

THE COMPARATIVE STUDY CONCERNING THE COMPOSITION OF SOME RED WINES FROM THE U.S.A. MARKET AND OF THE WINES FROM THE SAME WINES OBTAINED IN THE HILL AREAS OF OLTENIA

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Abstract

In this paper it was tried to obtain the dates concerning the fundamental composition and the sensorial elements of some wines from the U.S.A. market – autochthonous or imported ones – to compare with the quality parameters of the red wines, that were obtained from superior varieties in the main viticultural areas of Oltenia. Thus the achievement of an argumentation asserted by unbiassed elements, in the advantage of a more important absorbtion of the wines that are obtained in the vineyards from Oltenia, on the north-american market.

Key words: *red wine, composition, quality, viticultural area*

Introduction

From old times, it came aut that wide areas from romanian territory extented from the Danube, the South Carpathians and the Olt, accomplishes, at the highest level, the grape-vine's necessities, "housed" the inhabitants preoccupation from these ancient regions to obtain wines, that passed the romanian border because of their quality (Ionescu, 1868; Rădulescu, 1896; Nicoleanu, 1900; Teodorescu,1929; Oprean, 1974).

Recently, in some countries very important areas were identified where even the most "finical" vine varieties concerning the natural factors fiind their living conditions. This is how Australia, South Africa, New Zeeland and U.S.A. became viticultural countries, and they exert a competitional pressure on the wines market. The wines from these countries are on the most demanding market – the north american market, together with the produces from the big viticultural countries of Europe (French, Italy, Spain, Portugal) and some South-American countries (Argentina, Chile).

The Comparative Study Concerning the Composition of Some Red Wines from the U.S.A. Market and of the Wines from the Same Wines Obtained in the Hill Areas of Oltenia

Experimental

The studies were done on more red wines that exist in the topnotch consumption from Las Vegas. These produces were: Cabernet Sauvignon-Chile, Cabernet Sauvignon-South Africa, Cabernet Sauvignon-California (4 types), Cabernet Sauvignon-Australia, Cabernet Sauvignon-România. They were compared concerning the composition and sensorial features with the following wines obtained in Oltenia: Cabernet Sauvignon-Orevița, Cabernet Sauvignon-Oprișor, Cabernet Sauvignon-Vînju Mare, Cabernet Sauvignon-Vlădaia, Cabernet Sauvignon-Banu Mărăcine, Cabernet Sauvignon-Sâmburești, Cabernet Sauvignon-Drăgășani.

The Merlot wines from U.S.A. had as origin: Argentina, California (two types), România, Italy (two types). They were compared concerning the main compositional parameters and the sensorial features with the Merlot wines obtained in the following areas: Orevița, Vînju Mare, Vlădaia, Dealul Viilor (Mehedinți country), Banu Mărăcine, Segarcea (Dolj country), Sâmburești (Olt country), Drăgășani (Vâlcea country).

Concerning the composition we established the following parameters: the alcohol, total acidity, volatile acidity, glicerol, unreduced extract, ash, anthocyan, tartaric acid, malic acid.

On the basis of the optic densities at the wave length 420 nm, 520 nm and 620 nm we established the colouring intensity: $I = D.O. 420 \text{ nm} + D.O. 520 \text{ nm} + D.O. 620 \text{ nm}$ and the colour tonality: $T = D.O. 420 \text{ nm} / D.O. 520 \text{ nm}$. All the analysis (tests) were done in accordance with the elaborate methods of O.I.V. and adopted by I.C.V.V.

Results and Discussions

The dates from table 1 illustrate the main compositional parameters values of some red wines of Cabernet Sauvignon, that are on the north-American market and the ones obtained from the same variety on the most important viticultural hill areas from the geographic territory among the Olt, the Danube and South Carpathians.

The alcoholic degrees of the wines from the U.S.A. market – autochthonous and foreign – are entirely comparable with the ones of the wines obtained in the vineyards of Oltenia. At red wines of

Cabernet Sauvignon from U.S.A. the alcoholic degree is between 12.5 % vol. (California) and 14.5 % vol. (South America). On the whole they obtain an average of 13.18 % vol. At Cabernet Sauvignon wines obtained from the areas of Oltenia, the alcoholic degrees (the representative of the averages from 8 – 12 tests) are between 12.6 % vol. (Drăgășani) and 14.6 % vol. (Vlădaia – the viticultural center that includes Golul Drâncei vineyard from Mehedinți country). On the whole region, the average of the alcoholic degree averages is with 0.18 % vol. higher than in the case of the average value of the same parameter from the produces sold on the north-American market.

