

040. Fabbisogni di temperatura e durata della bagnatura fogliare per l'infezione al grappolo di *Glomerella cingulata*

Schenato P.G.¹, Minozzo D.², De Nardin R.², Guerreiro F.G.³, Gava R.⁴, Garrido L. da R.⁴

¹ UNPq Scholarship student;

² UERGS, Rua Benjamin Constant, 229, Bento Gonçalves, 95700-000, RS; Brasile

³ IFRS, CP 175, Bento Gonçalves, 95700-000, RS; 4Embrapa Grape and Wine, CP 130, Bento Gonçalves, 95700-000, RS, Brasile.

Ripe rot (*Glomerella cingulata*) is a disease which affects grapes at or near harvest time and has long been recognized in Brazilian Southern areas, especially on *Vitis vinifera* and *Vitis labrusca* cultivars. The purposes of this work were to (i) determine temperature and wetness-duration parameters required for *Glomerella cingulata* infection of a Brazilian grape mutation from cultivar Italia, known as 'Rubi', (ii) develop a model for ripe rot using the information obtained under objective i, and (iii) study surface colonization, penetration, and lesion formation by one single airborne spore of *G. cingulata* dispersed in an inoculation on grape berry surface. The work were done at Embrapa Grape and Wine.

The results revealed that grape berries were infected by *G. cingulate* over a range of temperature from 16-28oC. At all temperatures, infection occurred after only 2h of wetness and varied from about 5% at 16°C to 17% at 28°C. Disease incidence increased with increasing wetness duration at each temperature. With 18h of wetness, maximum disease

incidence varied from 20% at 16°C to over 29% at 28°C, but disease incidence after 18h was less than 5%. Variation of disease with environment was described by the model: $I = 0,11 - 0,011T + 0,00043T^2 + 0,016 W - 0,00041W^2$, where I is disease incidence, T is the temperature (°C) and W is the wetness duration (h). When data from all experiments were analyzed, R^2 was 0,599. Estimates of values for coefficients were significant ($P < 0,01$) in all experiments. The spore germination was bigger at temperatures above 22°C and was smaller at temperatures of 16 or 30°C. After 22h, more 85% of the conidia had germinated at temperature 22-26°C. On berry surface, conidia germinated to undergo complex differentiation forming appressoria. The appressoria melanized were globose and sub-globose with lobes and size between 7,5 to 10 μm x 5,0 to 8,0 μm . Initially the mycelium grew intercellularly and remained latent for some time before the cells had began to collapse and rot. Symptoms began as small spots which soon spread to over half the berry. After infection and colonization, the acervuli developed just beneath the cuticle, which was ruptured by the upward pressure of the conidiophores and conidia. Conidia formed in pale salmon masses, straight, cylindrical, apex obtuse and base truncate. In this essay two phase infection process was observed involving an initial symptomless phase, during which the pathogen established itself in the berry tissues, followed by the visibly destructive phase.