Effects of melatonin treatment on the biochemical changes and antioxidant enzyme activity of mango fruit during storage

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Scientia Horticulturae 259: 108835. (2020)

Abstract

Postharvest management of mango, as a climacteric fruit with high perishability rate, is of particular economic importance. In this study, the effect of different concentrations (10, 100 or 1000 μmol L^{-1}) of melatonin were evaluated regarding efficacy of delaying in fruit softening and maintaining nutritional quality of mango fruit during 4 weeks storing at 15 ± 1 °C and 85 ± 1% relative humidity. According to the results, the total soluble solids content and titratable acidity of the fruit were not influenced by melatonin application; however, at 1000 μmol L^{-1}, melatonin has reserved the firmness, ascorbic acid, phenolic compound and antioxidant capacity of mango during storage. Melatonin significantly controlled the activity of PPO and increased the activity of the catalase and peroxidase enzymes during storage. However, it almost had no effect on color factors. These findings suggested that melatonin treatment could be useful at proper concentration in order to improve postharvest quality of mango.