THE ANALYSIS OF BURGUND RED WINES POLYPHENOLS
CONTENT OBTAINED IN MINIS AND MURFATLAR VINEYARDS

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Abstract. The researchers that were done regarded the evolution of phenolic compounds at superiors red wines from Burgund variety, obtained in Minis and Murfatlar vineyards during five years period of time.

In the purpose to obtain extractive wines and intensely coloured, external enzymatic mixtures was experienced during the maceration and fermentative processes, and for some technological phases improvement for primary wine making process.

During the hole period of study physical and chemical analyses were done to superior red wines obtained from Burgund variety, beginning with the end of alcoholic fermentation, malolactic fermentation, at 3 months, 6 months, 9 months, 12 months, 18 months and after that yearly, as for the wines obtained with external enzymatic mixtures used during the maceration – fermentation process, as for the one which weren’t treated with enzymes.

Through external enzymatic mixtures utilisation the antocians and total poliphenols to superior red wines obtained is the biggest contribution which contribute the their quality improvement, especially to colours and extractive character.

INTRODUCTION

Nowadays it is emphasize on maceration and fermentation processes which accelerate the extractive processes for coloured substances so the obtained wines to rich a good intensity of colour in a relatively short period of time, making possible the maceration process shortening. This could be realised by using the enzymes mixtures applied directly to must, at the beginning of alcoholic fermentation. It will be extracted through this process, the antocians and other compounds from membranes and seeds, within the tannins have an important role on red wines quality and characteristics.

The pectolitic enzymatic mixtures for oenology are obtained from other sources than grapes, by using biotechnological procedures, having as source some moulds. By enzymatic mixtures specific for colour extraction, in the red wine case, Vinozym G was used, an enzymatic mixture obtained through submerse fermentation of a culture environment using an Aspergillus niger species. Vinozym G presents an pectinazic, poligalacturozic, hemicelulasic and celulasic activity. The product is used for black grapes maceration for an efficacy increasing, must viscosity decreasing by its action through its depectisant action, coloured and aroma substances extraction.
MATERIAL AND METHOD

Regarding superior red wines obtaining by high quality from Burgund grapes variety they were harvested at full maturity, in specific conditions for each vineyard, were processed with a maceration – fermentation technology in metallic rotating tanks. It was made a sulfatizingn using SO$_2$ solution by 6% concentration, in two stages: 60% of the dose on grapes and 40% of the dose on must.

The quantity of Vinozym G enzymatic mixture added to must was 2g/hl. After the alcoholic and malolactic fermentation, the obtained wine was conditioned.

Wine maturation was made in oak wood casks and the obsolescence in glass bottles. During the wine preservation a 25-35 mg/l free SO$_2$ was maintained.

Physical and chemical analyses were made for the wine that was processed in this way, after the alcoholic fermentation, after the malolactic fermentation was made at 3 months, 6 months, 9 months, 12 months, 18 months and after that yearly for the obtained wine without enzymatic mixtures (the witness wine) and for the obtained wine through maceration – fermentation process with enzymatic mixtures by adding Vinozym G enzymatic mixture.

The anthocans content determination, colour intensity, savour, total poliphenol content were made using Helios UV-VIS spectrophotometer.

RESULTS AND DISCUSSIONS

After the analyses were made on red wines made from Burgund grapes variety in the ecological and climatic conditions specific for Minis vineyard it is observed that at the end of alcoholic fermentation the antocians content of red wines enzymatic treated are framed between 524– 660 mg/l, and for red wine that were not enzymatic treated, between 465–540 mg/l. The content of total poliphenols for red wines non-treated with enzymes the values are small (1,74 – 2,14 mg/l) comparative with the wines which were enzymatic treated (2,22 – 2,51 mg/l). The average values for antocians and total poliphenols content at superior red wines made from Burgund grapes variety obtained in Minis vineyard are shown in figure 1.

Analysing the superior red wines made by Burgund grapes variety obtained in ecological and climatic conditions specific for Murfatlar vineyard it is observed that using enzymatic mixtures, the antocian and total polifenois for the obtained red wine is bigger. At the end of alcoholic fermentation the antocians content for red wines which were enzymatic treated, is situated between 496 – 595 mg/l, and for red wines which were not treated with enzymes the results are between 420 – 530 mg/l. The content of total poliphenols in red wines which weren’t treated with enzymes the values are smaller (2,52 – 2,70 mg/l) comparatively with the one which were treated with enzymes (2,73 – 2,90 mg/l). The average values for antocian and total poliphenols for superior red wines made from Burgund variety and obtained in Murfatlar vineyard are shown in figure 2.

The antocian and total polifenols content in red wines made from Burgund variety which were obtained in both vineyards is decreasing in during the wine maturation and obsolescence.
Fig. 1. Comparative evolution of antocians and total poliphenols from wines made from Burgund grapes variety – average values – obtained in Minis vineyard

Fig. 2. Comparative evolution of antocians and total poliphenols from wines made from Burgund grapes variety – average values – obtained in Murfatlar vineyard
CONCLUSIONS

The utilisation effects of enzymatic mixtures used in black wines wine making depend by many factors within some of them are: antocianic and poliphenolic potential for grapes varieties, harvesting particularities in that year, primary wine making, the nature of enzymatic mixture used and the doses which were used.

The enzymatic mixture utilisation has favourable effects on total efficiency in total must and wine, and regarding to poliphenolic substances solubility and extraction, (with 15-20%) from grapes, this is reflected by chromatic indices of red wines.

The wine which were treated with external enzymatic mixtures are more intense coloured, with a higher content in antocians (cca. 12-15%) and total poliphenols comparative with the ones which weren’t enzymatic treated.

During the wine maturation and obsolescence it was find out that antocians and total poliphenols from superior red wines made from Burgund grapes variety, as for the ones which was enzymatic treated as for the ones which were not enzymatic treated, because of the condensation and polymerisation processes where the phenolic compounds are taking place.

Usage of the external enzymatic mixtures is make up a technological optimisation for red wines obtaining, influencing in a positive way the sensorial features, physical and chemical features and their stability.

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