Abstract

Calla lily (*Zantedeschia aethiopica*) has become one of the most popular cut flowers worldwide for its ornamental characteristics of the spathe. *Z. aethiopica* reaches full bloom in spring with a drastic reduction from summer to winter as a result of excessively high or low temperatures, respectively, in the root zone. In an attempt to extend production time, to improve flower longevity and postharvest quality, the effects of the following thermal treatments applied to the root zone were evaluated: (1) only heating in winter, (2) only cooling in summer, (3) both heating in winter and cooling in summer, and (4) no thermal treatments (control). Plants were cultivated in plastic containers in a greenhouse at CRA-VIV, Pescia, Italy, using a growing medium composed of 34% expanded clay and 66% peat in volume. Planting density was 4 rhizomes m^2. Temperature treatments were applied using corrugated tubes through a basal distribution system placed under the containers. The cooling treatment was from June to September 2008 and the heating treatment from October 2008 to March 2009. Flowers were harvested in three different production periods: August to September, October to November, and December to January. Postharvest vase-life and quality attributes including length and weight of stems and length of the spathe were evaluated. Stems showed a significant improvement of flower longevity following cooling in summer and heating in winter. Both cooling and heating in all seasons increased vase life about 6 days compared to controls. Other quality parameters, such as stem length and weight, were significantly improved. Spathe length was not affected by thermal treatments.