

Effects of post-harvest hot water treatments on the fungi contamination, physiology and quality of rock melon fruit

ABSTRACT

During the postharvest management of fruits and vegetables, the losses range from 10 to 30% of the entire production. This is due to numerous causes, but the most important reason is infestation by fungi. Many synthetic fungicides are employed for postharvest treatment of fruit and vegetables throughout the world. However, fungicidal residues often represent a significant threat to human health. The current study examined the use of hot water treatments on rock melon fruit. Hot water treatments at 55°C was arranged into four treatments of different dipping periods of 0 minutes (control), 1 minute, 2 minutes, and 3 minutes. The postharvest hot water treatments on rock melon fruit were found to increase the shelf life up to 21 days by minimizing the weight loss, maintaining firmness, preventing the damage of sucrose, retaining the rind size, maintaining the fruit appearance, and reducing fungal infection. The one-minute dip was more effective than other treatments. The treatment successfully extends the shelf life of rock melon fruit quality for the market until three weeks of storage at 21 ± 1 °C compared with the control, which was only stored for one week. The results showed the importance of hot water treatments as an alternative to fungicides or chemical treatments, which have a high risk to the health of consumers. Hot water treatment is economical and easier to access than the chemical treatments.

Keyword: Hot water treatment; Postharvest; Disease severity