INFLUENCES OF DIFFERENT MEASURES ON THE QUALITY OF SPARKLING WHITE WINES

INFLUENŢA DIFERITELOR MĂSURI ASUPRA CALITĂŢII PRODUSELOR DE TIP VIN ALB SPUMOS

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Abstract. *Currently winemaking sector highlighted the necessity of investigating and promoting new blends obtained from newly created and classic European varieties to produce high quality sparkling wines. Therefore it was necessary to specify the optimal composition of these blends. In this article, the European grape varieties used were Chardonnay, Riesling, Aligote, Sauvignon, Pinot blanc, Pinot gris and newly created grape varieties as Muscat de Ialoveni, Floricica, Viorica, Hibernal. It was determined that the use of base wines from classic European varieties blended with wines from newly created grape varieties influences to different extents the quality of the final product.*
Key words: Sparkling wine, blend components, classic varieties, newly created grape varieties

Rezumat. *În prezent, sectorul vitivinicol a subliniat necesitatea de a investiga şi de a promova soiurile de struguri nou create şi soiurile clasice europene pentru a produce vinuri spumante de înaltă calitate. Prin urmare, a fost necesar să se precizeze compoziţia optimă a amestecurilor vinuri albe de bază pentru spumante, utilizând soiurile europene clasice şi cele nou create. În această lucrare, au fost studiate soiurile clasice europene: Chardonnay, Riesling, Aligote, Sauvignon, Pinot blanc, Pinot gris şi cele nou create: Muscat de Ialoveni, Floricica, Viorica, Hibernal. S-a constatat că utilizarea vinurilor de bază obţinute dintr-un cupaj din soiuri clasice europene şi varietăţile nou create influenţează în diferite proporţii calitatea produsului finit.*
Cuvinte cheie: vinuri spumante, parteneri de cupaj, soiuri de struguri nou create

INTRODUCTION

Over the past decades obvious changes in organoleptic parameters and physico-chemical composition of the base wine for sparkling wines production, were registered, due to climate change as result of global warming. Produced wines are characterized by higher alcohol content and deficiency of total acidity, also they lose organoleptic typicality as young fine wine, therefore is more difficult to guarantee quality of product (Dumanov, 2012).

Formation of typical properties at sparkling wines production depends of numerous factors as: ecological, pedological, climatic conditions, the physico-chemical composition of the grapes in the defined winemaking regions,

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technology of base white wines, methods of treatment and processing of assemblage and blends etc. (Taran and Soldatenco, 2011).

Therefore, the necessity to diversify and improve quality of produced white sparkling wines appears, but also the need to study the potential of new selection vine varieties as blending partners for white sparkling wines. It is necessary to ensure that the obtained blends will provide new, original and high quality sparkling wines, competitive on national and external wine market (Taran *et al.,* 2001).

MATERIAL AND METHOD

The research was conducted in the laboratory of "Biotechnology and Microbiology of Wine" and section of "Microvinification" from Scientific-Practical Institute of Horticulture and Food Technologies (SPIHFT).

As objects of research the dry white wines produced from different newly created grape varieties by SPIHFT (Viorica, Floricica, Muscat de Ialoveni, Hibernal) and European varieties (Chardonnay, Aligote, Riesling, Sauvignon, Pinot gris, Pinot blanc), different blends of different base white wines.

In this research work physico-chemical methods of analysis recommended by the International Organization of Vine and Wine and those elaborated or modified at the SPIHFT were applied.

RESULTS AND DISCUSSIONS

For achieving the main objectives of optimization of blending components for white sparkling wine production, trials were performed:
1. Production of white sparkling wines by blending of base white wines from European varieties.
2. Production of white sparkling wines by blending of base white wines from European and newly created grape varieties.

Blending with use of base white wines from European grape varieties: **Blend 1:** Chardonnay (50%) + Pinot gris (50%); **Blend 2:** Chardonnay (50%) + Pinot blanc (50%); **Blend 3:** Chardonnay (50%) + Aligote (50%); **Blend 4:** Pinot Gris (25%) + Pinot blanc (25%) + Aligote (50%); **Blend 5:** Sauvignon (50%) + Riesling (50%); **Blend 6:** Riesling (70%) + Aligote (30%); **Blend 7:** Riesling (40%) + Sauvignon (40%) + Aligote (20%); **Blend 8:** Riesling (40%) + Sauvignon (40%) + Chardonnay (20%); **Blend 9:** Sauvignon (50%) + Chardonnay (50%).

Blending with use of base white wines from European and newly created grape varieties: **Blend 10:** Viorica (50%) + Chardonnay (50%); **Blend 11:** Viorica (50%) + Muscat de Ialoveni (50%); **Blend 12:** Floricica (50%) + Chardonnay (50%); **Blend 13:** Floricica (33%) + Muscat de Ialoveni (33%) + Hibernal (33%); **Blend 14**: Hibernal (50%) + Chardonnay (50%).

