THE INFLUENCE OF THE WINEMAKING TECHNOLOGY ON THE SENSORIAL CHARACTERISTICS OF THE VARIETY SAUVIGNON BLANC FROM THE GOLUL DRÂNCEI – MEHEDINȚI WINE CENTER

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Abstract

The oenologists are unanimous in admitting that the first important feature for the white wine consumers is the aroma. For the white wines, especially for the authentic semiaromatic and aromatic varieties, the intensity and complexity of the wine flavor represents a factor with a decisive influence over the next steps of tasting and/or consumption. The purpose of this work is to evaluate the influence of the various winemaking technologies and oenological products on the quality, diversity and complexity of the sensorial characteristics of the wines obtained from Sauvignon Blanc grapes from Golul Drâncei – Mehedinți wine center using sensorial analysis. The Sauvignon Blanc wines obtained usind different winemaking technologies have been sensorially analyzed by authorised winetasters using specialised and adapted winetasting sheets for different and specific sensorial descriptors. The results have proven that some winemaking techniques and some oenological materials like selected yeasts significantly influence the wine flavour, increasing even its tipicity.

Key words: Sauvignon Blanc, Oprișor, yeast, sensorial, tipicity

Ever since the oldest times, the hill areas from south Mehedinti have proven excellent conditions for the vine grow and especially for the red wine producing grapes. In „ Agricultura Romana din judetul Mehedinti", the great savant Ion Ionescu de la Brad (1868) mentionned that „... the greatest benefits from the vineyards come from Blahnita and Campul areas, where are located the famous vineyards of Orevita, Rogova, Drancia, Oprisorul."

The production of semiaromatic wines with controlled denomination of origin is made in Romania in strictly delimitated areas, where the favourable pedoclimatic conditions are capitalized through the means of grape varieties with a high capability of flavour and sugars accumulation and concentration in the berries. In this context, it is very well known the potential of the wine center Golul Drancei – Mehedinti where there can be produced out of the Sauvignon Blanc variety, DOC wines as well as DOC-CT (late harvest) and DOC-CMD (full maturity harvest) – *table 1.*

The production conditions of these wines were established as a result of the researches made during the time at the Research Station Banu Maracine and the observations from the production activity.

In this work we will try to evaluate, by means of the sensorial analysis, the influence of the various technologies used in winemaking and of some oenological materials over the quality, diversity and complexity of the wines made out of the Sauvignon Blanc variety from the Golul Drancei - Mehedinti wine center.

In this work we have studied the influence of the clarification technology and of yeast strains used at the alcoholic fermentation over the organoleptic qualities and tipicity of the wines.

MATERIAL AND METHOD

In order to conduct this study, there were used as raw material, grapes out of the Sauvignon Blanc variety, manually harvested from Oprisor – Golul Drancei – Mehedinti area.

There were used grapes from the 2009 vintage campaign, from three different parcels, the grapes from one parcel representing a reherseal for each experimental variant.

The experiments took place at the Oprisor winecellar of Carl Reh Winery.

In *table 2* there can be found the experimental variants and the winemaking technology used in order to obtain them. All the variants have in common the addition of potassium

metabisulphite 55 mgSO_2/l applied on the mash during the maceration, the gravitational clarification and the addition of sulphur dioxide 60 mg SO_2/l after the alcoholic fermentation has ended. The difference between the variants consisted in the way the clarification was made (gravitational or enzyme-gravitational) and the use or not of various selected yeast strains at the alcoholic fermentation.după încheierea fermentației alcoolice. For each variant three repetitions were made, coded with 1, 2, 3 before the variants number. Each repetition was made using homogenous mash obtained from a single parcel grapes.

For the enzymatic maceration it was used an enzymatic pectolytic concentrate with secondary glycosidic activities, Lallzyme Cuvee Blanc, product which gave very good results in practice and in previous testing.

As selected yeasts, three strains were used, out of the most worlwide used for the Sauvignon Blanc variety: Anchor Vin 7, Lalvin QA 23 and Lalvin D47. All of them are characterised in the technical sheets as yeasts that generate fermentation metabolites with pleasant floral ot exotic fruit aroma.

RESULTS AND DISCUSSIONS

The grapes had at harvesting a sugar concentration between 192 g/l and 228 g/l, all of the, being able to produce dry Sauvignon Blanc wines, with controlled denomination of origin Mehedinti.