On the whole, the wines of Cabernet sauvignon from America, have a total acidity between 3.18 g/l (H_2SO_4) in the case of the produce from Chile and 4.41 g/l in the case of a wine from California. In general, the total acidity proportions have an average of 3.74 g/l expressed in H_2SO_4 . At the wines obtained in the vineyards of Oltenia total acidity has a higher value that is between 3.85 g/l (Vlădaia) and 4.35 g/l (Oprișor and Drăgășani). Such as in the case of alcohol, the total acidity as average of the averages – on the whole wines from Oltenia – has a higher value, 4.12 g/l (H_2SO_4) with 0.38 g/l higher in comparison with the average obtained for the wines from the north-American market.

The glicerol, constituent with significant influence on the base composition of the wines, but especially on the gustative features of the wines, can blur the harshness character given by the tannins and can offer fineness and unctuousness, has values between 9.25 g/l (in a wine from California) and 11.10 g/l (in a wine from Australia), in all the wines from U.S.A. we obtained an average of 10.35 g/l. In the wines of Cabernet Sauvignon from the vineyards of Oltenia the glicerol proportions are, in general, higher, being between 12.0 g/l (Drăgășani) and 13.16 g/l (Vlădaia).

The unreduced extract measure that offers fullness and firmness to the red wines, has values corresponding to the superior quality, both in the produces from the north-American market and in the ones obtained in the vineyards of Oltenia. In the autochthonous wines and the foreign ones that are on the U.S.A. market, the unreduced extract has values between 25.18 g/l (Chile) and 26.99 g/l (in an imported wine from Romania). Closely to these wines, concerning the extraction ratio, there are the wines from Australia and California.

*The Comparative Study Concerning the Composition of Some Red Wines
from the U.S.A. Market and of the Wines from the Same Wines Obtained
in the Hill Areas of Oltenia*

The unreduced extract contents of the wines from the north-American market have an average of 26.10 g/l with 1 g/l lower than the one of the Cabernet Sauvignon wines from the hill areas of Oltenia. In the last ones the unreduced extract doesn't descend under 25.62 g/l (Drăgășani), but raises until 29 g/l (Orevița – Mehedinți).

The ash, that incorporates – actually – the mineral substances (anions and cations) – as it is known – is important on many plans: compositional, safe food and technological. This oenologic measure has absolute values between 2.25 g/l (South Africa) and 2.60 g/l (in an imported wine from Romania), in the case of the ones from the American market. In the wines from Oltenia vineyards this parameter has values between 2.35 g/l (Vlădaia) and 2.89 g/l (Orevița). On the whole wines from the American market, the ash has an average of 2.40 g/l, but for the wines from Oltenia, the average is of 2.60 g/l (with 0.20 g/l higher).

In the wines bought from U.S.A., the anthocyanins contents oscillated between 147 mg/l (in a wine from California) and 905 mg/l (in a romanian wine from Las Vegas), with an average of 507.5 mg/l. For the wines from Oltenia, the anthocyanins contents are between 696 mg/l (Vlădaia) and 892 mg/l (Sâmburești), with an average of 779 mg/l, bigger with 272 mg/l than the upper mentioned situation.

Corresponding to the anthocyanins contents are the values of the colouring intensity ($I = D.O. 420 \text{ nm} + D.O. 520 \text{ nm} + D.O. 620 \text{ nm}$), being between 0.631 (a wine from California) and 1.028 (at the wines imported from Romania), with an average of 0.871 for the first category and between 0.812 (Drăgășani) and 1.105 (Orevița), with an average of 0.912 for the second category. The colour tonality expressed by the ratio between the yellow-orange pigments and the red ones ($T = D.O. 420 \text{ nm} / D.O. 520 \text{ nm}$), emphasizes, in all cases, a remarkable quality of the colour for all the analyzed wines, that exerts a favourable influence concerning the organoleptic aspect. The produces being without visual irritating nuance (blue, mauve, violet) are attractive and consumed with much pleasure.

