

## **STUDY OF TECHNOLOGICAL POTENTIAL OF SEVERAL BLACK GRAPES VARIETIES FOR HIGH QUALITY RED WINES IN SEGARCEA VITICULTURAL CENTER**

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### **Abstract**

*Segarcea viticultural area is recognized among the most reputed wine-growing zone in Romania for red wines with controlled denomination of origin. This viticultural center has peculiar conditions, climatic and geological point of view, in order to obtain grapes productions with high contents of glucides and anthocyanins. This composition recommends the obtaining of high quality wines characterized by good organoleptical and compositional parameters ready to satisfy even the most exquisite taste.*

**Keywords:** *quality, glucides, anthocyanins, viticultural area*

### **Introduction**

Segarcea viticultural center has a value of oenoclimatic applicability index of 4843, being part of hilly-meridional centers group of A<sub>3</sub> oenoclimatical area. This center has as main production aim the obtaining of high quality red and aromatic wines, and secondary white wines, join in with other renowned areas of our country: Miniș, Drăgășani, Dealu Mare, Nicorești, Turnu Severin, Sarica Niculițel, Murfatlar (Teodorescu, 1987).

Segarcea viticultural center is situated at 25 km south of Craiova; the prevalent altitude is 145 meters. The geographical space coordinates are: 44°05' northern latitude and 23°72' esthern longitude. The analysis of area climatic elements shows that Segarcea viticultural center disposes of a high favorable capacity for obtaining high quality red wines (table 1).

Excellent climatic conditions are collocated with edaphic factor that has a favorable influence on black grapes varieties growing. The main soil varieties specified for Segarcea area are: lime chernozem, typical phaeozem and lime rendzine. These refined and permeable

soils, with good capacity for water and air, can be worked relatively facile, having the best physical characteristics. From chemical and trophic point of view, they are rich in humus (3-5%) in superior horizon; the 0-50 cm depth store is high (160-200 t/ha) and qualitative (lime mould) (Popa, 2005).

**Table 1.** Climatical conditions (50 years media)

Analyzed element		Segarcea
Medium temperature (°C)	Annual	11.2
Precipitation sum (P) (mm)		565
Temperature sum (T) (°C)	Conventional vegetative period (1.III-30X)	3448
Insolation (I) (hours)		1439
Precipitations sum (mm)		385
Oenoclimatical applicability index: $A = T + I - (P - 250)^*$		4843

\*A < 4300, viticultural areas exiguously favorable; cultivation of red wines varieties is not recommended;

A = 4300-4600, viticultural areas with limited applicability; the quality of red wines is variable every year;

A = 4600-5100, viticultural areas with conspicuous applicability for producing high quality red wines; (Teodorescu, 1987)

Excellent climatic conditions are collocated with edaphic factor that the quality of wines appreciated in our country and also abroad since the beginning of XX century attests the high favorable degree for wine growing in this area.

In this paper we studied the evolution of main quality grapes parameters of Cabernet Sauvignon and Merlot varieties in two consecutive years: 2005 and 2006.

## **Experimental**

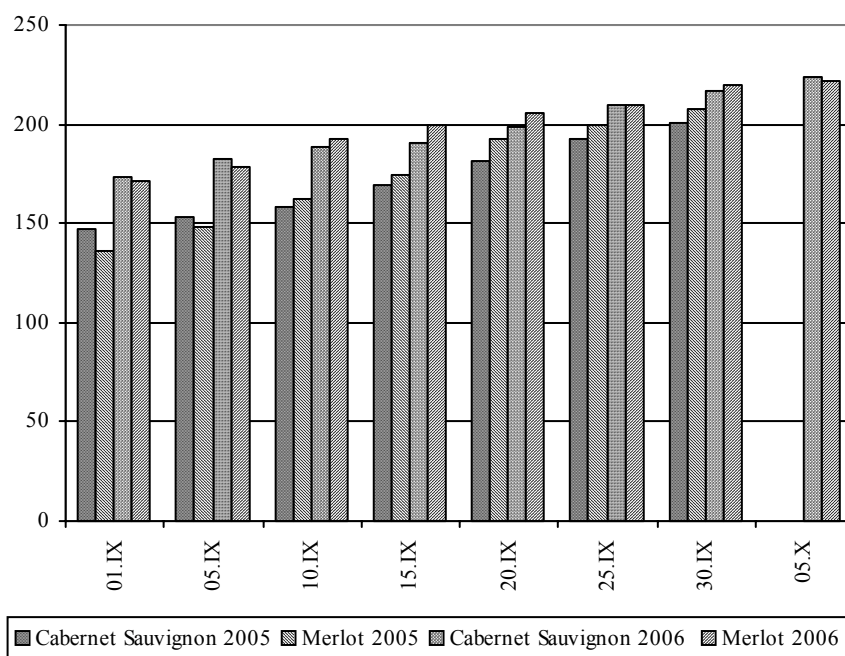
During 2005 and 2006 viticultural years, we followed the evolution of main quality grapes parameters of Cabernet Sauvignon and Merlot varieties: glucides content, acidity, anthocyanins and the chromatic structure of total anthocyanins. These elements define the

technological potential of grape varieties and the possibility of obtaining high quality wines (Genoiu, 2006).

