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Post -harvest physiology and technology in Orchids

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Abstract

Orchids account for a large share of global floriculture trade and are estimated around 10% of international fresh cut flower trade. They have taken a significant position in cut flower industry due to its attractiveness, diversity in forms, shape and colour, high productivity, right season of bloom, easy in packing and transportation. Postharvest life of orchid cut flowers is influenced by preharvest factors like varietal or species differences, light intensity, sugar level of flowers, temperature and water loss; harvest factors including time and stage of harvest and postharvest factors viz. ethylene production, precooling, pulsing, use of preservatives, packaging and storage.

The hybrids of *Dendrobium*, *Vanda* and *Mokara* remain perfect from 7 days to 30 days. The flowers of *Cattleya* and *Phalaenopsis* remain fresh for 1 to 4 weeks whereas *Aranda l*asts for 18 to 28 days. Higher sugar levels of flowers improve longevity of cut flowers. The optimum harvesting stage of commercial orchids is fully open and mature flowers. In *Cymbidium* hyb. 'PCMV', harvest at two buds opened stage had maximum vase life (66.8 days). Ethylene is the main factor responsible for early senescence. In *Cymbidium* hybrid 'Red Princess' pulsing with 5% sucrose increases vase life upto 56 days. Pulsing with 4mM STS for 10 minutes in *Aranda* and 0.5mM STS for 24 hours in *Phalaenopsis* blocks the deleterious effect of ethylene.

In tropical orchids like *Dendrobium* and *Oncidium*, $AgNO_3$ (10-30 ppm) and HQS (50-100 ppm) extends vase life and bud opening of cut flowers. In *Cymbidium*, 1-MCP and AVG are superior than STS in prolonging the vase life of cut flowers. In *Cymbidium* 'PCMV', highest per cent of fully opened buds (75%) and maximum vase life (45 days) were recorded with the chemical combination of sugar 4% + salicylic acid 200 ppm.

In orchids, cut spikes are inserted in tube containing water or water with preservatives and bunches of 5 or more or individual spikes are placed inside the CFB box in alternate fashion. Cool growing orchids are stored at lower temperature even at 5^{o}C in cold chambers whereas tropical and subtropical orchids are stored at 7-10^{o}C and 90-95 % relative humidity.

Keywords: Orchids, ethylene, vase life, pre-harvest, post-harvest factors

Biography

L. C. De has completed his PHD at the age of 27 years from IARI, Pusa, New Delhi. Presently, he is a Principal Scientist presently working at NRC for Orchids, Pakyong, Sikkim. He has published 58 research papers and written 9 books on horticulture and floriculture, 25 book chapters, 15 technical bulletins, 58 research abstracts, 32 popular articles, 20 technical reports and 7 training manuals. He is awarded HSI Gold Medal in Floriculture during 2011. He is a member of several scientific societies, National Level Committees and referee of reputed journals.