



## Characterization of red wines aged with oak chip in the São Francisco Valley, Brazil

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The São Francisco Valley is the Brazilian region characterized by tropical semi-arid climate. Nowadays it is an emergent region regarding the vitiviniculture and the second largest producer in Brazil where Syrah vines stand out. Besides, new methods of aging have been used for red wine production like oak chips in replacement of oak barrels commonly used in wine maturation. Oak chips may improve sensory quality and chemical stability of the beverage. This research aimed to characterize the physicochemical composition of Syrah tropical wines aged with oak chip addition. Syrah grapes were harvested (22°Brix) in Petrolina, Pernambuco, (EMBRAPA experimental area (09° 09' S, 40° 22' W, 365,5 m), located in the Northwest region of Brazil. Six different wines were produced: control (T1); American oak chip addition in alcoholic and malolactic fermentation (T2); American oak chip addition in malolactic fermentation (T3); French oak chip addition in alcoholic and malolactic fermentation (T4); French oak chip addition in malolactic fermentation (T5); American and French oak chip addition in alcoholic and malolactic fermentation (T6). Winemaking process involved the following steps: alcoholic fermentation (25±1°C) for 20 days; malolactic fermentation (18±1°C) for 34 days; cold stabilization (4°C±1°C) for 10 days and with Stabigum (0.4g.L<sup>-1</sup>); and maceration time of 30 days. Wines were bottled and stored in wine cellar (18°C e 60% of humidity) for one month. Afterwards, the following physicochemical analyses were carried out: total and volatile acidity, pH, total dry extract, density, polyphenols index, alcoholic content (°GL), free and total sulfur dioxide, and color index using spectrophotometer absorbance at 420, 520 and 620 nm (AOAC, 2007). One-way analysis of variance and Tukey's multiple comparison means test were performed on data to check for significant differences (P<0.05). The chip addition, either American or French, did not affect the physicochemical composition of the beverages as no significant differences (P>0.05) in pH, total acidity, density, total polyphenols and dry extract. The wines produced with French oak chip (T4 and T5), control (T1) and American add with French oak (T6) showed higher alcoholic content between 12.90 and 13.43% v/v, and the control wine (T1) presented higher color index (P<0.05) compared to the samples added with oak chips. Generally, the physicochemical properties were not influenced by addition of oak chips. In conclusion, chip addition is a promising technology in winemaking due to its relatively cheaper cost - compared to the traditional wooden barrels - and process time reduction, since the chips are added simultaneously to the fermentation.

**Acknowledgments:** Facepe (APQ-0921-5-07/14) and Embrapa for financial support, Capes for the scholarship granted

### References

AOAC. 2007. (ASSOCIATION OF OFFICIAL ANALYTICAL CHEMISTS). Official methods of analysis. 18.ed. Washington: AOAC,. 3000p.