### Results and Discussions

The grapes variety and the viticultural area are considered constant factors, the differences year to year being caused by climatic conditions typical of every viticultural studied year.

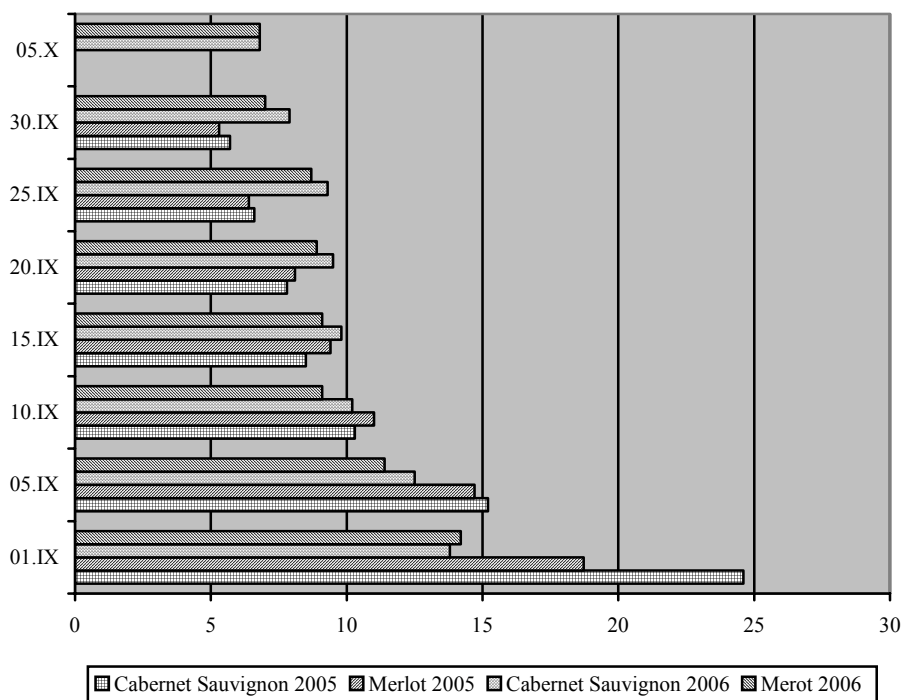
The evolution of qualitative parameters of Cabernet Sauvignon and Merlot grapes varieties are presented into figures 1 and 2 and table 2. A comparative analysis of these data relives that 2006 was a very good viticultural year for both grapes varieties.



**Figure 1.** The evolution of glucides content for Cabernet Sauvignon and Merlot grapes varieties

The glucides content follows an ascendant curve while total acidity is decreasing. The potential of glucides accumulation is different, dependent on grapes variety and viticultural year. Thus, although both studied grapes variety recorded a level of glucides content which

recommended them for producing high quality wines (between 201 g/l for Cabernet Sauvignon in 2005 and 224 g/l for the same variety in 2006) and acidity maintaining at proper values: 5.3 g/l – 6.8 g/l in H<sub>2</sub>SO<sub>4</sub>, the climatic conditions of 2006 allow the altering of vintage till 05.10 and the obtaining of high characteristics production.



**Figure 2.** The evolution of total acidity for Cabernet Sauvignon and Merlot grapes varieties

In 2006 viticultural year, moderate precipitations and long sun lighting period of time allow the accumulation superior anthocyanins contents (maximum value was 1412 mg/kg berries for Cabernet Sauvignon).

The chromatic structure of total anthocyanins – the proportion of different pigments and the ratio between them – has a great importance for wines that will be produced.

**Table 2.** Total anthocyanins and their chromatic structure

Analyzed element	2005		2006	
	Cabernet Sauvignon	Merlot	Cabernet Sauvignon	Merlot
Anthocyanins (mg/kg)	1323	1260	1412	1305
Yellow pigments %	27.8	28.5	25.7	27.7
Red pigments %	65.1	64.9	67.7	62.4
Blue pigments %	7.1	6.6	6.6	9.9
Flaviliu cations dA%	64.4	63.4	76.1	69.9

Contextual analysis shows an extremely favourable chromatic structure for obtaining coloured, attractive wines, without blue or violet shades even if they are young. This aspect is guaranteed by the important amounts of yellow pigments (over 25%) and by the low content of blue pigments (from 6.6 to 9.9%) related with the red pigments that are, in all cases, over 62%.

### Conclusions

A high content of glucides and an adequate level of acidity provide the qualitative level of grapes production. Total anthocyanins contents certified the obtaining of wines in concordance with present requires of national and, especially, foreign wine market. The chromatic structure of total anthocyanins shows a perfect equilibrium between different pigments in order to obtain wines with rich, vivid colours, attractive and without annoying blue shades.

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