The alcoholic fermentation was conducted at a temperature of around 17-18ºC for all the variants, except for variant 4 which fermented at around 12 ºC, this being the recommended temperature of the producer, in order to obtain a higher aromatic intensity.

The physical and chemical parameters of the wines are presented in *table 3*.

The sensorial analysis of the wines was made after the wine was obtained and after the first racking, in order to compare the experimental variants.

Table 1

Sauvignon Blanc types of wine with controlled denomination of origin Mehedinti

TYPE OF WINE – Sauvignon Blanc	Sugar content of grapes at harvest, g/l, min.	Alcohol %vol. Min.	Sugars g/l	Dry extract, g/l
Medium sweet	204	11.0	min. 15	21
Dry	187	11.0	max. 4	21
Medium dry	196	11.0	4 - 12	23

Table 2

Technological variants made in order to study the influence of oenological products use in winemaking the Sauvignon grapes variety - Golul Drâncei, 2009

Variant	CODE	TECHNOLOGICAL VARIANTS
Variant 1 repetition 1 Variant 1 repetition 2 Variant 1 repetition 3	SB 1.1. SB 2.1. SB 3.1	Winemaking with 6 hours maceration, gravitational clarification, spontaneous fermentation
Variant 4 repetition 1 Variant 4 repetition 2 Variant 4 repetition 3	SB 1.4. SB 2.4 SB 3.4.	Winemaking with 6 hours enzymatic maceration (Lallzyme Cuve Blanc, 2 g/hl), gravitational clarification, spontaneous fermentation
Variant 4 repetition 1 Variant 4 repetition 2 Variant 4 repetition 3	SB 1.5. SB 2.5 SB 3.5.	Winemaking with 6 hours enzymatic maceration (Lallzyme Cuve Blanc, 2 g/hl), gravitational clarification, fermentation with Anchor Vin 7 selected yeast (20 g/hl)
Variant 6 repetition 1 Variant 6 repetition 2 Variant 6 repetition 3	SB 1.6. SB 2.6. SB 3.6.	Winemaking with 6 hours enzymatic maceration (Lallzyme Cuve Blanc, 2 g/hl), gravitational clarification, fermentation with Lalvin QA 23 selected yeast (20 g/hl)
Variant 7 repetition 1 Variant 7 repetition 2 Variant 7 repetition 3	SB 1.7. SB 2.7. SB 3.7.	Winemaking with 6 hours enzymatic maceration (Lallzyme Cuve Blanc, 2 g/hl), gravitational clarification, fermentation with Lalvin D 47 selected yeast (20 g/hl)

The statistic processing (variation analysis) of the results of the physical-chemical analysis has shown that there are no significant differences between the samples from the point of view of the final alcoholic concentration, sugars, total acidity, volatile acidity, free and total sulphur dioxide, the little differences resulting of the inherent variability between the samples. It is observed, however, that in the case of selected yeast use the residual sugar content is lower than in the spontaneous fermentation, probably due to the existence of less performant yeast in the indigenous microflora.

Table 3

Physical and chemical parameters of Sauvignon Blanc wines (Golul Drâncei, 2009)

Variant	Variant code	Alcohol, %vol.	Sugars, g/l	Dry extract, g/l	Total acidity, g/l	Volatile acidity, g/l	Total SO_2, mg/l	Free SO_2 mg/l
V1	SB 1.1.	13.00	4.40	23.89	5.70	0.56	134.00	31.00
	SB 2.1.	13.60	3.80	22.90	5.30	0.47	128.00	21.00
	SB 3.1.	13.50	4.10	21.23	5.20	0.51	121.00	24.00
	average	13.37	4.10	22.67	5.40	0.51	127.67	25.33
	Standard deviation	0.32	0.30	1.34	0.26	0.05	6.51	5.13
V4	SB 1.4.	13.20	4.60	22.87	5.68	0.52	124.00	26.00
	SB 2.4.	13.50	4.15	21.90	5.43	0.56	117.00	23.00
	SB 3.4.	13.40	3.96	21.12	5.34	0.59	134.00	32.00
	average	13.37	4.24	21.96	5.48	0.56	125.00	27.00
	Standard deviation	0.15	0.33	0.88	0.18	0.04	8.54	4.58
V5	SB 1.5.	13.20	2.24	23.32	5.76	0.57	112.00	21.00
	SB 2.5.	13.50	2.45	22.34	5.65	0.53	117.00	26.00
	SB 3.5.	13.70	1.98	20.98	5.23	0.62	121.00	24.00
	average	13.47	2.22	22.21	5.55	0.57	116.67	23.67
	Standard deviation	0.25	0.24	1.18	0.28	0.05	4.51	2.52
V6	SB 1.6.	13.10	2.89	23.65	5.75	0.34	123.00	25.00
	SB 2.6.	13.60	3.04	23.12	5.54	0.41	117.00	28.00
	SB 3.6.	13.60	2.54	21.14	5.30	0.38	122.00	24.00
	average	13.43	2.82	22.64	5.53	0.38	120.67	25.67
	Standard deviation	0.29	0.26	1.32	0.23	0.04	3.21	2.08
V7	SB 1.7.	13.20	3.40	24.32	5.65	0.41	116.00	23.00
	SB 2.7.	13.50	3.25	23.24	5.41	0.34	128.00	36.00
	SB 3.7.	13.60	2.98	21.98	5.34	0.32	125.00	26.00
	average	13.43	3.21	23.18	5.47	0.36	123.00	28.33
	Standard deviation	0.21	0.21	1.17	0.16	0.05	6.24	6.81

