Title Longevity and quality of cut 'Master' carnation and 'Red Sandra' rose flowers as affected by red light

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Abstract

Cut flowering stems (45 cm long) of carnation (cv. Master) and rose (cv. Red Sandra) were placed in test tubes containing distilled water with or without commercial preservative (20 ml l^{-1}), under fluorescent tubes of 50 ± 10 mmol m^{-2} s^{-1} Photosynthetic photon flux (PPF). A mixed radiation from fluorescent tubes with red light provided by light emitting diodes (LEDs) and monochromic red light of low 50 or high 90 ± 10 mmol m^{-2} s^{-1} was also tested in the absence of preservative solution. Both red light with high PPF and the mixed radiation under low PPF extended the vase life of cut carnations, and flower freshness could be maintained for 10.9 days compared with a water/fluorescent light control. In cut rose, the treatment containing the preservative solution under fluorescent tubes alone and in red alone, regardless of light intensity, prolonged vase life for 4.6 and 4.2 days longer than the control, respectively. Treatment with red LEDs plus high PPF resulted in complete petal opening in carnation flowers.