STUDY FOR CLONAL ELITE S297 FR BY COMPARISON WITH ELITE SAUVIGNON 111 ST

Cezarina Necula*, Dragos Dumitru**
*Universitatea Valahia din Targoviste, B-dul Regele Carol I nr. 2
**Universitatea Transilvania Brasov
E-mail: ina_necula2004@yahoo.com

Abstract

The clonal selections aim to identify those varieties of grapes having not only a superior crop potential but also superior morphological and biological features, compared to the varieties that the clonal selection started from.

Keywords: clonal selection, agro-ecosystem, resistance, productivity, grapes production.

1. INTRODUCTION

The existence of variability for vineyard characteristic and feature is well known and for this reason, in the course of time by selection and multiplication for valuable forms, were obtained thousands varieties for Vitis Vinifera species.

Many varieties of today are of no economical value, and others degenerating by their multiplication in heterogeneous populations, and the value of viticulture plantation without selection decreasing gradually.

The vineyard reacting distinct on climate and soil conditions and has specific adaptation to ecosystem conditions. A different made for reactions and adaptation result from potential of production determination for different genotypes appreciated by phenotype.

From multitude of environment conditioned and from multitude of genotypes results no end of interaction modes with different results for hereditary value of vineyard varieties.

Increasing of biological potential of Vinifera varieties and extension in culture of valuable vines is possible by clonally selection.

The study offer some differences of agro biological and technological traits for two clonally elites selected by Sauvignon variety. We present the mode of adaptation for a French origin clonally elite to vineyard Ştefăneşti conditions.

In the year 2002 at Ştefăneşti Argeş was certificated Sauvignon 111 Şt clone, which was homologated in specific climate and soil conditions from this vineyard.

In the 1996 year was planted in experimental fields from Breeding laboratory French origin clone Sauvignon 297 Fr grafted on 2 mother/father plant: 3309 and SO_{4-102}. Determinations are : frost resistance, fertility of offshoots, weight of cluster and grapes, production of grapes, must quality.

2. MATERIAL AND METHODS

The study for 2 clonally selections was effectuated in experimental fields of Breeding Laboratory from INCDBH Ştefăneşti.

Competition field was organized in 1996 on brown soil, clayey-sandy, medium supplied with phosphorus and potassium, two with poor carbonate, and Ph poor acid (6,2-6,4).

Mother/father plant used for grafting for Sauvignon elite, was Kobber 5 BB and distances for plant were 2,5 m/interval and 0,9 m/row (4000 layers/ha). The layers were guided by Guyot on half stem, with 5 wires espaliers.

All registered dates after observation and determinations for aerobiological and technological traits were affected by climate conditions from 2002-2005 years.

Climate conditions from these viticulture years are marked by high water regime in critical

period of growing and ripening for grapes, by great differences of temperatures between summer and winter.

Rainfalls fallen in period of vegetation were ununiform distributed.

Rainfalls from July, August determine appearance of short or long periods with drought, because of high registered temperatures. Specific climate conditions from for viticultural analyzed years (2002-2005) presented characteristics with effect in vegetative cycle development, especially in quality of grapes.

The year 2002 was a normal year for viticulture characterized by low temperatures in winter and without rainfalls during period of vegetation.

The year 2003 was a droughty year with low water regime and very high temperatures in summer.

The year 2004 was a raining year, rainfalls were abundant with low temperatures.

The last year of study, 2005 had very low temperatures in winter and high temperatures in summer, drought period was in summer winter.

3. RESULTS AND DISCUSSIONS

The results of analysis determinations in experimental fields were interpreted by Duncan test and by correlations between principals climate indicators and agro biological registered traits.

On an average, in these 4 years (2002-2005) the percentage of viable eyes was not much influenced. The highest percentage for was registered to clonally selection 297/3309 in 2004 year (91,9%) a year with rainfalls. In 2004 was an important diminution for buds viability, because of clone's tolerance at excess of humidity.

