

Description of sensory profile of tropical wines of guard issued in the Valley of São Francisco, Northeast Brazil

Carla Valéria da Silva Padilha¹; Aline Camarão Telles Biasoto²; Larissa Felix dos Santos Bragard¹; Juliane Barreto de Oliveira¹; Walkia Pollyana de Oliveira³; Erika Samantha Santos de Carvalho³; Sergio Tonetto de Freitas⁴ and Giuliano Elias Pereira⁵

¹Master in Irrigated Horticulture, UNEB, Juazeiro, BA, Brasil.

²Researcher, Enology, Embrapa Tropical Semi-arid, Petrolina, PE, Brazil.

³Master student in Food Sciences, UNEB, Juazeiro, BA, Brasil.

⁴Researcher, post harvest, Embrapa Tropical Semi-arid, Petrolina, PE, Brazil.

⁵Researcher, Enology, Embrapa Grape and Wine/Semi-arid, Petrolina, PE, Brazil.

Abstract. The objective of this study was to characterize the sensory profile of tropical wine of guard produced in the São Francisco Valley, Northeast Brazil. Two commercial wines, a varietal wine Touriga Nacional and an assemblage wine composed by Cabernet Sauvignon (60%), Syrah (30%) and Alicante Bouschet (10%) were kept for 12 months in oak barrel. Latter, the samples were coded with three-digit numbers and blind tested in standard crystal tasting glasses, model ISO, in aliquots of 40 mL at 18 °C by an expert panel of ten experts with over five years of experience in sensory wine analysis. Three evaluation sheets (descriptive, score and nonparametric) were used. The assemblage wine was characterized in flavor intensity and floral taste, vegetal and woody taste, and taste intensity. Touriga Nacional wine was more evident due to higher clarity, tone and visual intensity, olfactory persistence, fruity, toasty and woody aromas, bitter taste, fruity spice flavors, body, typicality and quality taste.

1 Introduction

Wine production in tropical regions is justified by the absence of grapevine dormancy requirements, allowing grape production and harvest two times a year [7].

Among the tropical winemaking in the world, the São Francisco Valley, in the Northeast of Brazil, is located between latitudes 8 and 9 of the South hemisphere, being the closest winemaking region to the Ecuador. Therefore, this region bounded outside the traditional vine cultivation climate in the world and is recognized as one of the major producing regions of fine wines in Brazil. The São Francisco Valley produces young wines, known as “vinhos do sol”, which present peculiar characteristics of aromas and flavors, as wines of guard that went through aging stages in oak barrels and therefore have a greater complexity of aromas and structure [22].

The main grape varieties used to produce red wines in the region are Syrah, Tempranillo, Cabernet Sauvignon, Touriga Nacional, Petit Verdot, Alicante Bouschet, and Ruby Cabernet.

In the winemaking business, sensorial characterization of wines is usually performed by professionals, as winemakers and sommeliers, aiming to establish the sensory characteristics according to the variety, crop or geographic region, as well as to define

descriptors related to the typicality in order to judge the quality of the wines and validate the sensory impact of agronomic and enological practices [6,9,13,19,25].

The study by experts specialists has been recognized as an important tool for research [2,11,16,18,19,24], they represent an important market segment, since these professionals often consume greater quantities of wine, besides judging them and score them in competitions area [17]. The main purpose of sensory evaluation of wines by experts is the framework of the drink within pre-established quality standards. These quality standards reflect, in most cases, the features comprise terroir and their identity to the locations of the origin of wine. Based on this, the objective of this study was to characterize the sensory profile of tropical wines of guard produced in the São Francisco Valley, Northeast Brazil.

2 Materials and methods

2.1 Wines

The samples were composed of a wine varietal Touriga Nacional and an assemblage wine, made from grapes of Cabernet Sauvignon (60%), Syrah (30%) and Alicante Bouschet (10%). Both went through a stage of twelve months in French oak barrels of second year.

2.2. Sensory analysis

The sensory analysis was performed by a group of ten experts. Expert was defined as the person who fulfilled the criteria used in the study by Parr et al. (2004), which are:

- Established winemakers;
- Wine-science researchers and teaching staff who were regularly involved in wine-making and/or wine evaluation;
- Wine professionals (e.g., Master of Wine; wine judges; wine writers; wine retailers);
- Graduate students in Viticulture and Oenology who had relevant professional experience (e.g., had participated in more than one vintage; had run wine-tasting classes);
- Persons with an extensive (>10 years) history of wine involvement (e.g., family history; extensive wine cellar; regular involvement in formal wine tastings).

The tests were performed in the tasting room of the Laboratory of Enology Embrapa Semi-Arid (Petrolina-PE) under white light, and temperature in individual cabins heated at 22 ± 2 °C.

The samples were tasted blindly, identified by three-digit numbers and served in standard model ISO tasting glasses, in aliquots of 40 mL, the approximate temperature of 18 °C.

Three evaluation sheets were used for the sensory evaluation of wines. The first was a fact sheet where professionals were free to express their opinions about the visual aspects - visual intensity, tone and clarity; olfactory aspects - aroma notes of the sample at rest, aroma notes sample after shaking possible defects found in the aroma; and gustatory aspects which could describe the feeling of attack, evolution and aftertaste of wine, plus balance, aromatic persistence and possible defects of the mouth. The second form it was a form of competition used by the Brazilian Association of Oenology (EBA) consists of a point scale ranging from 0 to 100, where winemakers were asked to mark with an X in the related note to your opinion. At the end, the sum of the scores corresponded to the overall score of the sample analyzed. Finally, the third evaluation form, developed by the author based on chips tasting presented by Born (2008), it was a sheet containing 9 cm unstructured associated with descriptive terms and scales anchored at the left end with terms indicating the lowest intensity, and right with terms indicating greater intensity. In the schedule, the experts evaluated descriptors associated with visual, olfactory and taste samples of aspects.

