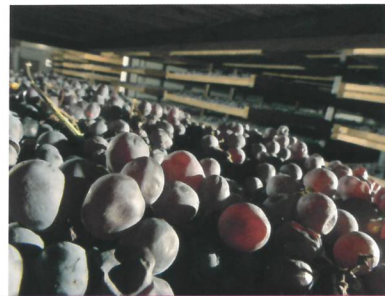
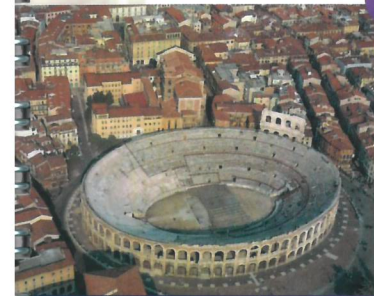




UNIVERSITÀ  
di VERONA  
Dipartimento  
di BIOTECNOLOGIE



# X INTERNATIONAL SYMPOSIUM ON GRAPEVINE PHYSIOLOGY AND BIOTECHNOLOGY



BOOK OF ABSTRACTS

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## Topic 6/7: Advances in phenotyping, -omic technologies, large data

### P199

#### Comparison between grapevine leaf and inflorescence upon downy mildew infection, based on a new *in vitro* phenotyping method

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Downy mildew (DM), caused by the oomycete *Plasmopara viticola* (Berk. & Curt.) Berl. & de Toni, is one of the most important plagues affecting viticulture, especially in temperate-humid climates. *P. viticola* reduces fruit quality and yield, either by direct infection of berries or as a result of the reductions in photosynthesis and plant vigor caused by leaf infections. DM control is based on the repeated and massive use of fungicides, leading to problems such as environmental pollution, development of resistance and residual toxicity.

The use of grapevine varieties showing durable resistance to DM is an alternative and promising strategy to control the disease. Nevertheless, most of the *in vitro* tests developed so far for DM resistance assessment are focused on leaf disk bioassays that not always represent a proper evaluation and prediction of the disease impact on grapevine inflorescence/bunch and therefore on final yield and wine quality.

In this work, we firstly improved the annotation procedure of foliar resistance/susceptibility under controlled conditions (optimized OIV descriptor 452-1). Secondly, we developed a new *in vitro* phenotyping method - from infection to symptom evaluation - for DM resistance assessment on grapevine inflorescence, identifying the most responsive phenological stage (developed and proposed OIV descriptor 453-1). Thus, at this stage we screened several genotypes, in parallel with the optimized leaf disk bioassay, to compare the different pathogen responses between leaf and inflorescence collected from plants in untreated field. Finally, we validated our results performing the same DM resistance assessment also on organs detached from fruiting cuttings grown in phytotrone. Our optimized fruiting cutting agronomic technique turned out to be crucial for the anticipation of the study of late traits under controlled conditions.

### P200

#### Genomics technologies unveil the importance of structural variations in shaping the grapevine genome

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Grapevine is one of the most important crop plants in the world because of its economically valuable role in fruit and wine production. Recently there was great expansion of genomics resources about grapevine