A constant of viability was observed for Sauvignon 111 St (87,3%) selection in all years of study, the average was superior to french selection, even both of mother/father plant/3309 and SO_{4-102} Fig 1

Variation of percentage of starting eyes on vine, depending on combination variety x mother/father plant in 4 years of research.

Analyzing of soil climate about 3 elements of a factor we can say that french selection 297 registered a better resistance at low temperatures and rainfalls (year 2007) and smaller to drought by comparison with mother/father plant selection 2309(fig. nr. 1)
Distinct significant differences were registered to S 111 St. selection in 4 years of study, percentage of eyes was between 82% values in droughty year and 86% in rainy year.

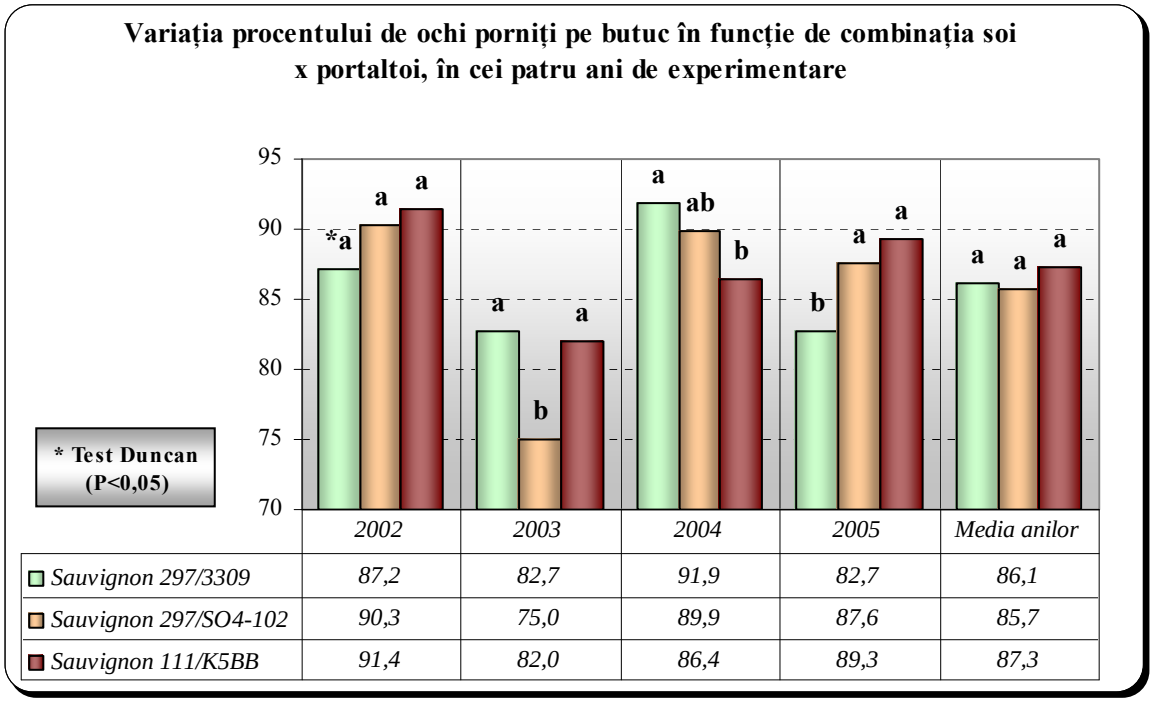
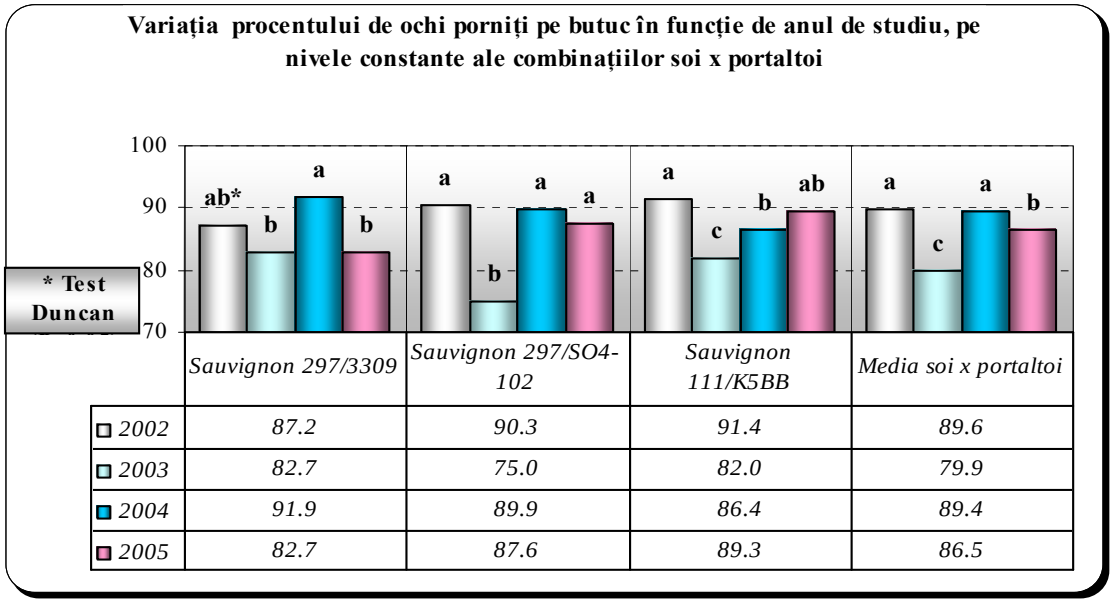


