STUDY OF THE INFLUENCE OF TECHNOLOGICAL PROCESSES OF SPARKLING WINES PRODUCTION ON THEIR FOAMY PARAMETERS

STUDIUL PROCESELOR TEHNOLOGICE LA PRODUCEREA VINURILOR SPUMANTE ŞI INFLUENŢA LOR ASUPRA PARAMETRILOR DE SPUMARE

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Abstract: *Foamy and frothy properties of sparkling wines depend in a large measure on grape varieties, technological conditions of grape process, technological schemes of blends and cuvee treatment. At the secondary fermentation the quality of sparkling wines depends both on used yeasts and technological conditions of sparkling wines treatment.*

Rezumat.: *Proprietăţile de spumare a vinurilor spumante în marea măsură se află în dependenţă de mai mulţi factori:de tehnologia prelucrării strugurilor şi obţinerea vinurilor materie primă, de procesul fermentaţiei secundare, utilizarea suşelor de levuri, de procesele tehnologice de tratare*

Keywords: grape variety, technological conditions of grape process, must fermentation, selected yeast culture, secondary fermentation, cold stabilisation treatment, isobaric filtration, sparkling wine.

Cuvinte cheie: struguri, vin spumant, fermentaţie secundară, suşe de levuri, tratarea vinurilor, proprietaţi de spumare.

INTRODUCTION

One of the main parameters, that characterize the quality of sparkling wines, is foaming and frothing of effervescent wines, which allows us to differ this category of wines from the other. The quality of sparkling wines in a large measure is due to high properties of base wines and at first to foamy properties. At the grape process the quality of base wine depends on respecting of technological conditions and directly both on forestalling of over - enrichment with extractive substances, especially with polyphenols, and avoiding of wine oxydation (Ribereau-Gayon, 1984; Cotea V. 1985, 1988). Physico-chemical parameters of organoleptic appreciation of base wines also vary in a large measure after different technological procedures with the aim of clarification and physico-chemical stabilisation (Taran, Soldatenco, 1995, Prida, 1999).

But in oenological practice no scientific research on stabilisation of the influence of technological processes at different stages of sparkling wines production on foamy properties is effectuated with the aim to improve the quality of final product.

The aim of this study is to find out the influence of technological procedures of sparkling wines production on foamy properties at the following stages:

- grape process;
- must fermentation;
- base wine treatment;
- secondary fermentation of sweetened wine;
- cold stabilisation treatment and filtration of sparkling wines.

MATERIALS AND METHODS

Scientific research had been effectuated both in the laboratory „Sparkling Wines and Microbiology" and section „Microwinemaking" at the National Institute for Viticulture and Winemaking (NIVW) and at the Wine Factory „Cricova" during 2006-2008.

In our study we used: must made from grape varieties Chardonnay, Pinot blanc, Pinot gris, Sauvignon, Riesling and Aligote; active dry yeast; base wine and sparkling wine after secondary fermentation.

Physico-chemical parameters of base wine had been determined according to the methods recommended by OIV and modificated ones at NIVW. Foamy parameters of base wines had been determined instrumental according to the international method using the special installation „Mossalux" (France). Determination of the wines foamy properties is based on the intrerruption of infra-red light bunch by the foam of studied wine because of injection of the gas carbon dioxide (CO_2) in standart conditions through a filter with calibrated porous fibres. The foamy properties of wines are expressed by the determination of the following parameters:

- maximal height of the foam (MH)
- height of the foam stabilisation(HF)
- time of the foam stabilisation (TF)

RESULTS AND DISCUSSIONS

Foamy properties of base wines depend in a large measure on the grape variety, from which they are made. The content of superficial active substances, that form foam and froth in effervescent wines in general, and in sparkling wines in particular, is a specific feature of grape varieties. The study during 2006-2008 has shown that all varieties used in sparkling wines production may be divided in 3 groups:

1. Grape varieties with high foamy properties: Chardonnay and Pinot group (gris, franc, blanc).
2. Grape varieties with midle foamy properties: Traminer, Aligote, pinot meunier.

3. Grape varieties with low foamy properties: Sauvignon, Rcatiteli, Suholimanschii belii etc.

Grape varieties of new selection are characterized with low foamy properties of obtained dry wines and also is refered to the proup 3.

The technological grape process has a major influence on physico-chemical parameters and foamy properties of base wines. The method of grape pressing and must separating directly influence foamy properties, but corect selecting of yeast culture for must fermentation allows us to increase considerably the content of substances, that form extract, and to improve foamy properties of obtained wines.

The study, effectuated in production conditions at the Wine Factory "Cricova" (2007-2008), allowed us to find out the influence on the content of sugar-free extract and base wines foamy properties of the following technological factors:

- Temperature of must fermentation;
- Doses of SO_2;
- Duration of young wine maintaining on yeast sediment.

At the treatment and stabilisation of base wines we found out the following the most important technological procedures, that influence foamy properties:

- The origin of fining and treatment materials;
- Doses of used materials in treatment process;
- The conditions of wine cold stabilisation treatment and filtration at low temperature;
- Duration of the base wine maintenance.

At the secondary fermentation of the sweetened wine we studied and established the influence of the following technological factors:

- The influence of selected yeast culture at the secondary fermentation;
- Cold stabilisation treatment and filtration of sparkling wine;
- The use of expedition liqueur.

CONCLUSIONS

1. The influence of grape varieties on physico-chemical parameters and foamy properties of base wines has been established. Obtained results allowed us to classify base wine for sparkling wines in 3 groups after foamy properties.
2. The influence of technological conditions of grape process and wine production on physico-chemical parameters and foamy properties of base wines has been established.
3. The influence of technological treatments and secondary fermentation procedures on the content of sugar-free extract and foamy properties of base wines and final sparkling wines has been established.

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