2.3. Data analysis

For the representation of the sensory profile of the samples Exploratory Data Analysis (averages and graphs in polar coordinates) was performed.

3 Results and discussion

The results of the wine's evaluation, using a score sheet showed that experts have attributed similar notes for the two wines studied. The wine cv. Touriga Nacional got the

highest score with an average score of 83 points, while the assemblage sample obtained 82 points.

When using the non-parametric form of 9cm, the winemakers reported that the Touriga Nacional sample excelled in woody aroma, body, persistence, precision, and aromatic quality. While the sample assembly was characterized in floral aroma, taste sweet, woody flavor and flavor intensity. Sensory profiles of the two wines evaluated can be viewed in Figure 1.

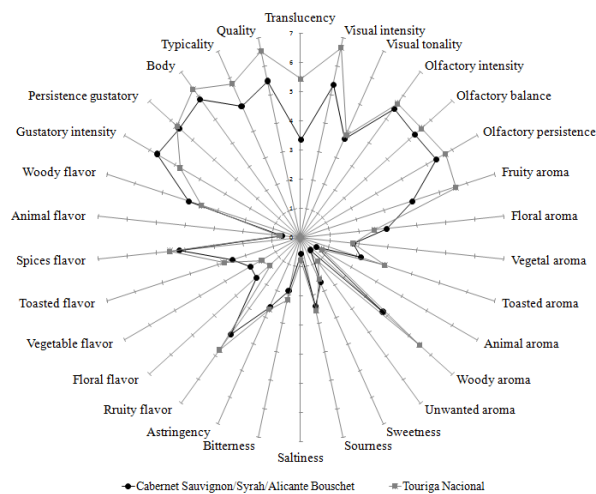


Figure 1: Graphical representation of the sensory profile of samples of commercial red wines guard São Francisco Valley.

The wines from cv. Touriga Nacional are described in the international literature as intense color with violet hues when new. The aroma is also very intense ripe black fruit. Already in the mouth it is full bodied, persistent, robust, tannic and very fruity when young. Has a huge potential for extended aging methods, this time acquiring an elegance, an aroma and unmistakable velvety flavor [4,5,8].

The results generated in this study pointed out as the main descriptors for Touriga Nacional purplish red color intense, opaque and filled with abundant tears of wine color. On the nose are evident notes of red fruit, ripe fruit, pepper and floral. Fruity and astringent taste, medium body, with correct acidity, balanced alcohol. Medium tannins, but with some quality without being too much tearing, or bring bitterness.

Falqué et al. (2003) evaluated the sensory Touriga Nacional wines from the Douro region and characterized with aromas of blackberry, cherry, plum brandy, berries and raisins.

Wines made from Touriga Nacional are also characterized by a fruity citrus aroma, often described as a sweet and fresh citrus evoking the bergamot fruit (Citrus bergamia). Currently the descriptor 'bergamot' is most used to describe the floral aroma of wines from this grape variety with high quality [12].

The cultivar Cabernet Sauvignon wines are described by various authors for presenting intense notes of vegetative and fruity aromas. Some authors claim that this difference is related to the characteristics of the vineyard, where young vineyards or located in colder areas tend to produce more herbaceous wines, while wines made with Cabernet Sauvignon grapes from older

vineyards or warm areas have higher intensity of fruity aromas [15]. Other studies show that vegetative aroma stands out in wines whose grapes had the early harvest, or unripe, while the fruity aroma occurs in wines whose grapes were harvested later [3,23,25]. As the ripening of the grapes increases, fruity notes of Cabernet Sauvignon evolve into black fruit, while sobrematuradas grape wines have aroma of dried fruit [21].

In the present study, the assemblage wine composed of 60% Cabernet Sauvignon was described by experts as being the red ruby color with violet reflections. Nose aroma of red fruits, dried fruits and spices. In the mouth it is tasty, full-bodied, correct acidity, soft tannins and the aftertaste is short.

4. Conclusion

Sensory analysis allowed to differentiate and characterize the sensory profiles of wines guard commercially produced in the Lower Basin of the Valley of the São Francisco region. The varietal wine, made from the Touriga Nacional variety, and the assemblage, made with Cabernet Sauvignon (60%), Syrah (30%) and Alicante Bouschet (10%) presented both interesting and distinct features typicalities with highlighting the fruity, woody and spice flavor. These characteristics confer them a high persistence and taste quality. The main differences between the two wines under study reside in woody aroma and flavor: the assemblage wine was considered to have a more woody flavor, while the Touriga Nacional wine has fruity notes of larger and toasty aroma.

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Author(s)

Carla Valéria da Silva Padilha^{1*}, Aline Camarão Telles Biasoto², Larissa Felix dos Santos Bragard¹, Juliane de Oliveira Barreto¹, Walkia Pollyana de Oliveira³, Erika Samantha Santos de Carvalho³, Sergio Tonetto de Freitas⁴, Giuliano Elias Pereira⁵

[*carla_padilha@outlook.com](mailto:carla_padilha@outlook.com)

Author's signature



Carla Valéria da Silva Padilha

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