Figure 1 Variation of percentage of starting eyes on vine, depending on combination variety x mother/father plant in 4 years of research.



	Sauvignon 297/3309	Sauvignon 297/SO4-102	Sauvignon 111/K5BB	Media soi x portaltoi
2002	87.2	90.3	91.4	89.6
2003	82.7	75.0	82.0	79.9
2004	91.9	89.9	86.4	89.4
2005	82.7	87.6	89.3	86.5

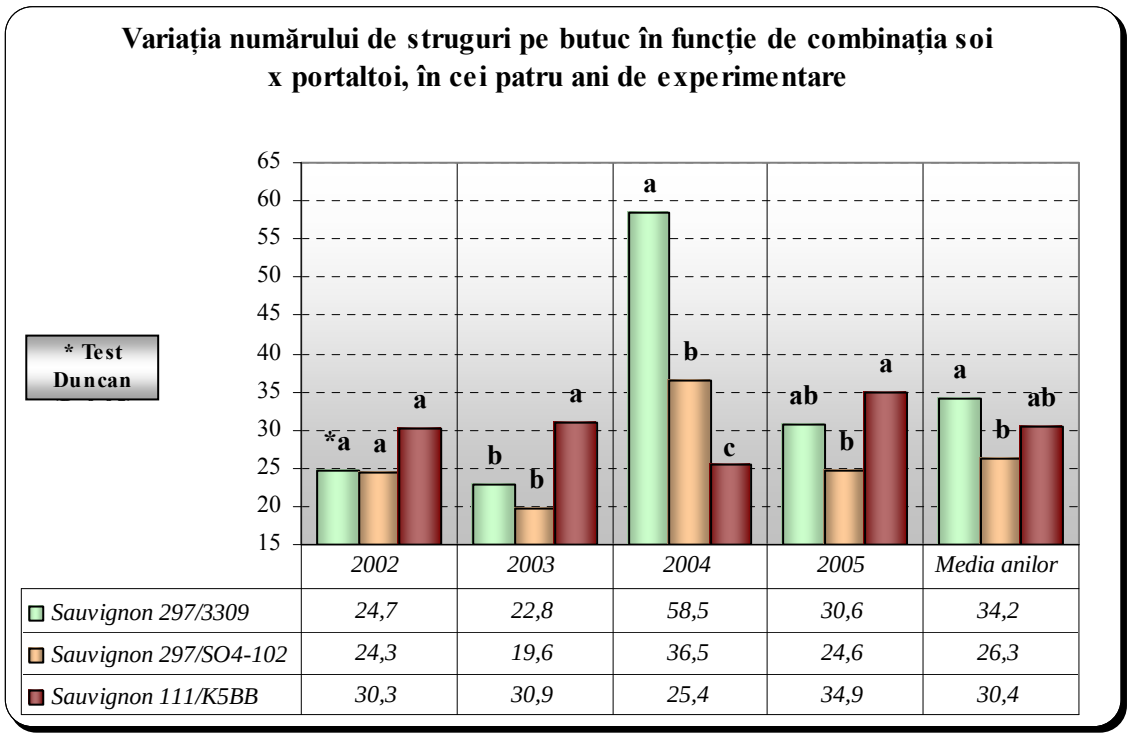
Figure 2 Variation of starting eyes/vinepercentage depend on year at constant mother/father plant

