

**Title** Influence of environmental factors on quality of *Protea cynaroides* and *Leucospermum glabrum* x *Tottum* (Proteaceae) during mid-range transportation

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**Citation** ISHS Acta Horticulturae 755:277-282. 2007.

**Keywords** CO<sub>2</sub> concentration; leaf blackening; Proteaceae; refrigeration

### Abstract

Proteaceae is an ancient botanical family of flowering plants, mainly restricted to the Southern Hemisphere. They are commercially exploited as barrier plants and for their prominent and distinctive flowers and foliage. Some species are relevant for the cut flower industry. In Italy some species were imported by Floratoscana in 2000 to be used as ornamental plants. Damages on pot plants after mid-range transportation were observed. These damages, such as a partial desiccation of the leaves, are often irreversible and make transport a critical phase for the commercialization of the Proteaceae. The present work is a part of a project (F.Lo.R.Ener.) funded by the Italian Ministry of Agricultural, Food and Forestry Policies. The aim of this research was to study the effects of environmental factors inside transportation units on quality and conservation of plants and flowers. Laboratory experiments were conducted on *Protea cynaroides* and *Leucospermum glabrum* x *tottum* plants cultivated in pots. The following parameters were monitored every minute during four days by means of data loggers: temperature, relative humidity, air velocity, atmospheric pressure and CO<sub>2</sub> concentration. A preliminary experiment was conducted inside two industrial refrigerators to find out if different temperatures (2 and 12°C) could cause damages to the plants: those temperatures didn't influence plant quality. Further experiments were conducted for four days inside an industrial refrigerator (6°C) and an isothermal container (20-25°C) to observe if other environmental factors could cause damages: evident damages only on plants placed inside the isothermal container were observed one week after the end of the experiment. A final experiment was conducted to study if temperature or CO<sub>2</sub> concentration could influence the damaging tendency. When CO<sub>2</sub> concentration was maintained at lower level (<2000 ppm) inside the isothermal container, only 2 plants showed some little damages. These preliminary experiments seem to put in evidence that CO<sub>2</sub> concentration is probably one of the main factors that influence the degree of quality loss in these plants during transport.