The only variant that presented a difference of the extract (of 5,26% compared to the lowest extract variant) is the one that used the selected Lalvin D47 yeast, fact explained by the capacity of this yeast to produce a rather large quantity of manoproteins in the new wine.

Concerning the global sensorial analysis of the variants (marks from 0 to 100 points), the average marks resulted for the technological variants are those shown in *figure 4* and *figure 5*.

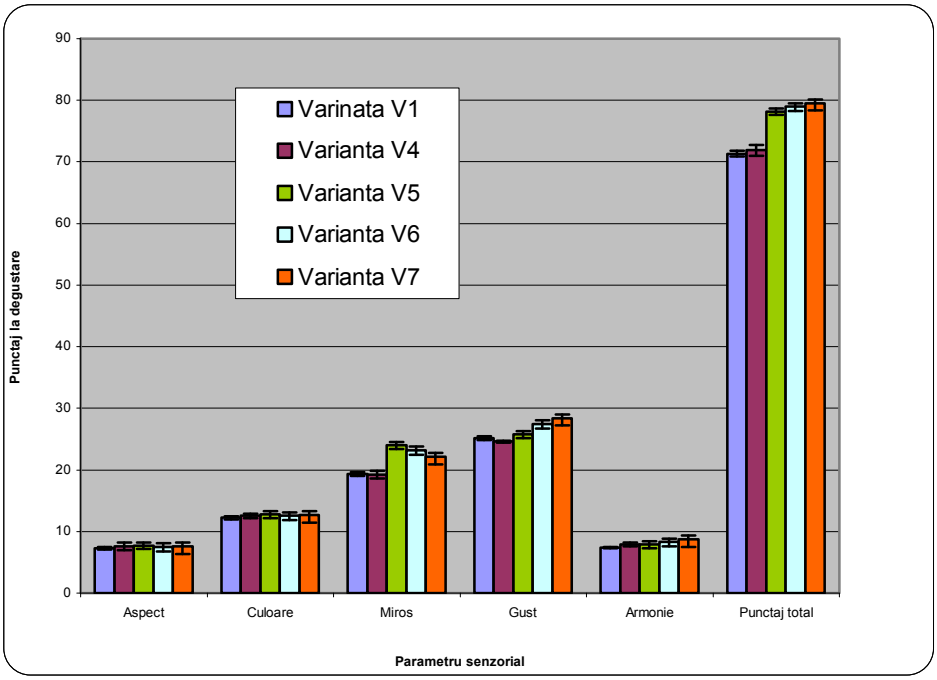

Figure 4 **Statistic evaluation of the results of the sensorial analysis of wines obtained through fermentation variants with different yeast strains (Sauvignon Blanc variety, Golul Drâncei, 2009)**

