

P62 – *Vitis vinifera* L. new crossings tolerance to downy mildew

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Abstract

Although the high susceptibility of *Vitis vinifera* to the fungus *Plasmopara viticola*, several elements in this field suggest a variety-specific response to this oomycete infection. To date, not much is known about the degree of susceptibility to downy mildew segregates in populations derived from breeding of *V. vinifera* varieties with different degrees of susceptibility. Thus, CREA-Viticulture and Enology of Turi (BA) breeding program, among its goals, focuses on the identification of new *Vitis* genotypes showing more tolerance to this biotic stress. Starting from 2021, different genotypes belonging to two segregating populations, Inzolia imperiale x Autumn royal seedless and N22/050 ('Red globe' x 'Regal seedless') x 'Melissa', have been phenotypically evaluated for their differential response to *P. viticola* infection. In detail, a leaf disc assay was performed, and each leaf disc has been inoculated with 50 µL of a suspension of *P. viticola* zoospores. Five days after the inoculation the incidence of the disease was calculated as a percentage ratio between the number of leaf discs showing symptoms and the total number of tested discs. Furthermore, the severity of the infection was evaluated by using an empirical 0-to-4 rating scale and for each genotype the McKinney's index was calculated. Noteworthy, data show that at least 10% of the tested genotypes, for each segregating population, are highly tolerant to the fungus infection. Among the Inzolia imperiale x Autumn royal seedless tested individuals, 18 out of 113 genotypes showing different responses to the infection were selected and the leaf disc assay was repeated on them to confirm their degree of tolerance/susceptibility to the disease. Moreover, to further investigate the genotypes response, some infected leaf discs from each genotype were collected and frozen in liquid nitrogen at different time points after inoculation and stored for transcriptomics studies aiming to evaluate differences in genes expression with respect to the degree of tolerance registered for each sample. The tolerance to the *P. viticola* infection of these genotypes will be tested also in the field in the next future and other commercial characteristic will be evaluated. We believe this work will lay the ground for providing in the next future new cultivars of *V. vinifera*, whose management will allow a lower environmental impact.

Keywords: *P. viticola*, *V. vinifera*, tolerant genotypes