



## Phenolic profile and antioxidant activity of commercial grape juices from the São Francisco Valley, Northeastern of Brazil

Carla Valéria da Silva Padilha<sup>1</sup>, Giuliano Elias Pereira<sup>2</sup>, Marilde Terezinha Bordignon Luiz<sup>1</sup>,  
Marcos dos Santos Lima<sup>3</sup>

<sup>1</sup>Universidade Federal de Santa Catarina, Florianópolis SC, Brazil

<sup>2</sup>Embrapa Semiárido/Uva e Vinho, Petrolina PE, Brazil

<sup>3</sup>Instituto Federal do Sertão Pernambucano, Petrolina PE, Brazil

Email: marcos.santos@ifsertao-pe.edu.br

In recent years, The Sub-middle region of the São Francisco Valley (SFV), located in the Northeast of Brazil, has invested in the production of grape juice from new Brazilian varieties developed for preparation of high quality juices, such as Isabel Precoce (*Vitis labrusca* L.) and hybrids (*Vitis labrusca* L. x *Vitis vinifera* L.) BRS Violeta, BRS Cora and BRS Magna (Lima et al., 2014). Grape juice in this region have been highlighted by the good bioactive content, high antioxidant activity associated with phenolic compounds and to promote anti-inflammatory activity in consumers (Toscano et al., 2015). The aim of this study was evaluate the phenolic compound profiles (flavones, anthocyanins and phenolic acids) and determine the antioxidant activity (AOX) by free radical scavenging (DPPH and ABTS methods) and of reactive oxygen species (ROS) (hydrogen peroxide scavenging - H<sub>2</sub>O<sub>2</sub>) in all commercial juices from SFV. The determination of phenolic compounds was performed by RP-HPLC/DAD using chromatograph Agilent 1260 Infinity LC System where the separation of compounds was done in Zorbax Eclipse Plus C18-RP (100 x 4.6mm, 3.5µm) using phosphoric acid 0.1M (pH 2.0) and methanol as phases A and B, respectively. For the phenolic compounds, the levels of (-)-epigallocatechin (232-368 mg L<sup>-1</sup>) and *trans*-caftaric acid (233-365 mg L<sup>-1</sup>) in the samples were higher than those reported for grape juices in different of the world regions, indicating that these compounds can be important chemical markers for grape juices from SFV. For AOX measured with DPPH and ABTS, the values obtained ranged of 10:03 to 18:13 millimoles per liter of Trolox equivalent (mM TEAC/L) and were within the ranges found in the literature for grape juices. The antioxidant capacity measured using the H<sub>2</sub>O<sub>2</sub> method for all juices studied showed high values (from 66.81 to 88.52 mM TEAC/L), showing the high capacity of VSF juices in sequestering reactive oxygen species, which are associated with various pathological mechanisms that contribute to diseases like diabetes, cancer, cardiovascular and neurodegenerative diseases.

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### References:

- Lima, M.D.S., Silani, I.D.S.V., Toaldo, I.M., Corrêa, L.C., Biasoto, A.C.T., Pereira, G.E. & Ninow, J. L. (2014). Phenolic compounds, organic acids and antioxidant activity of grape juices produced from new Brazilian varieties planted in the Northeast Region of Brazil. *Food Chemistry*, 161, 94–103.
- Toscano, L.T., Tavares, L.R., Toscano, L.T., Silva, C.S.O., Almeida, A.E.M., Biasoto, A.C.T., Gonçalves, M.C.R. & Silva, A.S. (2015). Potential ergogenic activity of grape juice in runners. *Appl. Physiol. Nutr. Metab.* 40, 899–906.