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RESEARCH INTO THE BEHAVIOR OF FRENCH CLONES USED UNDER THE SIMBURESTI VINEYARD

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Abstract

*The study was efectued in the Sâmbureşti vineyard, at S.C. Viti-Pomicola Sâmbureşti S.A. "Valvis Domains" and followed the behavior of vine clones brought from France, varieties recommended in the the CATALOGUE OF VINE VARIETIES ANS CLONES GROWN in FRANCE 2006 a *French Wine and Vine Institute Domaine de l'Espiquette from "Pépinières Duvigneau et Fils". In the study were Sauvignon varieties, clones 159/SO4, 108/SO4, 530/SO4, Cabernet Sauvignon variety, clones 685/SO4, 160/SO4, 341/SO4, Merlot clones 181/SO4, 343/SO4, 1058/SO4. These clones can be used in national and international genetic breeding programs. These clones can modernize and fundamentally develop viticulture in the vineyard and implicitly in Romania, offering prosperity on the human food market.*

Key words*: vineyard, climate, variety, clones, wine.*

INTRODUCTION

On the land of Olt the vine culture is so old that it is lost in the old days' black. The Sâmbureşti vineyard is located in the north of Olt county, on the left side of the river with the same name, about 60 km from the county municipality of Slatina and 25 km N-V from Drăgăşani. The territory is at the intersection of parallel 44° 48' with the meridian of 24° 24', which shows a position of the most favorable for the vine culture. Located in the transition area between the Getic hills and the long hills, which Carpathians, in relation to large relief units, the vineyard make up half of the Piedmont formed by the first part of the Quaternary, south of the Southern falls in the Getic Plateau more precisely in the Cotmeana Piedmont, located between the valleys of Olt to the west and Argeş to the east (Măcău I., 1994).

MATERIALS AND METHODS

In the study were Sauvignon varieties, clones 159/SO4, 108/SO4, 530/SO4, Cabernet Sauvignon variety, clones 685/ SO4, 160/SO4, 341/SO4, Merlot clones 181/ SO4, 343/SO4, 1058/SO4. The production and number of grapes on hub, the average weight of a grape and the average weight of 100 berries were determined. Analyzes were performed on grape harvesting by the Carl Zeiss hand refractometer method on sugar and by the titrimetric method on acidity (H_2SO_4), and on wine the following analyzes were performed: acquired alcohol, total and volatile acidity(Gheorghiţă M. et al., 2016).

SC Viti-Pomicola Sâmbureşti SA, and the technological study were carried out in the laboratory of the Research and Development Station for Viticulture and Vinification Drăgăşani, between the years 2013-2016. (Popa A, 2008).

RESULTS AND DISCUSSIONS

The climate of the Sâmburesti vineyard is favorable for the cultivation of vines, registering the following climatic data, between the years 2013-2016.

The average annual temperatures were normal for the studied period, with an average annual temperature in 2013 of 12.1°C, 11.7°C in 2014, 12.7°C in 2015 and 12.4°C in 2016.

The precipitations were good from a viticultural point of view during the 4 years analyzed, in the conditions in which in a year it must be 500-800 l/mp. Large amounts of

precipitation were recorded in 2014, namely 1156.9 l/mp, in 2013 we have 735.2 l/mp, 705.1 l/mp in 2015 and 683.7 l/mp in 2016.

The geographical amplitude has the average value of 4760 compared to the normal minimum of 4600 required to obtain quality red wines (Măcău I., Condei Ghe., 2010).

Soil types-the Sâmburești vineyard has a great variety of soils, but the dominant ones are the weakly podzolite brown soils and the skeletal regosols.

In general, they are clay soils, with a high clay content, in the horizons AB and Bt_1, medium supplied with humus, nitrogen phosphorus and well supplied with potassium.

They are ferruginous soils, with high Fe_2O_3 content, ranging from 7 to 30 p.p.m. in Bt_3.

They are acidic or moderately acidic soils, with a pH value between 6.20 and 6.50 and decreasing in depth.

On regosol type soils located on the ridge of hills (Bolindețu) at a depth of 90-100 cm, the existence of $CaCO_3$ in the amount of 13.40-33.6% was found.

The acidity of the soils increases the durability of the color of quality red wines, and the CO_3Ca content ensures the specific softness of red wines, competing with French wines from the Bordeaux region (Măcău, 2006).

The French catalog for the Sauvignon, Chardonnay, Cabernet Sauvignon, Merlot, Pinot Noir varieties presents, at 117 clones, the qualitative and quantitative parameters of grape and wine production made in France. Of these, 24 clones representing 20%, achieved very high productions, 75 clones representing 65%, achieved high productions and 18 clones representing 15%, achieved quality records.

