

Title Longan quality after hot-water immersion and X-ray irradiation quarantine treatments.
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Abstract

Hot-water immersion and irradiation quarantine treatments are used to disinfest longan (*Dimocarpus longan*) of fruit flies and other pests before export from Hawaii to the US mainland. One day after harvest, longan (cultivars Chompoo and Biew Kiew) fruits were subjected to hot-water immersion at 49 deg C for 20 minutes, irradiation treatment at a minimum absorbed dose of 400 Gy, or left untreated as the controls. Fruits were then stored at 10 deg C in perforated plastic bags, and quality attributes were evaluated after 7, 14 and 21 days. Chompoo and Biew Kiew fruits treated by hot-water immersion were darker and less intensely coloured than irradiated or untreated fruits after 14 days of post-treatment storage. For both cultivars, the external appearance of fruits treated by hot-water immersion was rated as unacceptable after 14 and 21 days of post-treatment storage, whereas irradiated and nontreated fruits were rated as acceptable on all days. Penicillium mold contributed to the unacceptable external appearance ratings after 21 days for fruits that were treated by hot-water immersion. With both cultivars, the taste of fruits treated with hot-water immersion was rated as unacceptable after 21 days of storage, whereas irradiated fruits remained acceptable. Overall, under these experimental conditions, irradiation was superior to hot-water immersion as a quarantine treatment based on the maintenance of fruit quality.