Analysis of physico-chemical parameters (tab. 1) indicates that all produced base white wines correspond to basic quality parameters. Alcohol content ranges from 10.1 to 13.0% vol. Titratable acidity, pH index and redox potential is within acceptable limits. Volatile acidity does not exceed 0.7 g/L.

Table 1

Physicochemical indices of wines obtained by blending of base white wines from European varieties (h.y. 2016)

Name	Alcohol content, % vol.	Total acidity g/L	Volatile acidity, g/L	pH	OR, mV	Reductive sugars, g/L	Reductive extract, g/L	Organoleptic note, points
Blend 1	13.0	5.3	0.66	3.20	217	2.8	16.5	7.85
Blend 2	12.4	5.6	0.66	3.13	220	2.4	15.9	7.90
Blend 3	12.8	5.6	0.56	3.16	219	1.9	16.6	7.90
Blend 4	11.9	6.1	0.59	3.06	225	1.6	16.9	7.85
Blend 5	11.2	6.8	0.53	2.90	234	1.2	17.1	7.95
Blend 6	10.9	7.6	0.63	2.87	236	1.3	17.2	7.95
Blend 7	10.1	6.8	0.53	2.93	233	1.2	16.2	7.95
Blend 8	11.7	6.4	0.66	3.01	228	1.9	16.4	7.90
Blend 9	12.4	5.5	0.53	3.20	216	3.3	16.3	7.85

In order to appreciate the quality of the initial blends of base material for the sparkling wines the organoleptic evaluation was carried out and the results are shown in Figure 1.
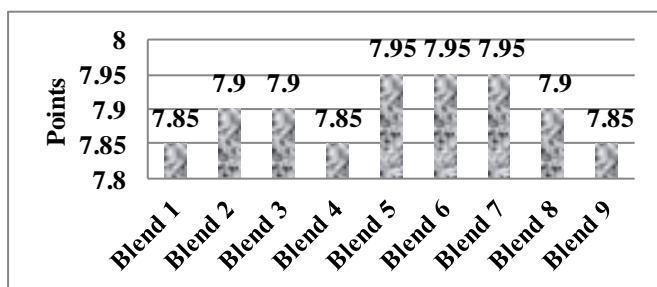

Fig. 1 Organoleptic evaluation of blends obtained from base white wines from European varieties

According to the organoleptic evaluation of obtained blends we can highlight those obtained by blending Riesling + Sauvignon, Riesling + Aligote and Riesling + Sauvignon + Aligote, that accumulated 7.95 points and were appreciated as balanced, with typical taste and with floral nuances in aroma. The lowest marks were obtained by blends from Pinot Blanc + Pinot Gris + Aligote, Chardonnay + Pinot Gris and Chardonnay + Sauvignon. All blends have accumulated a sufficient score and can be used for production of white sparkling classic wines. In order to appreciate the potential of newly created varieties for white sparkling wines, five blends in combination with European varieties were formed. The obtained results of the physico-chemical parameters are presented in table 2.

Analyzing the results from table 2 we can conclude that blending of base wines produced from newly created grape varieties with those from European varieties are high quality. Alcoholic concentration varies depending on the blend

composition. Blend 14 (Hibernal + Chardonnay) is characterized by an alcoholic concentration of 13.0% vol. while the lowest value is observed in blend 11 with 10.8% vol. of alcohol. Titratable acidity varies depending on the blend composition from 6.5 g/L up to 7.8 g/L. Volatile acidity doesn't exceed 0.7 g/L.

Table 2

Physico-chemical and organoleptic indices of blends obtained by mixing of white wines from European varieties and new selection varieties

Name	Alcohol content, % vol.	Total acidity, g/L	Volatile acidity, g/L	pH	OR mV	Reducing sugar, g/L	Reducing extract, g/L	Organoleptic note, points
Blend 10	12.3	6.5	0.53	3.04	226	3.8	16.3	8.00
Blend 11	10.8	7.4	0.60	2.79	241	1.5	19.1	7.95
Blend 12	12.6	7.1	0.60	2.99	229	4.0	16.3	7.90
Blend 13	11.7	7.8	0.59	2.86	237	1.6	19.5	7.95
Blend 14	13.0	6.5	0.66	3.14	228	2.4	16.4	7.90

Organoleptic evaluation allows to highlight wines produced from Viorica, Floricica and Muscat de Ialoveni varieties which were used in blends 10, 11 and 13 and have accumulated the highest organoleptic notes. All blends of wines were rated as qualitative, correspond to the basic technical requirements and can be used in white sparkling wines production.

CONCLUSIONS

After technological, physical-chemical and organoleptic appreciation of optimal blends composition, blends 5,6,7 were highlighted. They were produced from blending wines obtained from European varieties and blends 10,11,13 obtained by mixing wines from European varieties with those obtained from newly created grapes at SPIHFT and can be recommended for production of high quality white sparkling wines.

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