Effects of postharvest pulsed light treatments on the quality and antioxidant properties of persimmons during storage

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Postharvest Biology and Technology, Volume 160, February 2020, 111055

Abstract

Pulsed light (PL) treatment for food consists in the application of a polychromatic light (wavelength: 200–1100 nm) in the form of intense but short pulses, frequently investigated as a decontamination method. In this work, the effects of PL treatments on the physicochemical properties, total phenolic content, vitamin C, and antioxidant capacity of persimmons (*Diospyros kaki* L. cv. Vanilla*)* at two different maturity stages (unripe yellow-green and ripe orange-red) during postharvest storage were investigated. The fruit were exposed to PL treatments at a dose of 20 kJ m^{-2} and 60 kJ m^{-2}. Untreated and treated samples were allowed to ripe in dark conditions at 15 ± 1 °C for up to 6 d. The effects of PL treatments on the color, total soluble solids (TSS) as well as on total phenolic content, vitamin C and antioxidant capacity by three different methods were evaluated during storage and compared with those of untreated samples. Results showed that the physicochemical properties (color and TSS) and vitamin C content of the fruit were not affected by the PL treatments over the storage period. On the other hand, the total phenols content and the antioxidant capacity were significantly ($p < 0.05$) affected by the treatments. Considering that these parameters were related to the soluble tannins in persimmons and these compounds are related to the astringency of these fruit, this work encourages the research of the potential application of PL as a de-astringency method for persimmons.