



P7
BERHE

Vinifera Master's Thesis Abstract

Master's Thesis Title:

Phenotypic Characterization of New Grapevine Cultivars Accumulating Low Sugar during Ripening

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Abstract (max 300 words):

Abstract

The aim of the study was to characterize new grapevine cultivars (G7 and G14 genotypes) in comparison with Merlot grapevine, understanding relationship of osmotic potential and berry evolution in microvines, crossing hermaphroditic VDQA genotypes of G5 and G14 with V3 female microvine and embryo rescuing at INRA Pech Rouge experimental unit. The experiment was arranged in CRD factorial combination with three technical replications. Daily sampling of 600 berries of each genotype were taken for individual treatments to characterize G7 and G14 genotypes with Merlot grapevine from green to late ripening stages up to 12 weeks. Berries were assessed for osmolality, TSS, sugar content, volume, weight, potential alcohol strength, potassium ion, glucose, fructose, tartaric acid, malic acid and dry matter content. Analysis of

variance revealed that there were highly significant ($P < 0.001$) difference between the new cultivars and Merlot grapevine in all parameters throughout berry development and showed that G7 and G14 were true VDQA genotypes. The innovative biological features of microvines makes it a model tool and allow breeders and physiologists for faster and smarter breeding. In microvines' study, TSS and osmolality content increased from green to late ripening stage and had a positive relationship. Embryo rescue was exciting to solve difficulties of grapevine seed germination and dormancy. Using embryo rescue technique, hermaphroditic VDQA genotypes of G5 and G14 crossed with V3 female microvine genotypes were created new cultivars to select microvines and screen dwarf hermaphrodite genotypes. Phenotypical characterization were also performed on 31 crossed microvine grapevines of Ugni Blanc and Picovine fleshless berry and 70.83% of the plants were characterized as a VDQA candidates based on sugar content. The results of the present study suggested that the new cultivars could grow in warmer conditions, produce low sugar and wine alcohol content and adapt to climate changes impacts.

Key words: *Microvine, osmotic potential, sugar content, embryo rescue, genotype, VDQA*