BUD GROWTH AND POSTHARVEST PHYSIOLOGY OF GLADIOLUS AND CHRYSANTHEMUM-A REVIEW

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Abstract: This paper deals with mechanism of flower bud growth and postharvest physiology of gladiolus and chrysanthemum. Both gladiolus and chrysanthemum are leading cut flowers trade in India as well as World. A spike of gladiolus occurs of an acropetal sequence of stage of bud development on a single axis. A critical stage in flower bud growth in the spike of gladiolus is initiated by gibberellic acid and sustained by sucrose. The important role of continued and sequential basipetalis starch hydrolysis in the gladiolus petals could be to maintain by constant osmotic as well as a sink potential in the growing area of the petal. In case of, Chrysanthemum flower fresh and dry weights of the ray florets increase until the capitula is fully open. The soluble protein content declines after opening of capitula. The maximal activity of this enzyme and acid invertase coincide with the period of highest increment in fresh and dry weight. Postharvest senescence of gladiolus and chrysanthemum depends mainly of theirmethods of harvesting, transporting and increase the longevityof flowers. Two factor play a major role in regulating the vase life of cut flower are carbohydrate supply and water balance. This can be achieves through using of sucrose along with any of the following chemicals CoCl2, NiCl2, FeCl2 and AgNO3.

Keywords: Gladiolus, chrysanthemum, bud growth, postharvest, physiology, vase life

REFERENCES

APEDA, [Agriculture and Processed Food products Export Development Authority] (2014). APEDA Home page (online) Export of commercial flower from India in the year 2012-13, http://www.apeda.gov.in/apedawebsite/index.asp (Jan 2014).

Bala, R. (1982). Growth and opening of flower buds in Gladiolus: some physiological and biochemical aspects. M.phil. Dissertation, Univ. of Delhi, New Delhi, India.

Bala, R.; Rao, I.V.R., and Mohanram, H.Y. (1986). Influence of stamens, gibberellic acid and sucrose on corolla growth in gladiolus. *J. Pl. Physiol.* **122**: 87-92

Burg, S.P. and Dijkman, M.J. (1967). Ethylene and auxin participation in pollen induced fading of vanda orchid blossoms. *Pl. Physiol.* **42**: 1648-1650.

Chandra, G. and Mohanram, H.Y. (1980). Senescence of flowers. J. Scient. Ind. Res. 39: 337-341.

Chandra, G.; Reddy, K.S. and Mohanram, H.Y. (1981). Extension of vase life cut marigold and chrysanthemum flower by use of cobalt chloride.*Indian J. expl. Biol.* **19**: 150-154.

Crocker, W. and Knight, L.I. (1908). Effect of illuminating gas ethylene upon flowering carnation.*Bot. Gaz.* **46**: 259-276.

Lang, A. (1961). Auxins in flowering.*In* Encyclopaedia of plant physiology. (Ed.). W. Ruhland. **14**: 909-950 Mohanram, H.Y. and Rao, I.V.R. (1977). Prolongation of vase life of *Lupinushartwegii*by chemical treatment.*Sci. hort.* **7**: 377-382.

Molisch, H. (1938). The longevity of plants.Science press, Lancaster, Pennsylvania, USA.

Pardhasaradhi, P. (1985). Physiology of development and senescence of capitula in chrysanthemum.Ph. D. Thesis, Univ. of Delhi., New Delhi, India.

Pardhasaradhi, P. and Mohanram, H.Y. (1987). Correlated changes in carbohydrate levels and associated enzyme activities during development and senescence of ray florets in chrysanthemum. *Proc. Indian Acad. Sci. (Pl. Sci.)*.**97**(5): 377-384.

Rao, I.V.R. (1979). Postharvset physiology of the spike and regulation of flower development in gladiolus.Ph.D. Thesis, Univ. of Delhi, New Delhi, India.

Rao, I.V.R. (1982). Mechanism of flower growth and opening, a case study of gladiolus. Sci. Acad. Medals for young scientists- lectures, pp 125-147 (New Delhi: Indian National Science Academy).

Rao, I.V.R and Mohanram, H.Y. (1980). Lightmediated amylase synthesis in the petal epidermis of gladiolus.*Proc. Indian Acad. Sci. (Pl. Sci.)*.89: 323-330.

Rao, I.V.R and Mohanram, H.Y. (1981). Interaction of gibberellins and sucrose in flower bud opening in gladiolus *Indian J. Expl Biol.***17**(4): 447-448

Rao, I.V.R and Mohanram, H.Y. (1986). Water stress induced requirement of gibberellic acid for flower bud growth and opening in gladiolus. *J. Pl. Physiol.***122**: 181-186.