

# STUDIES ON THE COMPOSITIONAL PROFILE OF WINES OBTAINED FROM ȘARBĂ GRAPES

## STUDII ASUPRA PROFILULUI COMPOZIȚIONAL AL VINURILOR DIN SOIUL ȘARBĂ

COLIBABA Cintia<sup>1</sup>, COTEA V. V.<sup>1</sup>, ROTARU Liliana<sup>1</sup>, NICULAU M.<sup>2</sup>,  
NECHITA C.B.<sup>1</sup>, ZAMFIR C.I.<sup>3</sup>, LUCHIAN Camelia<sup>1</sup>  
e-mail: cintia\_colibaba@yahoo.co.uk

**Abstract.** Wines obtained from Șarbă grapes have become more and more interesting for Romanian wine drinkers who prefer whites with semiaromatic profile. The present study underlines the physical-chemical parameters of Șarbă wines obtained from grapes harvested in two Moldavian vineyards: Iași and Cotești. The grapes were processed according to the same technological scheme, that of the Oenology laboratory within the UASVM Iași, specific for aromatic wines. The 2013 grapes were macerated for 24 hours at 15 °C and then pressed. The free fall must and the press must were fermented separately. In the end, four wine samples were obtained, two from each vineyard. After 6 months, the samples were analysed from a physical-chemical point of view, according to OIV standards. The obtained analyses accentuate the importance of the climatic conditions on the compositional profile of wines.

**Key words:** Șarbă, Cotești, Iași, compositional parameters

**Rezumat.** Vinul obținut din soiul Șarbă este din ce în ce mai apreciat de către consumatorii de vinuri ale semi-aromate. Studiul de față se bazează pe compararea parametrilor fizico-chimici ale vinurilor obținute din soiul Șarbă, cu struguri recoltați din podgoria Cotești și Iași, vinificați însă prin același procedeu tehnologic, specific Laboratorului de Ţenologie din cadrul USAMV Iași. În cursul anului 2013, strugurii au fost prelucrați folosind procedee din tehnologia vinurilor aromate. După o macerare de 24 ore la o temperatură de 15 °C, mustuala a fost presată. Mustul ravac și mustul de presă au fost vinificate separat. În final au fost obținute patru probe, două din fiecare podgorie. După 6 luni, variantele au fost analizate din punct de vedere fizico-chimic, conform cu specificațiile OIV. Analizele reliefează importanța condițiilor climatice asupra profilului compozițional al vinurilor.

**Cuvinte cheie :** Șarbă, Cotești, Iași, parametrii de compoziție

## INTRODUCTION

Șarba grape variety was considered a semi-aromatic variety, presenting, right after homologation, an intense aroma suggesting roses jam. In time, the aroma losses its power, without any scientific explanations. The cause could either be genetic, pedological-climatic, agro-technical or because of to the wine-

---

<sup>1</sup> University of Agricultural Sciences and Veterinary Medicine of Iași, Romania

<sup>2</sup> Oenological Research Center, Iași Branch of the Romanian Academy, Iași, Romania

<sup>3</sup> Research and Development Station for Viticulture and Winemaking Iași, Romania

making technology. Some wines present a high level of aroma, similar in intensity to that of the homologation variety, some have a very low level of aroma.

In the Romanian Official Catalogue for cultivating plants, in 2012, only one clone is registered, as Șarbă 3 Od.

This grape variety was homologated in 1972, named probably after the Șarbă Hill, the highest spot in the area, with a spectacular view of the Milcov river and the valley below.

The grape variety could initially be met only on Șarbă Hill, but soon after, it became popular in southern Moldavian vineyards, especially in Vrancea county, due to the Romanian reconversion program. Taking into the account the problem arising from the decrease in aroma, the surfaces planted with Șarbo grape variety will probably be diminished (Cotea V.D. et al. 2000).

The aromatic complexity of Șarbă wines is genetically transmitted from Tămâioasă, finely meshed together with the herbal, slightly citric hues of Riesling. Without question, Șarbă wine has its own merits. It is not a sophisticated wine, it does not have the body of a Chardonnay or the freshness of a Sauvignon. It does, however, have its advantages, or better said, its peculiarities. It is a light, semi-aromatic wine, usually demi dry, even if, in some parts, it tends to get demi-sweet. Sensorially, it reminds the wine taster of a cherry orchard in bloom and ripe peach (<http://www.cramagirboiu.ro/gama-livia-sarba.php>).

## MATERIAL AND METHOD

Romanian grape variety Șarbă from Iasi and Cotești vineyard have been used. Șarbă is a grape variety obtained by crossing Tămâioasă românească and Riesling Italian. It has been created by Gheorghe Popescu, researcher at the Station for Research and Development in the Viticultural and Winemaking field Odobești. approved for culture in 1972. The newly developed grape variety originates from a strong sensorial genitor, thus being able to produce quality aromatic or semi-aromatic wines.

