Chilling injury symptoms in species of *Heliconia*

A.S. Costa, K.P. Leite, R.J. Gomes, E.C. Arcelino, C.O. Pessoa , V. Loges

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Abstract

The severity of chilling injury in plants depends on temperature, length of exposure to low temperatures and the sensitivity of each species. Temperatures between 10 and 13°C can cause damage in tropical and subtropical species. The aim of the present study was to induce, describe and compare the differences of chilling injury and senescence symptoms in eleven *Heliconia* genotypes. Flowering stems of each species were submitted to two conditions: a) refrigerated treatment (RT) at 6.5°C and 81% relative humidity; b) control treatment (CT) with flowering stems kept at room temperature at 24.7°C and 66% relative humidity. Flowering stems kept at RT were evaluated daily and removed when the inflorescences presented the first chilling injury symptoms. After being removed from the low temperature, the stems were kept in water at room temperature to evaluate the evolution on the chilling injury symptoms. The number of days it took for chilling injury symptoms to appear on stems after the low temperature treatment were: two days for *H. rostrate*; five days for *H. bihai* 'Peachy pink', *H. caribeae* × *H. bihai* 'Jaquini', *H. stricta* 'Iris red' and *H. stricta* 'Tagami'; six days for *H. caribaea, H. foreroi, H. stricta* 'Dwarf Jamaican', *H. stricta* 'Bucky' and *H. wagneriana*; seven days for *H. orthotrica* 'Candy cane'. Initially, chilling injury symptoms appeared on the bracts as darkened spots near to the junction with the rachis. These spots evolved to darker tones and then to necrotic spots. In the control stems, the initial senescence symptoms, in the majority of species, appeared as wilted areas at the bracts apex. The withering advanced towards the bract base. The evaluation of the chilling injury and senescence symptoms are different and allow to make the comparative description of both kinds of symptoms. Senescence symptoms of *H. stricta* cultivars are different from the senescence symptoms of other species.