



## PIWIs' variation in drought response under semi-controlled conditions

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### Abstract

Grapevine interspecific hybrids (PIWIs, from German “*pilzwiderstandsfähige Rebsorten*” meaning fungus tolerant grapevine cultivars), offer a promising alternative to traditional cultivars in many wine regions due to their tolerance to certain fungal diseases. This makes them a potential solution for sustainable wine production, particularly under organic systems. Despite extensive research on certain agronomic traits and susceptibility to biotic diseases, such as powdery and downy mildews, the response of these cultivars to abiotic stressors, such as drought, remains unclear. Our study aims to investigate the eco-physiological traits of two commercial PIWI cultivars, Muscaris and Sauvignier gris, at the leaf level to evaluate their response to drought stress. We conducted a two-year experiment on potted plants under semi-controlled conditions to eliminate the potential effects of environmental factors. The results of stomatal conductance indicate that Sauvignier gris consumes more water than Muscaris. However, under well-watered conditions, Muscaris vines deplete soil water faster and exhibit lower stomatal conductance values than Sauvignier gris. Further research is required to address remaining questions about PIWIs' response to drought, including investigating variations in leaf area or anatomy.

**Keywords:** grapevine, PIWIs, abiotic stress, drought response, eco-physiology.