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Oral Communication Abstract – PH.08

DOUBLE STRAND RNAS AS SUSTAINABLE ALTERNATIVE AGAINST *BOTRYTIS CINEREA* IN VINEYARD: EFFICIENCY OF DIFFERENT APPLICATION METHOD IN SEMI-CONTROLLED ENVIRONMENT

SANDRINI M.*,**, NERVA L.*,***, GAMBINO G.***, CHITARRA W.*,***

*) CREA - Research Centre for Viticolture and Enology
**) Department of Agricultural Biology and Biotechnology
***) CNR-Institute for Sustainable Plant Protection

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Grapevine is one of the most important and globally widespread fruit species, with a high impact on the economy of many countries but with an intense environmental effect. Therefore, new environmentally friendly defense strategies against fungal pathogens are needed to pursue a more sustainable agriculture. One of the novel emerging approaches is the spray-induced gene silencing (SIGS), which concerns the exogenous application of double-stranded RNA (dsRNA) molecules with specific sequences, inducing enhanced plant resistance against fungal pathogens. In the present theses, we tested the ability of SIGS to prevent and counteract infection of Botrytis cinerea, one of the most economically impacting pathogens of grapevine. In particular, we tested three independent approaches for dsRNA delivery into plants: (i) high pressure spraying of leaves; (ii) petiole adsorption of dsRNAs; (iii) postharvest spraying of bunches. We demonstrated that, independently from the method of application, SIGS can reduce virulence of the fungus diminishing rot on bunches. Moreover, we also observed three different levels of efficacy depending on the method of application and we discussed the possible strength and issues of each. Thus, the present data provide crucial information on the possibility to exploit SIGS as an alternative sustainable and ecofriendly strategy for grapevine pre- and postharvest protection.