INFLUENCE OF TRELLIS SYSTEM ON CHEMICAL COMPOSITION OF TROPICAL RED WINES FROM BRAZIL

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INTRODUCTION

The grapevine can be managed by different trellis systems, with diferent objectives: define form of the plants, modify the conditions of canopy microclimate, facilitate the production, control pests and diseases, and provide better quality in fruit maturation, modifying optimal exposure of the leaves to light (REGINA et al., 1998). The wine quality is linked to the grape, which is directly influenced by climatic conditions of the harvest. The production of grapes and wines in the Valley of Submédio San Francisco is distinguished from other traditional regions due to its climatic conditions, this factor that directly affects the grape composition. Thus, the objective of this study was to evaluate the influence of two trellis systems on the composition of tropical red wines from Cabernet Sauvignon.

MATERIAL AND METHODS

The wines were elaborated with Cabernet Sauvignon grape variety, cultivated in espalier system, and two branche orientations, in two positions ("Ascending" and "Downward"). After stabilization of the bottle for thirty days, they were analised by spectrophotometric and physical-chemical analyses, following official methods of the OIV (1999). The results of the analysis in triplicate were subjected to statistical analysis (ANOVA) and Principal Component Analysis (PCA).

RESULTS AND DISCUSSION

The wines of the two trellis systems showed statistical differences for most of the parameters analyzed (Table 1).

The classical analyses are in accordance with the established by Brazilian legislation for dry fine wines (Brazil, 2004). Wines from grapes cultivated in downward trellis system presented higher values of alcohol content, dry extract, color, anthocyanins and antioxidant activity than wines from ascendent positionned branches. Statistical analysis by ACP, it is remarkable that wines from grapes of the "Ascending" system contributed to wines with higher concentrations of total acidity, total polyphenol index and total phenols. Wines presented different enological potential.

Table 1. Physical-chemical characterization of the tropical wines.

Parameters	Treatments	
	Ascending	Downward
Density	0,9947 a	0,9943 a
Alcohol (%v/v)	11,94 b	12,56 a
Dry Extract (g.L^{-1})	27,10 b	27,90 a
pH	3,97 b	4,06 a
Total acidity (g L^{-1})	5,40 a	4,95 b
Volatile acidity (g L^{-1})	0,47 a	0,49 a
Free sulfur dioxide (mg L^{-1})	20,22 a	20,74 a
Total sulfur dioxide (mg L^{-1})	25,60 a	23,04 b
Index of total polyphenol	44,83 a	42,97 b
Color Intensity	9,29 b	9,65 a
L*	7,83 a	6,79 b
a*	36,17 a	34,55 b
b*	13,50 a	11,70 b
C*	38,61 a	36,47 b
H*	20,46 a	18,71 b
Anthocyanins (mg L^{-1})	246,31 b	257,25 a
Total phenolics (mg L^{-1})	2357,50 a	2106,64 b
DPPH (mMTrolox L^{-1})	9,69 b	9,90 a

Means followed by the same letter in the line do not differ by Tukey test p < 0,05%.

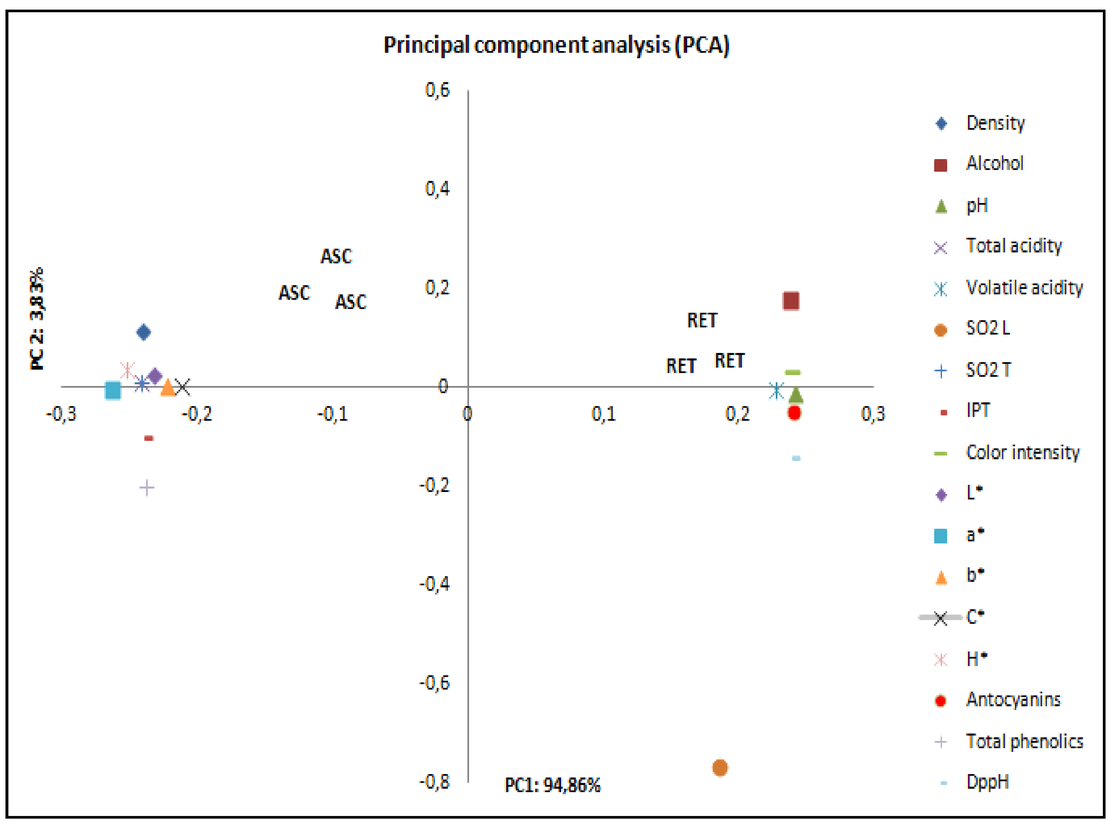

Figure 1. PCA applied on classical and spectrophotometric data obtained of wines elaborated from grapes cultivated in ascendent and downward trellis systems. PC1 x PC2 explained 97.86% of total variability.

CONCLUSIONS

The position of the vine branches and over exposure of the grapes during maturation interfered on the grape compositions and consequently in the wine typicality.