**INTRODUCTION**

Bonarda, also known as "Corbeau", is the second red grape variety cultivated in Argentina after Malbec.

**MATERIALS AND METHODS**

- During two consecutive vintages (2018-2019), 450 kg of grapes were harvested (>24°Brix) from a commercial vineyard (Levalle, Mendoza, Argentina), and made into wine in 25 L food plastic fermenters following a standard protocol (Figure 1).
- The experimental design consisted of ten treatments (two factors) by triptic. Two maceration strategies were applied (control - C) and microwave-assisted extraction after grape crushing (MW; 2450 MHz, 7600 W, 45-50°C), combined with five stem-contact conditions (control without stems - WS, 50% stems addition - SA50, 50% stems addition + MW - SA50MW, 100% stems addition - SA100, 100% stems addition + MW - SA100MW) (Figure 1).
- Wines were analyzed for basic chemistry [1], phenolic composition (global parameters by UV-visible spectrophotometry [total phenolics, anthocyanins, tannins and polymeric pigments] [3,4], CIELAB color parameters [5], anthocyanin profile by HPLC-DAD [6,7] and polyvinylpyrrolidone by HPLC-BID [7]). Additionally, a descriptive sensory analysis (QDA) was performed with 19 panellists in 8 sessions, and 22 attributes were established [8].

**OBJECTIVE**

This study aimed to evaluate the combined effect of MW application in fruit with stem additions in different conditions, before fermentation, on the chemical composition and sensory properties of Bonarda wines.

**RESULTS AND CONCLUSION**

- The 2018 wines showed higher pH with stem additions and MW application in both matrices. Meanwhile, alcohol content increased (more bioavailability of fermentable sugars) and volatile acidity decreased (microbial inhibition) with MW application, in both vintages (Figure 2).
- The 2019 wines showed higher pH with stem additions and MW application in both matrices. Meanwhile, alcohol content increased (more bioavailability of fermentable sugars) and volatile acidity decreased (microbial inhibition) with MW application, in both vintages (Figure 3).
- The evaluation of the sensory impact of the proposed technologies revealed the significance of a limited number of the attributes analyzed (Figure 5). For the 2018 trial, the QDA made it possible to differentiate the MW/WS wines from the rest, characterized by higher color intensity, astrigency, violet hue, and aroma complexity. While in 2019, wines with 100% stem addition (CS100) were described with higher color intensity, and the application of microwaves, mainly on grapes, contributed a characteristic buttery aroma.
- In conclusion, the microwave-assisted maceration and stems addition treatments improved the chromatic characteristics and phenolic composition, enhanced the color stability, and modified the sensory profile of Bonarda wines. The data reported are promising and are considered the first advance in the knowledge of the impact of the proposed technological strategies on the chemical and sensory quality of red wines. These preliminary results will be complemented with volatile profile data still in process.

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**AKNOWLEDGEMENTS**

This study was founded by AGENCIA-COVARI PICTO-2017-0095 (2019-2021) and INTA-PN4A-11310043 (2018-2019) projects. Special thanks are due to ACWOOD (Argentina) for providing the grapes for the experiment, and to Esteban Bolcato and the members of the sensory panel (INTA) for their technical assistance.