Effect of end-of-day red light on morphological characteristics, yield and fruit quality of strawberry (cv. Queen Elisa) in short-day conditions

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(Received: 4 Feb. 2015 ; Accepted : 8 Jan 2016)

Abstract

One of the most important limiting factors in cultivation of strawberry in greenhouses during winter season is short day-length. An experiment was conducted to evaluate the effect of end-of-day red light on growth characteristics, yield and fruit quality of strawberry (cv. Queen Elisa) in a completely randomized design with 4 treatments in winter of 2013. Strawberry plants were exposed to red light (660 nm, 12 µmol/m.s) for 2, 4 and 8 hours, using LED light source, from 6 pm, and were compared with control (plants without red light treatment). Results showed that 8 hours of red light radiation caused a significant increase in number of leaves, petiole length, leaf length and width and leaf area of the plants. Fresh and dry weight of plants, as well as weight and length of Queen Elisa strawberry fruits were increased in red-light treatments. Also, soluble-solids content of fruits in radiated treatments, especially in 8 hours red light treatment, was increased. But, fruit's titratable acidity and pH were not significantly affected by the red light. Results clearly demonstrated that end-of-day red light, emitted from LED source, improved morphological characteristics, growth, yield and fruit quality of strawberry cv. Queen Elisa.

Keywords: Day length, LED, Photosynthtic efficiency.

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