

Abstract:

Selecting and testing various strained olefines as ethylene antagonists led to the discovery that 1- methylcyclopropene (1-MCP) and other cyclopropenes effectively block ethylene responses at the receptor level. 1-MCP is now commercially available. It is very effective in blocking ethylene responses in a range of ornamental crops. We have prepared and tested the effectiveness of many other substituted cyclopropenes. Some require a much higher concentration than 1-MCP and inactivate the receptor for from 3 to 12 days. Some recently prepared 1-substituted cyclopropenes (1-CPs) inactivate the receptor up to 35 days at very low concentrations. The study with *Kalanchoë blossfeldiana* and *Lathyrus odoratus* showed that 1-hexylcyclopropene (1-HCP) and 1-octylcyclopropene (1-OCP) are effective ethylene receptor blockers, which efficiently prolong the display life of flowers in both ornamentals.