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Options to replace or reduce the sulphite content in Tannat red wines produced with minimal intervention.

Piccardo D.[1], González M. [1], Favre G. [1], Clara A. [1], Olivera J. [1], González-Neves G. [1]

[1]Unidad de Tecnología de los Alimentos. Facultad de Agronomía. Udelar. Garzón 780, Montevideo, Uruguay.

e-mail: dpiccardo@fagro.edu.uy

Several Uruguayan wineries have begun to produce wines with minimal intervention, to increase the sustainability of their vineyards and wines. These wines are characterized by the minimum intervention in the management of the vineyard, its harvest, vinification, conservation and aging[1,2]. Sulfur dioxide (SO_2) is not used or is used in reduced doses, although chitosan can be substituted or supplemented[1]. The objective of this research is to evaluate SO_2 reduction or replacement options adapted to the production of Tannat red wines with minimal intervention. Vinification of the Tannat grapes with autochthonous yeasts (LN) was carried out during the 2023 vintage. Treatments to reduce SO_2 (SO_2r=30mg/hl), chitosan (Q=10mg/hl), SO_2r and chitosan (SO_2r+Q) and a treatment without aggregate (SA). Also, a vinification was carried out with selected yeasts and usual doses of SO_2 (VT). Fermentation kinetics and the composition of the devatted wine were analyzed, and microbiological evaluations of aerobic mesophiles, lactic acid bacteria (LAB), acetic acid bacteria (AAB) and yeasts were carried out during fermentation and devatting. The initial counts of each microbial group did not present differences between treatments. The AABs were only present at the beginning of the fermentation. Towards the end of fermentation, a decrease was observed in all populations in all treatments, except BAL in vinifications with SA. The yeast count in the SA treatments was higher than that observed in VT. The fermentation kinetics of the musts with LN was slower than with VT. The VT and SO_2r+Q wines had higher alcohol and malic acid content, while the Q and SA wines had higher volatile acidity, lactic acid content and residual sugars upon devatting. Our results suggest that reduced doses of SO_2 with chitosan maintain the characteristics of the wine in relation to traditional winemaking and may be a viable alternative to improve its conservation.

Keywords: Tannat, natural method wine, sustainable viticulture

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References:

1) Galati, A., Giorgio, S., Crescimanno, M., Migliore, G., 2019. “Natural wine” consumers and interest in label information: an analysis of willingness to pay in a new Italian wine market segment. J. Clean. Prod. 227, 405-413. https://doi.org/10.1016/j.jclepro.2019.04.219
2) Giacomarra, M., Galati, A., Crescimanno, M., Tinervia, S., 2016. The integration of quality and safety concerns in the wine industry: the role of third-party voluntary certifications. J. Clean. Prod. 112 (1), 267-274. https://doi.org/10.1016/j.jclepro.2015.09.026.