BOOK of ABSTRACTS

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Influence of different light sources on growth and chlorophyll content in pepper and melon

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LED light sources are increasingly replacing standard fluorescent lamps FL, and have acquired an important role in plants growing under artificial lighting. We studied the effect of light sources with different color temperature, cold white (CW - 6500K) and warm white (WW - 4000K) LEDs and FL, on development of pepper and melon plants. Pepper and melon seeds were sown in containers filled with sterile substrate and their development from germination was monitored. Plant were incubated in a growth chamber at 24 ºC under a 16h/8h photoperiod. The light intensity of 49 PPFD was provided in all light treatments. Control plants were grown under natural lighting (16h/8h) photoperiod in a greenhouse at 20±4 ºC. After 8 weeks of growing in growth chamber and greenhouse the growth parameters (plant height, number of leaves, root length, plant and root mass), as well as the chlorophyll content, were determined. While plant height and mass of pepper were higher under FL lights, LED light provided better growth of melon. Also lower content of chlorophyll that was detected under FL light was more pronounced in melon than in pepper. It has been observed that CW lamps, both LED and FL are more suitable for both cultivars than WW lamps, because they supported the development of plantlets with better fitness, abundant roots and green mass accumulation. Growth in the chamber under controlled conditions was significantly higher than in the greenhouse.

Keywords: light source, growth, chlorophyll content, pepper, melon

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