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Poster Communication Abstract – PH.32

TOWARD A MORE SUSTAINABLE VITICULTURE THROUGH THE APPLICATION OF RESISTANCE INDUCERS AND PHOSPHITE ALTERNATIVES

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European Union is fostering research to reach a more sustainable agriculture, especially considering the ongoing climate change. Among pesticides, a growing attention in the last years has been posed on phosponic acid residuals in wine and horticultural products. Presence of these molecules is due to fungicides application, commercial formulations containing phosphite and organo-phosphonates are indeed a common choice in viticulture to control downy and powdery mildew spread, thanks to the great efficacy and its cheap prices. The present study aimed at investigating the efficacy of alternative protocols for the control of downy mildew infection comparing their effectiveness with standard protocol adopted by a commercial winery. The first protocol consisted of resistance inducers only, Acibenzolar S-metyl, laminarin and disodium-phosphonate tested in a single formulation following the standard winery schedule of treatments. The second and third protocols followed the standard protocol but substituting phosphites with phosphorus pentoxide and Eklonia maxima extract, using a combination of two different dosages and application schedule. Visual scoring of downy mildew symptoms on leaves and bunches along with quantification of stilbenoid compounds in leaves (piceid, resveratrol and viniferin) were conducted across the vegetative season (BBCH stages 12-13 to 81) to evaluate the treatments' effectiveness. Yields and bunches number were also collected at veraison. At the veraison stage, the results showed that the downy mildew incidence and severity was significantly reduced compared to non-treated controls on both canopy and bunches, without differences between the alternatives and the standard winery protocol on the bunches scores. Stilbenoids data showed a higher level of viniferin at veraison for all the alternative protocols compared to the standard winery one, but still greatly lower compared to non-treated controls. Further analyses are ongoing to deepen the molecular aspects inducing the priming state of grapevine after elicitor application.