

Title Brief postharvest exposure to pulsed light stimulates coloration and anthocyanin accumulation in fig fruit (*Ficus carica* L.)

Author Victor Rodov, Yakov Vinokur and Batia Horev

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Abstract

The poor coloration of nethouse-grown fig fruit (*Ficus carica* L.) due to insufficient sunlight stimulation reduces marketability and health value. This study examined the possibility of improving the color of harvested 'Brown Turkey' figs through the use of pulsed light (PL) emitted by a high-energy xenon flash lamp. The exposure of poorly colored figs to PL for just 10–90 s enhanced their red coloration in a dose-dependent manner, but extending the treatment to 300 s did not provide additional benefit. After 5 days of storage in the dark at 20 °C, the anthocyanin content of the skin of fruit exposed to 90–300 s PL was 20 times higher than that observed for the untreated control and approached the level typical of the cultivar. In parallel, these PL treatments caused an increase in the fruit total phenolic content that could not be attributed solely to anthocyanins, suggesting that production of other phenolic compounds might be also stimulated by PL. Cool white fluorescent light was far less efficient than PL in its ability to stimulate fig color, with 5 h of fluorescent illumination equivalent to 10–30 s of PL exposure. Postharvest PL treatment seems to be a feasible means of compensating for insufficient sunlight stimulation of color development in figs and possibly other fruit as well.