

Effetti della luce e fisiologia degli stress

Preliminary evaluation of pre-harvest supplemental LED light effects on tomato post-harvest quality

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Tomato (*Solanum lycopersicum*) is a climacteric fruit, subjected to organoleptic quality changes during post-harvest storage. Cultivation conditions may play an important role on qualitative and nutraceutical traits of fruits during conservation phase. The hereby presented research investigated the effects of pre-harvest supplemental LED interlighting on post-harvest quality of hydroponically grown tomatoes (*Solanum lycopersicum* cv. Siranzo). Three LED treatments consisting on Red and Blue (RB), Red and Blue + Fra-Red (FR), and Red and Blue + Far-Red at the end-of-day (EOD), were added to natural sunlight for 16 h d⁻¹ (h 8-00) with an intensity of 170 $\mu\text{mol s}^{-1} \text{m}^{-2}$. A control treatment (CK), where sunlight only was applied, was also considered. Red fruits were selected and placed in a storage room at 13 °C in darkness. Qualitative analysis were performed after 1 day and 1 week of conservation. Preliminary results showed that supplement LED light during cultivation may have an impact on post-harvest conservation and management. In particular, fruit firmness resulted to be higher under RB and FR pre-harvest light treatments comparing to EOD and CK, opening to possible benefits toward the reduction of fruits losses during post-harvest handling. Nutraceutical quality also resulted positively influenced, showing the higher content of lycopene and β -carotene in fruits grown under RB light after 1 week of storage.

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Keywords: supplemental lighting, light emitting diode, post-harvest, *Solanum lycopersicum*, interlighting.