



IVES » IVES Conference Series » International Congress on Grapevine and Wine Sciences » 2ICGWS-2023 » Atypical aging and hydric stress: insights on an exceptionally dry year

Atypical aging and hydric stress: insights on an exceptionally dry year

Abstract

Atypical aging (ATA) is a white wine fault characterized by the appearance of notes of wet rag, acacia blossoms and naphthalene, along with the vanishing of varietal aromas. 2-aminacetophenone (AAP) – a degradation compound of indole-3-acetic acid (IAA) – is regarded as the main sensorial and chemical marker responsible for this defect. About the origin of ATA, a stress reaction occurring in the vineyard has been looked as the leading cause of this defect. Agronomic, climatic and pedological factors are the main triggers and among them, drought stress seems to play a crucial role.¹ Available water capacity (AWC) is defined as the amount of water a soil can store that is available for use by plants. AWC might be employed to gauge a predisposition to hydric stress which could ultimately lead to the onset of ATA. Considering previous research which has demonstrated that ATA development is likely to occur in fields having 30-40 mm AWC², this relationship was further investigated in the present study in an exceptionally dry growing season such as 2022.

11 vineyards located in Trento (Italy) were grouped according to their AWC (low, medium, high) and closely monitored over the course of the harvest season. Given the climate conditions of the year, all of the fields under examination were subjected to drought conditions. While grapevines belonging to the 'low' class experienced severe stress conditions (midday leaf water potential, $\Psi_{leaf} < -1.5$ bar), the 'medium' and 'high' classes were only moderately stressed ($1.5 > \Psi_{leaf} > -1.2$). Accordingly, all wines obtained were affected by ATA, displaying concentrations of AAP above the odor threshold (0.5 $\mu\text{g/L}$). Nonetheless, the AAP content of the 'low' class was significantly higher than the other classes. It was concluded that in exceptionally dry seasons, grapevines planted on fields characterized by a low AWC are more subjected to produce faulty wines characterized by ATA.

Acknowledgements: The authors would like to thank Cavit sc. for the technical and financial support.

References:

- Schneider V. (2014) Atypical aging defect: Sensory discrimination, viticultural causes, and enological consequences. Rev. Am. J. Enol. Vitic., 65:277–284, DOI 10.5344/ajev.2014.14014
- Rauhut D. et al. (2003) Effect on diverse oenological methods to avoid occurrence of atypical aging and related off-flavours in wine. In: *Enologie 2003. 7e Symposium International d'Enologie*. A. Lonvaud-Funel et al., 376-379

DOI:

Publication date: October 11, 2023

Issue: ICGWS 2023

Type: Poster

Authors

Simone Delaiti^{1,2*}, Stefano Peda², Tomas Roman², Tiziana Nardin², Roberto Larcher²

¹C3A, Center Agriculture Food Environment, Via Edmund Mach, 1, San Michele all'Adige, TN, 38010 Italy

²Technology Transfer Centre, Fondazione Edmund Mach, San Michele all'Adige, Italy

Contact the author*

simone.delaiti@fmach.it

Keywords

atypical aging, aminacetophenone, drought stress, AWC

Tags

2ICGWS | ICGWS | ICGWS 2023 | IVES Conference Series

Citation

Copy Citation

APA 6th Edition ▾

Simone Delaiti, Stefano Peda, Tomas Roman, Tiziana Nardin, Roberto Larcher (2023). Atypical aging and hydric stress: insights on an exceptionally dry year. *IVES Conference Series, ICGWS 2023*.

Related articles...

Wine racking in the winery and the use of inerting gases

The O₂ uptake in the different winemaking processes is generally considered to be negative for the sensory characteristics of white and rosé wines. Wine racking is a critical point of O₂ uptake, as the large surface area of the wine exposed during this operation and the inability to maintain an effective inert gas blanket over it.

The objective was to study O₂ uptake during the racking of a model wine without using inert gases and to compare it with the purging of the destination tank with different inert gases.

[Read More](#)



Links

[Legal Notice](#)

[Privacy Policy](#)

[General terms of use](#)

Newsletter

[Subscribe to our newsletter](#)

Contact Information

Email : jdumerca@ives-openscience.eu

Siret 839 985 843 00011 / RNA W332022472

Follow us

