and their changes over the years (Figure 3).

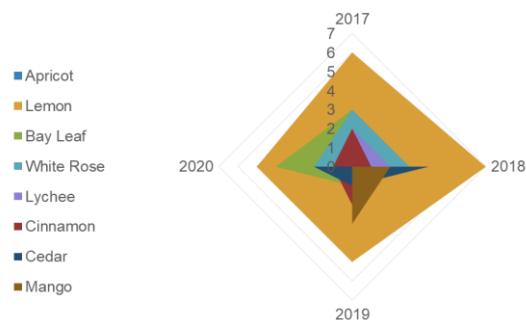


Figure 3. The influence of different indicators of grapes on the change of aromas under the conditions of 4 harvest years

4. CONCLUSIONS

Based on the available data, we can say that in addition to fortified wines that was already studied as good method get high-quality wines from muscat grapes, also good quality table wines can be made from Muskaturi Rkatsiteli. Wines made by the classical method are characterized by a thinner body and less complexity, however, wines aged on skin for a long time shows good aging potential and the wine is much more intense and complex.

It is also worth noting the fact that the wines made by long maceration on skin have the same characteristics as the classical wine, and the wines obtained by this method do not differ qualitatively from the wines made by the classical method, which also allows us to use it in sparkling wines.

5. ACKNOWLEDGMENTS

The author would like to thank Ms. Olan for her contribution to the research, as well as the Caucasus International University for providing the microvinification base, the Irma Chanturia laboratory for chemical analysis, and the Jighaura Scientific Research Center for grape samples.

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