

Significance of the Study: New studies will be carried out to evaluate the influence of harvest date on grape and wine phenolic compound profiles.

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ENOLOGICAL POTENTIAL OF GRAPES PRODUCED IN DIFFERENT PERIODS IN A TROPICAL REGION OF NORTHEAST BRAZIL

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Background and Aims: The lower-middle São Francisco river Valley is a new viticultural region located in northeast Brazil, between 8° and 9°S latitude. In this region it is possible to have two–three harvests a year, mainly due to an annual average temperature of 26.4°C, with about 567 mm of rainfall between December to March plus supplemental drip irrigation and altitude of 350 m above sea level. A continuous vegetative development and grapevine growth occurs throughout the whole year. Grape composition can vary strongly according to harvest time of the year due to different climatic conditions. Wineries harvest grapes for winemaking between May and December. The aim of this study was to compare Tempranillo grape composition harvested in two periods: June and December 2007, to best understand the influence of harvest date on grape quality.

Methods and Results: Vines were introduced in December 2004 and grafted on a vigorous rootstock (*Vitis caribaea* × 101–14 Mgt), cultivated on a pergola trellis system. The analyses carried out on grapes at harvest were berry weight, total soluble sugars, pH and total acidity. The results showed that grapes harvested in June presented similar weights, but very high acidity, very low sugar content and pH as compared to grapes harvested in December.

Conclusions: These results suggest that the winemaking process has to be adapted for each harvest season and the wine potential can vary according to the month of production.

Significance of the Study: New studies need to be made in order to better understand the grape characteristics and tropical wines potential from semi-arid region of Brazil.

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INFLUENCE OF DEHYDRATION TEMPERATURES ON POLYPHENOLS, VOLATILES COMPOUNDS, AND INTERNAL STRUCTURE OF ALEATICO RED WINE GRAPE

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Background and Aims: Temperature is an important parameter for grape drying but its effect on the quality characteristics of grape must be known. In this paper we report the results of experimental work aimed at seeing the effect of drying temperature on Aleatico red grape.

Methods and Results: 10, 20, and 30°C drying temperatures were used with 40% RH and 1.5 m/sec of air flow. Drying was performed up to a weight loss (wl) of 40%. Samplings were done at 10, 20, 30, and 40% wl. Polyphenols were analysed by HPLC and volatiles compounds by GC-SPME. Alcohol dehydrogenase (ADH) was also measured. Moreover, Magnetic Resonance Image (MRI) was used to study the water movement and NIR-AOTF and electric nose as tools to discriminate berry quality during drying. 40% weight loss was reached in 7, 15, and 26 d respectively at 30, 20, and 10°C and total soluble solids were 36, 32, and 30°Brix. At 20°C we observed the highest increase in caftaric acid, catechin, resveratrol and total polyphenols at 10 and 20% of weight loss and successively declined. Anthocyanins declined in all samples. At 20°C the volatile fraction was the richest but with high volatile acidity. ADH activity rose greatly at 10% of wl in 30°C sample. The terpenol fraction was maintained at 10°C. MRI showed a higher rate of internal tissue destructure at 30°C starting from 10% of wl while at 10°C the event occurred at 30% wl. NIR was able already to discriminate samples at 10% wl, and at 10°C the PCA separation among sampling times was clearer than at 20 and 30°C.

Conclusions: 20°C is a good temperature to increase useful compounds for wine up to 20–30% wl; 10°C is a good temperature to maintain primary volatile compounds and control volatile acidity. At 30°C grapes dried fast but the berry quality was lower.

Significance of the Study: This paper is useful for operators who are practicing grape drying for making wine because they can choose the temperature and percentage of weight loss, in order to obtain what they like to have in the wine.