The main compositional contents of Merlot red wines from the U.S.A. market and of the wines from the same variety obtained in the vineyard of Oltenia are quantified in table 2.

Table 1. Comparison among the main compositional parameters of some Cabernet Sauvignon red wines from the north-american market and of the wines obtained in the vineyards of Oltenia

Variety	Country of origin	Alcohol % vol	Total acidity g/l H ₂ SO ₄	Glicerol g/l	Unreduced extract g/l	Ash g/l	Anthocyanins mg/l	Ic	Tc
Cabernet Sauvignon	Chile	13.0	3.18	10.10	25.18	2.36	756	0.874	0.768
Cabernet Sauvignon	South Africa	14.5	3.52	12.08	25.27	2.25	433	1.005	0.814
Cabernet Sauvignon	California	13.0	4.41	10.05	26.64	2.40	805	0.880	0.856
Cabernet Sauvignon	California	13.0	3.72	10.06	26.45	2.41	256	0.847	0.864
Cabernet Sauvignon	California	12.5	3.67	9.55	26.40	2.36	176	0.710	0.956
Cabernet Sauvignon	California	12.5	3.62	9.25	25.90	2.35	147	0.631	1.010
Cabernet Sauvignon	România	13.0	3.92	10.65	26.99	2.60	905	1.028	0.887
Cabernet Sauvignon +Shiraz	Australia	14.0	3.87	11.10	26.00	2.49	582	0.995	0.769
MEDIA	-	13.18	3.74	10.35	26.10	2.40	507.5	0.871	0.865
Cabernet Sauvignon	România-Orevița	13.6	4.20	12.87	29.05	2.89	862	1.105	0.610
Cabernet Sauvignon	România – Opreșor	13.4	4.35	12.62	28.80	2.75	789	0.972	0.626
Cabernet Sauvignon	România–Vânju Mare	13.3	4.15	12.77	26.40	2.49	852	0.910	0.590
Cabernet Sauvignon	România – Vlădaia	14.6	3.85	13.16	25.50	2.35	696	0.815	0.675
Cabernet Sauvignon	România – Banu Mărăciine	13.1	4.05	12.15	27.10	2.66	710	0.834	0.665
Cabernet Sauvignon	România – Segarcea	13.4	3.96	12.10	27.60	2.70	732	0.871	0.602
Cabernet Sauvignon	România–Sâmburești	12.9	4.12	12.00	27.14	2.65	892	0.980	0.596
Cabernet Sauvignon	România– Drăgășani	12.6	4.35	12.05	25.62	2.36	706	0.812	0.675
MEDIA	-	13.36	4.12	12.46	27.15	2.60	779	0.912	0.629

*The Comparative Study Concerning the Composition of Some Red Wines
from the U.S.A. Market and of the Wines from the Same Wines Obtained
in the Hill Areas of Oltenia*

Table 2. Comparison among the main compositional parameters of some Merlot red wines from the north-american market and the ones obtained in the vineyards of Oltenia (averages)

Variety	Country of origin	Alcohol % vol	Total acidity g/l H ₂ SO ₄	Glicerol g/l	Unreduced extract g/l	Ash g/l	Anthocyanins mg/l	Ic	Tc
Merlot	Argentina	13.0	3.57	9.67	25.30	2.31	253	0.601	0.939
Merlot	România	13.0	4.01	10.60	27.05	2.66	437	1.025	0.836
Merlot	California	13.0	3.43	10.06	25.90	2.36	325	0.796	0.856
Merlot	California	13.0	3.62	10.05	25.27	2.40	316	0.550	0.805
Merlot	Italia	12.0	3.77	9.50	25.10	2.32	362	0.696	0.790
Merlot	Italia	11.0	3.96	8.67	23.84	2.21	256	0.432	0.810
MEDIA	-	12.50	3.73	9.76	25.41	2.37	325	0.683	0.837
Merlot	România – Orevița	13.0	4.06	13.4	28.32	2.89	510	1.208	0.750
Merlot	România – Vânu Mare	13.9	3.72	14.1	27.56	2.77	486	1.160	0.778
Merlot	România – Vlădaia	13.3	4.00	15.2	28.25	2.69	522	1.42	0.618
Merlot	România – Banu Mărăcine	12.6	3.92	11.6	26.90	2.61	506	2.32	0.710
Merlot	România – Sâmburești	12.3	4.16	12.1	27.42	2.69	602	1.410	0.695
Merlot	România – Segarcea	12.5	4.12	11.8	28.10	2.72	516	1.231	0.709
Merlot	România – Dealul Viilor	12.8	4.10	11.7	27.05	2.70	493	0.960	0.716
Merlot	România – Drăgășani	12.1	4.32	10.9	26.04	2.59	389	0.885	0.720
MEDIA	-	12.81	4.04	12.6	27.45	2.71	503	1.19	0.712

