RESEARCH ON IMPROVING THE PRODUCTION TECHNOLOGY OF THE RED WINE OBTAINED FROM THE LOCAL VARIETY CODRINSCHI IN REPUBLIC OF MOLDOVA

CERCETĂRI PRIVIND AMELIORAREA TEHNOLOGIEI DE PRODUCERE A VINULUI ROŞU DIN SOIUL AUTOHTON CODRINSCHI ÎN REPUBLICA MOLDOVA

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Abstract. *Are presented research results on the influence of different technological processes used in domestic Codrinschi species of grapes, harvested in the central region of Moldova on the extraction of phenolic compounds and chemical composition of wine: maceration-fermentation of the pulp(control); adjusting the ratio of solid and liquid phase by separating the wort preventively ; thermal treatment of pulp; using enzyme preparations and wine produced from the same species harvested in the South, Crocmaz village by maceration-fermentation of the pulp.*
Key words: Grapevine variety Codrinschi, maceration-fermentation, Central region, South region, Republic of Moldova

Rezumat. *În lucrare sunt prezentate rezultatele cercetărilor privind influența diferitor procedee tehnologice utilizate la prelucrarea strugurilor de soiul autohton Codrinschi, recoltați din regiunea Centru a Republicii Moldova asupra extragerii compuşilor fenolici şi compoziției chimice a vinurilor. Variantele folosie au fost: macerarea-fermentarea pe boştină (martor); reglarea raportului dintre faza solidă şi lichidă prin separarea inițială a mustului; tratarea termică a mustuielii; utilizarea preparatelor enzimatice, precum şi vinul obținut din acelaşi soi recoltat din regiunea Sud, plaiul Crocmaz prin macerarea-fermentarea mustuielii.*
Cuvinte cheie: soi autohton Codrinschi, macerarea-fermentarea, regiunea Centru, regiunea Sud, Republica Moldova

INTRODUCTION

In present, wines marketing competition in the world is very hard. It depends on the quality and effectiveness of promoting them. The varieties of wines established in many countries consist mainly of classic French grape varieties. Olso, at this chapter, more and more countries highlights the basic grade of some grape varieties, so called "National", on whom are created the wine brand (Rusu, 2006, Pomohaci et al., 2000). In this context, is attractive experience gained in the last few years of Georgia, that are promoted with a great eagerness wines obtained from the varieties of wines as Saperavi and Rcațiteli, but in Bulgaria more popular are wines obtained from native varieties as Mavrud, Rubin and Melnik.

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The Republic of Moldova has some new varieties for the selection of National Institute of Winegrowing and Winemaking, and local varieties which have a value that could not be calculated. On a large scale, their use would contribute to creatie identity moldavian wines (Apruda et al., 1992, Țuțuc et al., 1998).

From local varieties of red wines, Codrinski variety represents a great interest which until now has not been the subject of extensive research in the development of relevant technologies of processing grapes.

The purpose of the work is development of a technology of processing grapes from the variety Codrinschi and chemical composition analysis of the wine, especially as regards the content well as phenolic compounds.

MATERIAL AND METHOD

For research has been used Codrinschi variety grown in the Center region, village Stauceni, as well as in the South region, village Purcari.

Experimental samples of wine were obtained through the use of the following technological process: maceration and fermentation (control); initial separation of musts to 10 % (variant I); idem 20% (variant II); thermal treatment of must at 70°C during 30 minutes (variant III); use of enzymatic preparations Enovin Color (variant IV) and Trenolin Color (variant V). The South region grapes-maceration and fermentation at 25-28°C (variant VI).

Processing of grapes has been carried out in accordance with the conditions of the Institute of Winegrowing and Winemaking of harvest - 2009; physico-chemical analyzes have been made by according to OIV methods.

RESULTS AND DISCUSSIONS

The investigation results of physico-chemical composition of samples obtained by different technological process are shown in the table 1. Data obtained indicates that red wines of the Center region have an alcoholic strength of between 12.3 and 13.6 % vol.

Research has shown that wines produced from the Codrinschi variety are distinguished by content in organic acids, whitely values between 6.8 and 8.0 g/L. In red wines investigated the pH Index varies from 3,20 to 3,38. Total soluble salts have large quantities in the Codrinschi wine obtained using enzymes.