The S.C. Viti-Pomicola Sâmbureşti S.A. "Valvis domains" were planted in Câmpu - Mare and Bolindeţu 35 clones (29 clones belonging to the French catalog and 6 new clones Cabernet Sauvignon 160, 214, 327 and Merlot 169, 338, 1058 also of French origin).

At Sauvignon - Câmpu - Mare, 4 clones are planted in 5 biosystems. At Chardonnay - Câmpu - Mare, 4 clones are planted in 6 biosystems.

At Cabernet Sauvignon - Sâmburești, 14 clones are planted in 22 biosystems.

At Merlot - Sâmburești, 10 clones are planted in 17 biosystems.

At Pinot Noir- Sâmburești, 3 clones are planted in 3 biosystems.The total number of biosystems is 53.At Sauvignon Câmpu - Mare are planted 3 quantity clones and one quality clone.

At Chardonnay Câmpu - Mare are planted 3 quantity clones and one quality clone. At Cabernet Sauvignon - Sâmburești, 10 quantity clones and 4 quality clones were planted.

At Merlot - Sâmburești are planted 9 quantity clones and one quality clone.

At Pinot Noir - Sâmburești are planted 2 quantity clones and one quality clone Of the 35 clones planted in total, only 8 clones are of quality, representing about 23% (Măcău I. and Gorjan S.Ş., 2016).

Sauvignon varieties, clones 159/SO4, 108/ SO4, 530/SO4; Cabernet Sauvignon variety 685/SO4, 160/SO4, 341/SO4; Merlot clones 181/SO4, 343/SO4, 1058/SO4 were studied, they are very suitable for the eco-pedological conditions of the vineyard,

both quantitatively and qualitatively, offering quality grapes for obtaining wines, high quality white and red. It is observed that these clones are of some value in obtaining high quality white and red wines. The alcohol content obtained from Sauvignon clones is between 12.9 and 13.24

vol%,with a very good alcohol concentration in obtaining DOC and IG type wines.

For red wines we have an alcohol concentration of 12.58-13.02 vol%, for Cabernet Sauvignon clones and 12.02-12.80 vol % for Merlot clones. Therefore, the red wines of the studied clones have a typical alcoholic concentration in obtaining dry and semi-dry wines. The total acidity of these clones is between 3.87-4.60 g/l (H_2SO_4)

In Tables 1 and 2 we present the analyzes for these clones brought from France.

Table 1. Field delimitations of intraclonal selection

Variety	Clone type	Grapes production kg/hub (average)	Number of grapes/ hub (average)	The average weight of a grape (g) (average)	Average weight a 100 grains (gr) (average)
Sauvignon	159/SO_4	0.800	10	80	110
	108/SO_4	0.884	11	80.4	108
	530/SO_4	0.906	11.3	80.2	109
Cabernet Sauvignon	685/SO_4	1.032	13	79.4	98.2
	160/SO_4	1.121	14	80.1	97.8
	341/SO_4	1.037	13	79.8	98.1
Merlot	181/SO_4	1.471	14	108	114
	343/SO_4	1.325	12	115	113.4
	1058/SO_4	1.480	13	113	113.7

Table 2. Physico-chemical analyzes at grape harvesting and wine

Laboratory analyzes	Sauvignon			Cabernet Sauvignon			Merlot		
	159/SO_4	108/SO_4	530/SO_4	685/SO_4	160/SO_4	341/SO_4	181/SO_4	343/SO_4	1058/SO_4
Grapes:									
Sugar (g/l)	232.2	221.3	228.8	225.6	226.6	224.5	220.3	221.2	219.2
Acidity (g/l)	3.07	3.05	3.08	3.26	3.16	3.20	5.20	5.30	5.25
Wines:									
Alcohol, vol %	13.02	12.90	13.24	12.58	13.02	12.74	12.02	12.30	12.80
Total acidity g/l (H_2SO_4)	3.87	4.01	4.08	4.40	4.55	4.60	4.20	4.30	4.27
Volatile acidity g/l (H_2SO_4)	0.32	0.30	0.34	0.32	0.35	0.38	0.30	0.42	0.38

CONCLUSIONS

The clones of the planted varieties have in their structure high quality traits in a percentage of over 23% (according to the French catalog of observations).

They will contribute decisively to increasing the proportion of high quality wines, provided that a modern viticultural agrotechnics is applied (compliance with production load, phytosanitary treatments at warning, fertilization based on soil analysis, harvesting at CMD and quality stages: CSB, CT .

High quality white and red wines can be obtained from these clones in order to obtain DOC and IG type wines.

These clones can be used in national and international genetic breeding programs.

These clones can modernize and fundamentally develop viticulture in the vineyard and implicitly in Romania, offering prosperity on the human food market.

During this period, high quality white and red wines were obtained from these varieties, offering freshness to the Sâmbureşti domains.

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