

Title Studies on application strategy of salts for controlling *Penicillium* Rot of Valencia Late oranges

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Abstract

For a more rationale utilization of alternative means in controlling postharvest diseases, different strategy of application need to be evaluated. The results on the efficacy of five inorganic salts in controlling postharvest *Penicillium* rot of Valencia late oranges are reported. Aqueous salt solutions (2%, w/v) were applied i) by spraying before harvest, ii) by dipping fruit after harvest and iii) by the combination of the two treatments types, simulating practical commercial conditions. Preharvest sprays and the combination of pre and postharvest applications were in average more effective in suppressing *Penicillium* rot than the postharvest dipping. In particular, in preharvest applications Na-bicarbonate, significantly reduced the percentage of rotted fruit (-100%), being as effective as imazalil treatment, followed by K-bicarbonate and K-carbonate (-86%). In combined applications (pre and postharvest), all salts were effective in reducing *Penicillium* rot as compared to the water control, with a complete suppression of the disease by Na carbonate and K carbonate. As for the postharvest application none of the compounds was as effective as the fungicide, being K-carbonate the only one significantly reducing the infection by 75% as compared to the water treated control. The results clearly demonstrate that the application of salts in controlling postharvest *Penicillium* rot of citrus without any other integrated approach need a different strategy of application as compared to the chemical fungicide