

Treatments of hot water with calcium found effective for kiwifruit

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Following the introduction of kiwifruit to the world market from New Zealand in the 1950s, increased export of kiwi led to rapid expansion in consumer demand and production. One of the challenges for growers is kiwifruit's short storage life; the popular fruit is susceptible to severe disorders during storage. A new study from Iran recommends treatments that can extend storage life and improve quality in kiwifruit.

Shirin Shahkoomahally and Asghar Ramezani from the Department of Horticultural Science at Shiraz University published the study in the March 2015 issue of *HortScience*. "A combination of heat treatment followed by calcium (Ca) dip for controlling postharvest pests and/or diseases has had satisfactory results in maintaining or improving the texture of several products," the authors noted. "However, there was no research on postharvest application of Ca and [hot water](#) on qualitative parameters of kiwifruit during cold storage. This research evaluated the effect of hot water combined with Ca solution treatments to maintain qualitative characteristics of kiwifruit during cold storage."

The researchers treated mature, unripe kiwifruit (Hayward) with hot water for 5, 10, and 15 minutes at 47 °C, then dipped them in a 2% w/v CaCl₂ solution and stored the kiwifruit at 0 °C for up to 120 days. During storage, fruit were sampled at 0, 30, 60, 90, and 120 days for postharvest quality evaluation.

"Our analyses showed that fruit firmness decreased during cold storage, and the rate of decrease was significantly higher in control fruits

compared with those treated with hot water + calcium treatments," the authors said. Results also indicated that hot water + calcium treatments significantly suppressed color development of kiwifruit stored at 0 °C for 120 days compared with calcium only treatments. "This suggests that hot water + calcium treatments have a potential to act as an alternative color loss prevention method for long-term storage," the report said.

Fruits dipped in hot water + calcium also showed a significant difference with respect to total phenolics, which was associated with lower polyphenol oxidase (PPO) activity. Heating combined with calcium dips significantly reduced PPO activity during 120-day storage. "With this simple and non-contaminant technology, quality of [kiwifruit](#) could be even greater after long-term storage than in recently harvested fruits," the authors said.

More information: The complete study and abstract are available on the ASHS *HortScience* electronic journal web site:
[hortsci.ashspublications.org/c ... nt/50/3/412.abstract](https://hortsci.ashspublications.org/c...nt/50/3/412.abstract)

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