P5 – Screening for susceptibility to *Erysiphe necator* infection in Spanish minority grapevine varieties

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Abstract

Powdery mildew of grapevine (*Vitis vinifera*) is caused by the fungus *Erysiphe necator*. It is one of the diseases that has caused the greatest economic and quality losses in European vineyards since its introduction two centuries ago. Almost all *V. vinifera* varieties are susceptibles to this fungus, a differential response to infection has been observed. Understanding the diversity in the response of grapevine germplasm to the disease, as well as the molecular and genetic basis for this differential response, can provide tools for sustainable disease management. The aim of this work was to evaluate the susceptibility to powdery mildew of 32 Spanish minority varieties from different wine-growing areas. Young detached leaves sterilized were inoculated with a vacuum tower. Fungal development was evaluated on a scale from 1 to 8, from 1 to 6, the development stage of the fungus and from 6 to 8, the percentage of leaf occupied with the naked eye was recorded. Data was obtained at 7 and 14 days after inoculation. Differences in the susceptibility among varieties was found. The correlation between the disease incidence between 7 and 14 days was highly significant with a value of 0.5. The cluster analysis yielded 5 groups, the group containing the largest number of varieties was characterised as the most susceptible, giving the highest scale at both 7 and 14 days. On the other hand, *Kishmish vatkana* was left out of any grouping, this variety which contains the *Ren 1* gene was included as a control. The other 2 groups contained the least susceptible varieties, in one of them lower fungal development was observed on the 2 measurement dates, which could suggest the importance of the structural defence mechanisms of these varieties. In the other group, the differences were recorded at 14 days, suggesting a late recognition of the pathogen. Results reported differences in grapevine response to powdery mildew attack. This information can be useful for breeding programs, promoting the use of varieties that are well adapted to the environment and that require fewer treatments for their control. It would also allow the diversification of the wine market, which is becoming more competitive and demanding new products.

Keywords: Plant defence, Tolerant, Germplasm, Powdery mildew, *Vitis vinifera.*