

Decay control of cactus pear by pre- and post-cold storage dip treatments with fludioxonil, sodium bicarbonate and water at 50°C

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Abstract

Objective of this experiment was to assess the effectiveness of prestorage and poststorage treatments with fludioxonil (FDL) alone or in combination with sodium bicarbonate (SBC), either at room temperature (20°C) or at 50°C, to control postharvest decay of cactus pear fruit. Cactus pears cv Gialla of the first crop were dipped for 120 s in SBC (2%) or FDL at 20 or 50°C dissolved in water. FDL was used at 600 mg/L at 20°C or 300 mg/L at 50°C. After 4 weeks of storage at 5°C and 90-95% RH fruit were inspected for soft rot incidence, peel disorders, overall appearance and weight loss. Fruit free of soft rots were then dipped for 120 s in water at 50°C or in FDL emulsion either at 20°C (300 mg/L) or 50°C (150 mg/L) and transferred to 20°C and 60-65% RH for one more week to simulated marketing conditions (SMC). All of hot water (50°C) treatments reduced decay incidence at the end of cold storage, but the one with FDL was more effective. However, after 1 week at 20°C, soft rot incidence increased sharply in fruit not treated before storage with FDL, unless subjected to a poststorage treatment with FDL. In contrast, the protective activity of a prestorage treatment with FDL at 20 or 50°C lasted all over the week of SMC at 20°C. The final weight loss ranged between 7.4 and 9.6%, but generally no significant difference could be detected among treatments. Peel disorders in treated fruit were less severe than in un-treated ones and appeal of fruit treated with FDL at 20°C or dipped in water at 50°C either alone or in combination with SBC or FDL was still high at the end of SMC. A prestorage treatment with SBC at 50°C or water-dip at 50°C followed by a poststorage treatment with FDL at 300 mg/L and 20°C or 150 mg/L and 50°C or a single prestorage treatment with FDL at 600 mg/L and 20°C or 300 mg/L and 50°C, could be feasible strategies to effectively manage postharvest decay of cactus pear fruit.