

Title Effect of pyrimethanil fungicide applied through thennofogging in the control of *Botrytis cinerea* in apple cv. Fuji in Chile

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Abstract

Botrytis cinerea (Pers) Fr. is an opportunist fungus of wide plant spectrum which causes significant fruit losses in apples and pears. Postharvest fungicide treatments are needed and they are applied as a drenching, immersion or spray. The possibilities of chemical control have been narrowed due to factors such as the restrictions of some fungicides in certain markets and the presence of resistant races to specific fungicides. Pyrimethanil is a fungicide that impedes the secretion of enzymes by the fungus and it is used for *B. cinerea* control in apples. Thermofogging allows disseminating the fungicides in the atmosphere inside of a cold chamber room in form of stable fog, so active residues are kept on the apple surface restricting the fungal infection. Therefore, the objectives of this study were to evaluate the effectiveness of thermofogging system for fungicide treatments in post-harvest and to compare the effectiveness of pyrimethanil applied through thermofogging or drenching in the control of *B. cinerea* in Fuji apples. Consequently, 3 groups of 100 apples were inoculated or not with *B. cinerea* and then subjected to pyrimethanil or thiabendazol as a drenching and pyrimethanil as a thermofogging. The treated fruit, inoculated and noninoculated, was stored at 0°C for 3 months and after grey rot incidence registered. The level of grey rot in inoculated and noninoculated control treatments was 85.2 and 12.4%, respectively. The inoculated treatments with pyrimethanil, by drenching or thermofogging, showed a 13.7 and 56.4%, respectively, being significantly lower than the inoculated control. This fungicide applied by drenching showed a significantly better performance than thermofogging. For non inoculated fruit, there was not any significant difference between them (1 and 4,6%, respectively) but both significantly lower than the control. Thiabendazol (35,5% for inoculated apples) was significantly less effective than pyrimethanil in *B. cinerea* control, but showed less rot than the control. Therefore, pyrimethanil applied by drenching or thermofogging to commercial harvested Fuji apples allows a significant protection from *B. cinerea* infections, so the level of grey rot is significantly reduced after 3 months of cold storage.