

Abstract

Snapdragons exposed to the ethylene antagonists 1-methylcyclopropene (1-MCP) and carbon dioxide (CO₂) had greater water uptake to transpirational water loss than control flowers for the first 3 to 4 days of shelf life, but there was no shelf life extension. Floret respiration was non-climacteric and unaffected by 1-MCP or CO₂, whereas ethylene production was reduced significantly for 4 days following exposure to CO₂ but not 1-MCP. Analysis of floret headspace volatiles revealed that 3-carene, an initiator of fragrance compounds, was most abundant after 1-MCP exposure. Floret shattering and wilting were controlled best by a combination of 50 nL·L⁻¹ 1-MCP and 5 to 10% CO₂, but neither ethylene antagonist was effective in controlling gravitropic stem bending. Snapdragons were not affected adversely when exposed for up to 48 hours to elevated CO₂ between 5% and 50%, and benefited from 1-MCP treatment provided ethylene was present.