

Title Physiology of flower senescence in Asiatic lily
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Abstract

Several studies have been carried out on the senescence of cut lilies. However, the available literature is often contradictory, especially concerning the effects of the phytohormone ethylene on senescence. The variable results are due to differences in cultivars and the type of plant used (i.e., freshly harvested or cold-stored stems). With the aim of increasing the base of knowledge on the physiology of senescence in lily, several fertile and male-sterile Asiatic seedlings, deriving from a breeding program within our Institute, were utilised to evaluate the effects of emasculation and manual pollination on the longevity of freshly cut-flowered stems. The same effects were evaluated also on single flowers attached to or detached by the inflorescences of two Asiatic cultivars. The vase life of inflorescences from fertile seedlings was increased 10% when flowers were emasculated, while manual pollination decreased vase life 10% in the male-sterile progenies. The trials on the single flowers showed that manual pollination significantly reduced flower longevity only in the attached flowers. In attached flowers, the longevity of the first and last flowers was not significantly different, whereas in the flowers detached from the stem, the first flower lasted significantly longer than the second and the second significantly longer than the third. These intriguing results suggest that the availability of energy resources for single flowers is probably one of the main factors of flowers longevity.