Except the wines from Italy that had an alcoholic degree of 11-12 % vol., at all the other produces this compound had the value of 13 % vol. At the wines obtained in the vineyards of Oltenia the alcoholic degree is between 12.1 % vol. (Drăgășani) and 13.9 % vol. (Vânju Mare), with an average of 12.8 % vol., bigger with 0.3 % than the average established for the wines from the north-american market. The total acidity with limites of variation between 3.43 g/l and 4.05 g/l, with an average of 3.73 g/l for the wines from U.S.A., has lower values than in the romanian wines with a parameter variation between 3,72 g/l (Vânju Mare) and 4.32 g/l (Drăgășani), with an average of 4.05 g/l.

Important differences, sometimes considerable, are recorded at the other measures, too: glicerol, unreduced extract, ash and chromatic features, to the wines from the viticultural hill areas advantage.

The glicerol of the wines from the american market has values between 8.67 g/l (Italy) and 10.60 g/l (România), with an average of 9.76 g/l. At the wines from Oltenia we recorded a bigger variability (10.9 – 15.2 g/l) but at higher levels, "expressed" by an average of 12.6 g/l, with 2.8 g/l higher than the one obtained at the wines from Las Vegas.

The analytic dates emphasize that even at extractivity the wines from Oltenia establish a plus of nearly 2 g/l considering the average. A comparison of the wines emphasizes extractivities of 27 – 28 g/l at the Romanian wines (even at the one that exists on the American market), while at the wines from Italy, Argentina and California the unreduced extract doesn't reach the value of 26 g/l. Comparatively to the unreduced extract, the ash has values between 2.21 g/l and 2.66 g/l, with an average of 2.37 g/l at the wines from U.S.A., and between 2.59 g/l and 2.77 g/l, with an average of 2.71 g/l, at the wines from the hill areas of Oltenia.

Merlot wines from Oltenia are richer concerning the red colour, aspect emphasized by the anthocyanins contents that are between 486 mg/l and 602 mg/l, with an average of 503 mg/l, comparatively to the proportions that are between 253 mg/l and 437 mg/l, with an average of 325 mg/l that is recorded for the wines from the American market.

The colour tonality, by its values, signifies in all cases red – ruby colour that is very brilliant and very attractive concerning the visual aspect.

Conclusions

Comparing more wines bought from the north-american market that were obtained in: California, France, Italy, Argentina, Chile, Greece, Australia, New Zealand, South Africa and so on, with more wines obtained in the hill vineyards from Oltenia it comes out the followings:

1. At the red wines of Cabernet Sauvignon:

- The alcoholic degree of the wines from the north-american market is between 12.5 and 14.0 %, and at the ones from Oltenia is between 12.6 and 14.6 % being comparable on the whole.
- Concerning the acidity, glycerol, unreduced extract, ash, anthocyanins and colouring intensity of the wines obtained from the viticultural hill areas of Oltenia, we established higher values and the differences are of: 6.5 % at acidity; 12.2 % at glycerol; 4.4 % at extract; 4.4 % at ash; 33.8 % at anthocyanins.

2. At the red wines of Merlot:

- The alcoholic degree of the produces from the American market has round values, being between 11.0 % and 13.0 % being, as average, a little bit under the recorded average at the wines from Oltenia, with variability between 12.1 % vol. and 13.9 % vol.
- Similar to the wines of Cabernet Sauvignon: the total acidity, glycerol, extract, ash, anthocyanins, colouring intensity record higher values such as the ones of Cabernet Sauvignon.

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