Number of cluster on vine - is an important element for production determination.

Sauvignon variety for superior quality wines was selected by number of cluster on vine.

For this parameter determination, by Duncan test we observed that A and B factors acted significant by interaction. (fig.2)

From registering results, average values for genotype variety x mother/father plant (A factor) presented distinct significant difference for combination 297/3309(34 grapes/wine) by comparison with combination 299/SO4-102/26 str/wine) but only significant by comparison

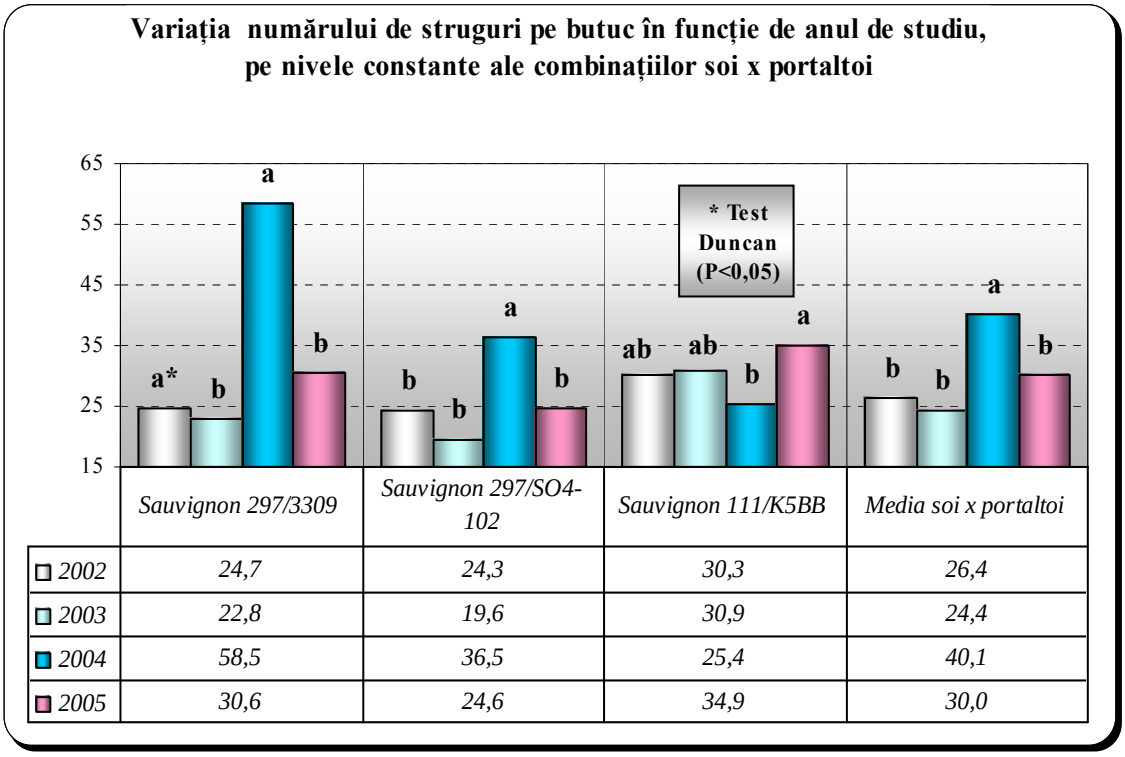


	2002	2003	2004	2005	Media anilor
Sauvignon 297/3309	24,7	22,8	58,5	30,6	34,2
Sauvignon 297/SO4-102	24,3	19,6	36,5	24,6	26,3
Sauvignon 111/K5BB	30,3	30,9	25,4	34,9	30,4

Figure 3 Variation of grapes/vine number (kg) according to variety/parent stock combination in 4 years of experiment.

with 111/K5 BB (30 clusters/vine) clone.

selection. Generally, breeder make selection so that chosen vine bring together quality and



	Sauvignon 297/3309	Sauvignon 297/SO4-102	Sauvignon 111/K5BB	Media soi x portaltoi
2002	24,7	24,3	30,3	26,4
2003	22,8	19,6	30,9	24,4
2004	58,5	36,5	25,4	40,1
2005	30,6	24,6	34,9	30,0

Figure 3 Variation for clusters /vine by comparison with scheme variety/mother/father/plant in 4 years of experiment.

It has been ascertained one oscillation of grapes number for this clone on mother/father plant 3309, values being variables every year.

111 St clone, registered invariable values for this indicator, (fig. Nr.3) very close to average (30 clusters/vine) and for this reason a good adaptability to sudden temperature oscillations, specific to Stefanesti vineyard .

In figure nr. 4 we observe uniformity of grapes number for Sauvignon 111 St selection by comparison with 297/3309 selection.

