



3rd Network Meeting of the UV4Plants Association

13th – 16th October 2020

**Plant responses to UV radiation - Diversity in time
and space**

Abstract book



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A supplement of ultraviolet-B radiation under field conditions increases phenolic and volatile compounds of Tempranillo grape skins and the resulting wines

Javier Martínez-Abaigar, M.Á. Del-Castillo-Alonso, L. Monforte, R. Tomás-Las-Heras, E. Núñez-Olivera

Faculty of Science and Technology, University of La Rioja, Madre de Dios 53, 26006 Logroño (La Rioja), Spain

Ultraviolet-B (UV-B) supplements have previously been applied to grapevine under controlled conditions, but not under field conditions, neither mechanically nor investigating the effects on both grapes and the resulting wines. In this study, a UV-B supplement was mechanically applied to Tempranillo grapes under field commercial conditions at a crop scale, to test its effects on 1) the phenolic composition of grape skins and the resulting wines and 2) the volatile organic compounds (VOCs) of wines. The UV-B supplement was applied in two different campaigns, using a manufactured lamp mounted on a tractor. Flavonols and antioxidant capacity, and to a lesser extent phenolic acids and flavanols, increased in both UV-B-supplemented grape skins and the resulting wines. Additionally, six VOCs increased in the wines elaborated with UV-B-supplemented grapes. We also discuss if these changes could rather be attributed to the UV-B irradiance peaks than to the supplemental UV-B dose applied. In conclusion, the UV-B supplement enhanced the quality of grape skins and the resulting wines; particularly, the flavonols increase could improve wine color stabilization and healthy properties of grapes and wines. Thus, the mechanical application of UV-B supplements on grapevine at a crop scale can be proposed as a new agricultural practice with promising utilities, such as counteracting deficits of natural UV-B in specific locations or years.