Title	Characterization of chilling injury in Heliotropium arborescens and Lantana camara cuttings
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Abstract

Simulated low-temperature shipment of *Heliotropium arborescens* and *Lantana camara* cuttings inflicted chilling injury, which was manifested in increased ion leakage in both species. Morning-harvested cuttings of both *Lantana* and *Heliotropium* were more sensitive to chilling temperatures than noon-harvested cuttings. However, this difference was expressed only during the summer in *Lantana*, but both in the winter and summer in *Heliotropium* cuttings. These results suggest that the chilling injury that occurs during shipment might be alleviated in both species by avoidance of early morning picking of cuttings.

Chilling injury in *Lantana* was associated with increases in reactive oxygen species (ROS) levels and ethylene production rate. On the other hand, in *Heliotropium* cuttings ROS levels were increased and the ethylene production rate was reduced after storage at all simulated shipment temperatures. Our results may indicate that different mechanisms of chilling injury exist in *Lantana* and *Heliotropium*.