



Quality of tropical red wines from different varieties in the São Francisco Valley, Brazil

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The vitiviniculture at the São Francisco Valley, Brazil, is a recent and under development activity. It is located in the semi-arid of the northeast of Brazil, with socio-economic importance for the region, since the grape chain generates more than 80,000 direct and indirect jobs. The particular soil and climate conditions of the region, associated with the high incidence of radiation, winter absence and availability of water for irrigation, enable the production of grapes and wines of *Vitis vinifera* L. throughout the year, with two to three harvests per year, depending on the cycle of each variety. The aim of this study was to evaluate the physic-chemical quality of red wines from different varieties, some of them already adapted in the region. 'Petit Verdot', 'Tempranillo', 'Syrah', 'Malbec', 'Cabernet Sauvignon' and 'Merlot' grape varieties were harvested in November, 2014 and June and November, 2015 (2nd, 3rd and 4th cycles of production) and the experiment was carried out at Embrapa Semi-arid experimental field in Petrolina, Pernambuco, Brazil (09 ° 09 'S, 40 ° 22' W, 365.5 m). In this experiment the plants were conducted in espalier system, grafted onto Paulsen 1103 rootstock and drip irrigated. The winemaking process involved the following steps: alcoholic fermentation ($25\pm1^{\circ}\text{C}$) for 20 days with eight days of maceration time; malolactic fermentation ($18\pm1^{\circ}\text{C}$) for 30 days and cold stabilization (0°C) for 30 days. Wines were bottled and stored in wine cellar (18°C and 60% of humidity) for one month. Afterwards, the following physic-chemical analyses were carried out: total and volatile acidity, pH, total dry extract, density, total polyphenol index, alcoholic content, free and total sulfur dioxide, total anthocyanins and color intensity. All wines presented high pH (≥ 4.0), low total acidity and total polyphenol index, probably because young plants at the beginning of their first production cycles were used. In general, the results highlighted 'Petit Verdot' variety potential. Wines of this cultivar presented higher alcoholic content ($> 13\% \text{ v/v}$), total polyphenol index (ranging from 50 to 65), dry extract (ranging from 33 to 38 g L⁻¹), color intensity and anthocyanins (ranging from 224 to 495 mg L⁻¹) than other wines evaluated.

Acknowledgment: The authors would like to thank Embrapa for the financial support and CNPq for the scholarships.