

Ethylene resistance in a F₂ population of ornamental chili pepper (*Capsicum annuum*)

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Abstract

Several abiotic and biotic stress may reduce the of postproduction quality in potted plants, including exposition to ethylene. The aim of this work was to identify ethylene resistant genotypes in a F₂ segregating population. Thirty-six Chili Pepper plants with about 30% of the ripe fruits were placed to a chamber at 25°C under 8-10 $\mu\text{mol s}^{-1} \text{m}^{-2}$ of white fluorescent light. Afterwards, three plants were placed in a 60 L container in which it was injected ethylene to the final concentration of 10 $\mu\text{L L}^{-1}$. The plants were exposed to this environment for 48 hours and then kept at room temperature for posterior analyses. After the ethylene exposure the plants were analyzed for number of leaves and fruits abscised at 0, 48, 96 and 144 hours after removal from the ethylene chamber. The end-shelf life was established when at least 50% of abscission of the leaves and/or abscission of fruits had occurred. The experiment was analyzed as an entirely randomized design in split plot with 38 treatments (2 control varieties and 36 F₂ plants) and four times (0, 48, 96 and 144 hours). There were significant interactions between time of exposure to ethylene and genotypes for all evaluated traits. Almost all plants (F₂ and control varieties) showed a linear decreased of leaves and fruits over time. It was possible to identify four F₂ plants (plants: 8, 16, 5, 14) and variety 7073 with a large number of retained leaves after 144 hours of ethylene exposure. These plants will be used in the ornamental breeding program at Federal University of Paraíba and at Federal University of Viçosa.