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## EthylBloc™ Technology Effects in Preventing Ethylene Damage to *Torenia* spp.

### Background

A major postharvest problem of ornamental plants is their sensitivity to ethylene, a natural plant hormone that occurs as a gas in the atmosphere. Ethylene is effective at very low concentrations (parts per billion) to cause major quality deterioration and death of many types of flowers. Plants respond to ethylene from external sources (e.g. propane heaters, engine exhaust, gas-powered forklifts, and smoke), as well as ethylene generated internally by the plant itself. During shipping, warehousing, and display at the retail store level of both potted and bedding plants, there is a high probability of exposure to damaging levels of ethylene, thereby causing major quality loss.

EthylBloc™ Technology is a registered ethylene action inhibitor which protects plants from both external and internal ethylene. This technology has been shown to be very effective in many species of potted and bedding plants from ethylene damage. Identifying plant species that are more sensitive to ethylene damage and confirming the effectiveness of EthylBloc™ Technology is important for recommending this product.

*Torenia* spp. (Wishbone flower) is an annual bedding plant that belongs to the Family Scrophulariaceae, which includes the Snapdragon. This plant carries multi-colored (usually white, blue, purple, pink and yellow) tubular flowers that bloom during late summer and the early months of fall. There is evidence of ethylene damage within this plant, yet the effectiveness of EthylBloc™ Technology on it has previously not been studied.

### Research

An experiment was conducted at Floralife, Inc. Laboratory to test the effectiveness of EthylBloc™ Technology on *Torenia* spp. plants. Annual plants (4-inch / 10.16 cm pot size) of *Torenia* spp. were purchased at a local garden center and used for this experiment. The plants were treated with standard EthylBloc™ Technology atmosphere treatment (1.5 g of EthylBloc™ Technology powder in 100 cubic feet volume) in an enclosed chamber for 4 hours at room temperature. Two days after the EthylBloc™ Technology treatment, all plants were sprayed with 400 ppm solution of Ethephon (an ethylene-releasing compound) to determine the effectiveness of the treatments. Plants were then placed in an interior evaluation room for observation.

### ***Torenia* spp. Annual Plants with Different Flower Colors**



## Results



Control Plants (No EthylBloc™ Technology Treatment) – Day 3 after Ethylene Exposure



Treated Plants with EthylBloc™ Technology – Day 3 after Ethylene Exposure



Control Plants (No EthylBloc™ Technology) – Day 3 after No Ethylene Exposure

Flowers of *Torenia* spp. annual plants exposed to ethylene wilted rapidly. Flower buds remained on the plant, but did not recover from the wilting. EthylBloc™ Technology treatment protected plants from this ethylene damage. The flowering annual plants treated with the EthylBloc™ Technology remained vibrant and healthy.

## Conclusions

*Torenia* spp. flowering annual plants are sensitive to ethylene damage. EthylBloc™ Technology when applied protected the plants from this damage, keeping them fresher and of higher quality.