The viticultural year 2004 had positive influence for a big number of blossoms to French clone and clone from Stefanesti had a little number of blossoms. Clonally selection from Stefanesti has a better adaptability to high dampness. (Fig. 4)

Variation of grapes/vine number in different years of study on constant levels for combination variety X parent stock.

Quantity of grapes on vine is an important technological trait for elite's quantity traits. But is very difficult to detect these selections and for this reasons were homologate clones for quantity trait and clone for quality.Clonally elite 297 Fr is French elite selected for big quantity of grapes/ha (6,09 kg/vine – 26,6 to/ha in 2004 year). Very high production was obtained on parent stock 3309 in years with excess of dampness.Statistically elite 297 grafting on parent stock 3309 is significant distinct by comparison with combination 297/SO4-102 and it has significant bigger production than Sauvignon 11/K5-BB.Clonally elite Sauvignon 111 St grafted on chopping parent stock K5-BB had in all years of study (2002-2005) a high and constant production and for this reason this elite is acclimating to vineyard Stefanesti environmental conditions and it is not affected by drought and rain (3,62 kg/vine) year 2004 was characterized by high dampness and it was favorable for production/vine for French clone. For clone from Stefanesti even year 2005 with dampness excess was favorable.

4. REFERENCES

[1] Olteanu I. et col., -*Viticultura speciala Zonare,ampelografie,tehnologii speciale*, Ed. Universitaria Craiova, 2002, ISBN 973-8043-397-7.
[2] Dejeu L.- *Comportarea unor soiuri de strugurii pentru vinuri rosii*, Lucrari stiintifice IANB, seria B, vol. XXX, 2002
[3] Popa Camelia, Necula Cezarina – *Soiuri de vita de vie in podgoria Stefanesti Arges,* Ghid practic, Editura Universitaria, ISBN 973-742-026-1