Effect of melatonin treatments on biochemical quality and postharvest life of nectarines

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Journal of Food Measurement and Characterization 15: 288–295. 2021.

Abstract

The study investigated the effects of melatonin on the postharvest quality of nectarine fruit (cv. Fantasia). Fruits were dipped in melatonin concentrations (control, 250, 500 and 1000 µmol l^{-1}) and stored for 40 days at 0–1 °C and 85–90% relative humidity. Changes in weight loss, respiration rate, fruit firmness, total soluble solids, titratable acidity, chilling injury, ascorbic acid, total flavonoids, total phenolics and total antioxidants were evaluated during 0, 10, 20, 30 and 40 day. According to the results, melatonin treatments effectively slowed process of senescence, as indicated by reduced fruit softening, chilling injury and respiration rate. Moreover, this effect is concentration-dependent, with 1000 µmol l^{-1} melatonin treatment more effective than other doses during the 40 days of storage. Melatonin treated nectarines exhibited higher total antioxidant activity than controls, which was correlated primarily to the high levels of total phenolics and to lesser loss to ascorbic acid and flavonoids contents. These results demonstrated that melatonin treatment could be a good practice for extending postharvest life of nectarine fruits, maintaining the appearance and nutrient value, and reducing the loss of health-promoting compounds.