Title Evaluation of a new disinfectant for control of citrus postharvest diseases

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Abstract

The development of safe postharvest treatment alternatives is a human health and environment protection concern and a key for fresh citrus fruit export. The objective of this experiment was the evaluation of a new disinfectant: PHMG poly-hexametilen guanidine, provided by Diransa San Luis S.A. under two formulations (hygisoft pH and hygisoft V-20). Treatments were applied by dipping orange fruits (cv Washington Navel) for two minutes in one of the following: 200 ppm sodium hypochlorite, 0.5% or 1% hygisoft pH, 1% hygisoft V-20, 3% sodium bicarbonate, 1 or 4 % peracetic acid, 0.5% or 1% hygisoft pH in combination with 3% sodium bicarbonate. Fruits were conditioned in cages of 20 units and stored for 45 days in a packinghouse storage chamber at 4°C. A completely randomized design was used with four repetitions. The *in vitro* effect of Hygisoft pH and Hygisoft V-20 on a suspension of the bacterium *Xanthomonas axonopodis* pv *citri,* the causal agent of citrus canker, was also assayed. After 45 days of storage, 1% hygisoft V-20 and 0.5% or 1% hygisoft pH in combination with 3% sodium bicarbonate, significantly decreased green mould incidence caused by *Penicillium digitatum*. The values registered were 1.25%, 5% and 6.25% for these treatments respectively whereas Green mould incidence for the untreated control was 28.8%. Hygisoft pH and Hygisoft V-20 (1 or 2%) inhibited *Xanthomonas axonopodis* pv *citri in vitro* growth in three assays. The experiment will be repeated in order to assess the potential of these disinfectants for control of citrus postharvest decay.