Red wines were investigated to the content of substances phenolic, antocianic and chromatic indices of color. It has been found that the antocianic concentration differs in dependency on the process used and the place of origin of the grapes and reaches values from 264 to 422 mg/l in the Center region. Content higher in antocian certifying in the Codrinschi wine from Crocmaz, the South region 528 mg/L.

Research has shown that extraction of phenolic compounds is a function of technological process applied to it. The wine samples obtain in Center region are distinguished by a different content of phenolic compounds, having values between 1288 and 1803 mg/L.

Table 1

Physico-chemical indices in red wines obtained from the variety Codrinschi from the harvest of 2009

Tehnology for grape variety	Alcohol concentration, %vol	Mass concentration of						Staining intensity, $D_{420}+D_{520}$	Hue, D_{420}/D_{520}	pH	Total Solubile salt, mg/L	Conductivity, µS/cm
		Reducing sugar, g/L	Titrabile acid, g/L	Volatile acid, g/L	Sulfuric Dioxid total, mg/L	Fenolic compound, mg/L	Antocian concentration, mg/L					
Control	13,2	1,4	8,0	0,26	57	1494	323	1,92	0,48	3,20	849	1698
Variant I	13,4	1,2	7,1	0,39	65	1648	359	2,35	0,57	3,28	864	1728
Variant II	13,1	1,1	7,1	0,26	69	1803	422	2,50	0,56	3,24	867	1741
Variant III	13,0	2,1	6,8	0,26	70	1751	402	2,30	0,53	3,28	839	1676
Variant IV	12,3	1,4	7,2	0,46	55	1288	264	1,27	0,55	3,38	894	1790
Variant V	12,4	3,3	7,3	0,33	58	1751	402	1,94	0,49	3,33	896	1798
Variant VI (Crocmaz)	13,6	1,7	7,2	0,39	60	2421	528	2,55	0,59	3,22	865	1728

An advanced content of phenolic substances provides maceration and fermentation must with initial separation of musts in theratio of 20 %, thermal treatment of must and use enzyme Trenolin Color. The content of phenolic substances and hue substances depends on the technological process applied to it. Values of more than 400 mg/L have been recorded in variants II, III and V. The intensity of the color samples experimental referred to those obtained by partial separation of musts and termomaceration of pulp, which have values between 2.3 and 2.5 and can be considered as typical color of red wines. The intensity of the color in control wine and the one obtained by the treatment with the Enovin Color enzymes is less than 2.0 and the color of these wines has less feature of this category of red wines.

That sample of the wine produced from grapes grown in South region is distinguished from those of the Center region by physico-chemical composition and especially by the content as phenolic compounds - 2420 mg/L and 528 mg/L antocians. It has more intense color, the value which is 2.55, hue is the 0,59.

CONCLUSIONS

1. Physico-chemical composition and especially the content well as phenolic compounds of the wine made from the local variety Codrinschi depends on the region of origin of the grapes.

2. Climatic Conditions characteristic for Center region what keeps energy resources (heat and radiation) are not optimal for building up sufficient phenolic compounds in grapes of Codrinschi variety, that is why obtaining a deep colored red wine can be provided by the application of technological process more effective, such as partial separation of musts in the ratio of up to 20%, or by using enzymes to the Enovin Color type, that intensifies phenolic compounds extraction.

3. In the South wine-growing zone, due to build-up grapes to a quantity of more advanced phenolic compounds, producing Codrinschi red wine variety can be achieved through by using the classic process of maceration and fermentation for 4-5 days.

REFERENCES

1. **Apruda P.I., Guzun N.I., Cuharschii M.S.**, **1992** - *Novîe raionirovannîe i perspectivnîe sorta vinograda v Moldove*. Chişinău;
2. **Pomohaci N., Stoian V., Gheorghiță M., Sîrghi C., Cotea V.V., Năməloşanu I., 2000** – *Prelucrarea strugurilor şi producerea vinurilor*. vol. I. Editura Ceres, Bucureşti;
3. **Rusu E., 2006** - *Oenologia moldavă: realitatea şi perspectivele*. Ed. Academiei de Ştiințe a Moldovei, Chişinău;
4. **Țuțuc V.A., Cuharschii M.S., Olari F.A.**,**1998** - *Sortiment vinograda Respublichi Moldova,* Chişinău.