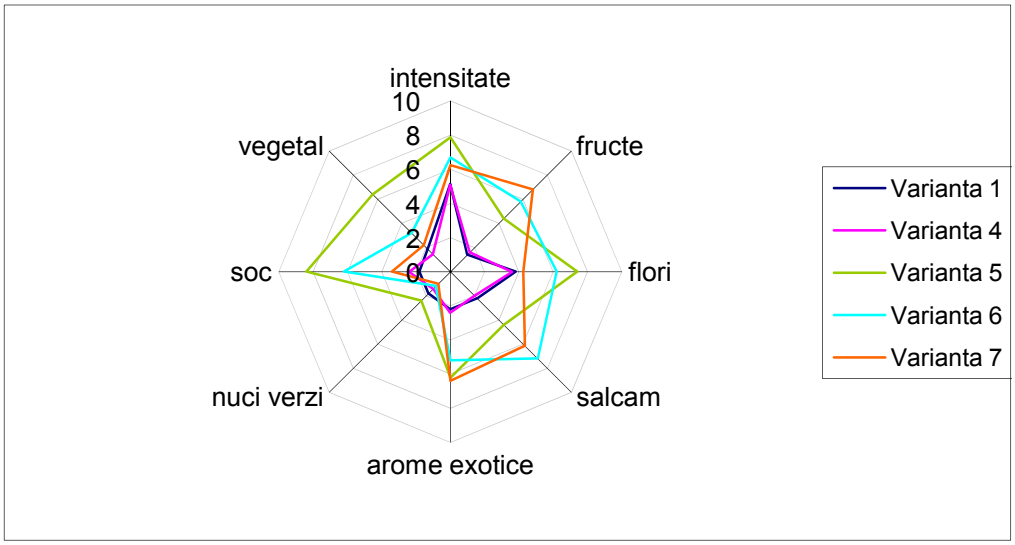

Figure 5 **Tasting average marks (from 1 to 9) for olfactive descriptors from a group of 5 winetasters, fermentation variants with different yeast strains (Sauvignon Blanc variety, Golul Drâncei, 2009)**

CONCLUSIONS

After the sensorial analysis of the technological variants and the use of different yeast strains in the winemaking process of Sauvignon Blanc variety, the following conclusions have been drawn: the enzymatic clarification does not substantially influence the quality of wine if it is followed by an uncontrolled fermentation, generated by an indigenous microflora; when using a single tupe of must and different selected yeast, the evaluation shows that from the total scoring point of view, the wines are similar in aspect and colour, but different in aroma, body and harmony; the use of some selected yeasts rise the quality level perceived by the winetasters because of the more intense floral aroma obtained; all the technological variants that have used enzymatic clarification and selected yeasts during the alcoholic fermentation obtained higher scores for nose and taste; there are statistically significant differences between the

aroma and the taste of Sauvignon Blanc wines fermented with different selected yeasts; the aromas of the technological variants that included gravitational clarification and gravitational-enzymatic clarification of the must, fermentation with indigenous microflora, are not significantly different; the highest influence is due to the yeasts used in fermentation; in the aromatic panel used we were able to see that the aromas of elder, acacia, exotic fruit, fruit, vegetal aromas, considered to be typical for Sauvignon Blanc have been influenced by the yeast strain used; very interesting results are obtained using the selected yeast Anchor Vin 7 with an enhanced aromatic intensity, in what concerns the floral, exotic and elder aroma. In the same time the vegetal aromas increase, aromas that can be considered less pleasant by some consumers; the most balanced aroma was obtained with the selected yeast Lalvin QA23, the resulting wine having intense floral and fruity aroma as well as discrete notes of vegetal or green walnuts; the selected yeast Lalvin D47 didn't generate a very intense aroma, but its structure (exotic aroma, fruit, acacia) as well as the lack of intense vegetal nuances was very well appreciated by the winetasters; if we select the proper yeast, according to the variety and the growth area of the grapes, we can obtain results corresponding to the tipicity of the area (without major differences regarding the aroma and the structure of the wine) but with a plus concerning the finesse of taste and smell; this fact is very important because the winemaker can use requently these selected yeasts regardless of the climate conditions in order to obtain a constant quality of the wines; for the musts from the same area and same variety (Sauvignon Blanc from Golul Drancei), regardless the parcel of vineyard from which they come, there is no major influence from the point of view of fermentation cynetics according to the yeasts used; these behave constantly in what concerns the fermentation speed; regardless the winemaking technology (traditional or modern) we have the possibility to influence the aromatic tipicity of the variety, its taste and body, by using a selected yeast; there is the possibility to enhance the aroma considered typical for the Sauvignon Blanc variety (elder, exotic, acacia) using a selected yeast that generates a large quantity of fermentation aroma, but the winemaker must be careful not to modify the aromatic tipicity and not to enhance some flavours (vegetal aroma) which can be considered unpleasant by the consumers; if the consumers demands move towards more aromatic wines, this thing can be achieved using an enzymatic clarification of the must and using selected yeasts capable of producing a higher quantity of aromatic fermentation metabolites.

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