

P77 – Identification of a genetic locus associated with resistance to grapevine anthracnose (*Elsinoë ampelina*)

Modesto, Lenon^{1,2}; Dalbó, Marco³; Welter, Leocir¹; Silva, Aparecido¹; Nodari, Rubens^{1*}; Schwandner, Anna²; Hausmann, Ludger²; Töpfer, Reinhard²

¹Plant genetic resources, Federal University of Santa Catarina (UFSC), Florianópolis, Brazil

²Julius Kühn Institute (JKI), Institute for Grapevine Breeding Geilweilerhof, Siebeldingen, Germany

³Empresa de Pesquisa Agropecuária e Extensão Rural de Santa Catarina (EPAGRI), Videira, Brazil

*rubens.nodari@ufsc.br

Abstract

Grapevine anthracnose (*Elsinoë ampelina*) is a major disease in tropical and subtropical regions. This hemibiotrophic ascomycete attacks preferentially young green tissues. Typical symptoms on leaves and berries are brownish lesions with black margins that resemble a bird's eye. Most traditional European grapevine varieties are highly susceptible and regular plant protection measurements are necessary to control this disease. However, resistance was observed in some American tropical and East Asian *Vitis* species as well as in new bred varieties. Therefore, our study aimed at mapping QTLs associated with resistance to *E. ampelina*. The F1 half-sib individuals from crossings between the resistant genotype MGM4 ('Moscato Giallo' x 'Sibera') and two susceptible genotypes, A190 and A271, were phenotyped in six experiments for anthracnose symptoms on leaves of potted plants after artificial inoculation with spore suspensions from *E. ampelina*. In addition, the F1 plants were genotyped using SSR markers available for the *Vitis* genome. The data were used to create a genetic map for the resistant parent (MGM4) and to perform QTL analysis. In total, 182 SSR markers were mapped, spanning the 19 chromosomes, with an average distance of 9.3 cM between markers. A QTL designated *Rea1*, located on chromosome 18 and associated with anthracnose resistance on leaves, was detected in a region with genes coding for proteins linked with ROS activities. The F1 plants carrying this QTL showed less anthracnose spots on leaves compared to plants without the locus. This indicates that the locus, presumably derived from *Vitis amurensis*, attenuates anthracnose symptom formation and is the first resistance QTL linked to grapevine anthracnose. It is a starting point, which allows the development of genetic markers for marker-assisted selection (MAS) for this locus, saving time in grapevine resistance breeding.

Keywords: anthracnose, *Elsinoë ampelina*, black spot, QTL, mapping, *Vitis amurensis*