The wine samples were obtained by applying the classical technology for aromatic wines (Cotea et al., 1985): harvested at full technological maturity, sorted, destemmed and crushed. Maceration was done for 24 hours at 15 °C after which the free fall must and the press must were collected and processed separately. Commercial yeasts Fermactive Muscat® (5g/hL) was used for fermentation, which was kept at 15°C and lasted for 2 weeks. Fining was done with bentonite. After filtering and SO<sub>2</sub> addition, the sample wines were bottled. 4 variants were obtained:

- V1 – Șarbă wine obtained from **free fall must** from Cotești vineyard grapes
- V2 – Șarbă wine obtained from **press must** from Cotești vineyard grapes
- V3 – Șarbă wine obtained from **free fall must** from Iași vineyard grapes
- V4 – Șarbă wine obtained from **press must** from Iași vineyard grapes

The physical-chemical analyses were done according to the specifications from the Compendium of International Methods of Analysis of Wine and Musts, OIV, OIV-MA-AS312-01A method, in the Oenology Laboratory of USAMV Iași.

## RESULTS AND DISCUSSIONS

As found in different scientific articles of specific literature (Ribereau-Gayon et al., 1972, Cotea et al., 1988), the physical-chemical parameters of wines obtained from the same batch of grapes can vary during fermentation, due to fermentation conditions, as well as because of the grapes' chemical composition.

The compositional profile of Șarbă wines is presented in table 1.

Table 1

**Compositional characteristics of Șarbă wines**

Sample	Total SO <sub>2</sub> mg/L	Free SO <sub>2</sub> mg/L	Volatile acidity g/L	Total acidity g/L	Density g/cm <sup>3</sup>	Alcoholic conc. % vol.	Remanent sugars g/L	Non-reductive extract g/L	Total dry extract g/L
V1	168,91	67,75	0,34	5,87	0,99845	12	16,02	21.2	37.2
V2	165,6	70,25	0,37	5,94	0,99812	11,95	16,5	19.4	35.9
V3	71,84	14,86	0,50	6,02	0,99279	11,7	2,08	18.9	20.9
V4	73,25	17,15	0,54	6,25	0,99312	11,5	1,9		

The compositional profile of the four wines from two distinct geographical areas of Romania show without question the influence of the climatic conditions of their environmental area. The Cotești vineyard is characterized by average temperatures of 9.8 °C – 10 °C while Iași vineyard has an average temperatures of 9.5 °C, fact that is mirrored in the higher density, alcoholic concentration and extract of the first two samples of Șarbă wines. The alcoholic concentration is visibly higher in the Cotești wine samples (12 % vol and 11,9% vol.), while in Iași Șarbă wine samples, due to a lower concentration of glucides' accumulation, this is inferior (11,7 % vol. and 11,5 % vol.).

An essential influence on the wine's quality is represented by its acidity. The present legislation demands a minimum of 4 - 4,5 g/L tartaric acid for quality white wines. From the above analyses, it can easily be seen that the actual values are much higher, specific for the area of origin of the grapes as well as for the wine-making technology. Therefore, a difference in acidity can be observed between the wine samples obtained from free flow must and the press must. It is a fact well know that the outer layers of the grape berry contain more sugars than the area closer to the center of the berry, which is more acidic. Therefore, the total acidity of the Șarbă samples that have been obtained from press must show higher total acidity values (V2 - 5,94 g/L and V4-6,25 g/L tartaric acid) than their counterparts ( V1 - 5,87 g/L and V3 - 6,02 g/L tartaric acid) obtained from free fall must. Moreover, the higher acidity of the Iași wine samples is without question the result of the Northern climatic conditions.

The experimental wine samples can be classified as quality wines, DOC, with good extracts and alcoholic concentration, giving its most intense sensorial characteristics in the case of the samples with remanent sugars.

## CONCLUSIONS

The compositional quality of the wines has been strongly influenced by the climatic conditions of the harvest year as well as the natural environment conditions of the vineyard.

Șarbă wines obtained from grapes harvested from Cotești vineyard have higher values of some of the compositional indices than Șarbă wines obtained from grapes harvested in Iași vineyard (alcoholic concentration and extract)

Total acidity is lower in Șarbă wines from grapes in Cotești vineyard, due to higher average temperatures.

The following studies will be focused on the aroma profile of Șarbă wines, trying to determine the factors that lead to a decrease or even loss of aroma.

*Acknowledgments.* The publishing of this study was made possible with the help of the USAMV internal research grant 5526/25.04.2013.

## REFERENCES

1. Cotea V.D., 1985 - *Tratat de oenologie*, vol. 1, Ed. Ceres, București.
2. Cotea V.D., Sauciuc J., 1988 - *Tratat de Oenologie*, vol. 2, Ed. Ceres, București.
3. Cotea V.D., Barbu N., Grigorescu C., Cotea V.V., 2000 - *Podgoriile și vinurile României*. Ed. Academiei, București.
4. Ribereau-Gayon J., Peynaud E., Sudraud P., Ribereau-Gayon P., 1972 - *Treatise of Oenology. Science and technology of wine, tome 1. Control and Analyse of Wine (in French)*. Dunod-Paris, France.
5. OIV, 2013 - *Compendium of international methods of wine and must analysis volume 1 and 2*, Paris.
6. <http://www.cramagirboiu.ro/gama-livia-sarba.php>