

### **Studies on the effect of VAM and growth regulators on *Gladiolus grandiflorus* L. cv. Jessica**

A field as well as lab experiment was conducted to assess the effect of different plant growth regulator treatments with or without VAM on growth, flowering and corm yield of gladiolus. These parameters provided reliable measures of effectiveness of plant growth regulator treatments. The changes occur in the cut flowers, when placed in standard solution of 8-HQC (200 ppm) + sucrose (4 per cent) during vase-life and the Factors are more responsible for its better longevity and cause for senescence, were also investigated during the experimental period. Results showed that during both the years of observations, plant growth, flowering, physiological and bio-chemical changes during vase-life and corm yield of gladiolus were significantly increased by different plant growth regulator treatments as compared to control. Pre-soaking + foliar kinetin 50ppm in association with VAM proved significant response with respect to these parameters except corm yield which was influenced by pre-soaking + foliar GA3 100ppm in combination with VAM. On the other hand, among the treatments in absence of VAM, pre-soaking + foliar GA3 100ppm were found to be the best during both the years and enhanced vase-life considerably. The bio-chemical changes in the fresh, fully grown petals and during petal senescence were also studied. Decrease in total protein may be due to decrease in synthesis or increase in degradation, starch content and anthocyanin and carotenoid contents due to increase in pH of the standard vase solution. While, increase in water-soluble protein, nucleic acid (RNA and DNA content) might be due to the ethylene evolution stimulates RNA synthesis which triggers for the synthesis of the hydrolytic enzyme, total sugar content and phenol content during petal senescence as compared to fresh, fully grown petals were noticed and highlights the probable cause of petal senescence resulting poor longevity in the vases. Low rate of ethylene evolution and respiration rate during phase-1 subsequently increase during phase-2 might be due to the formation of free radicals with high oxidation potential, then after sharp decline in phase-3, signifies cause of the petal senescence. During the whole experimentation, it was observed that lower concentration of plant growth regulators with or without VAM incorporation within the soil vicinity proved better response than their higher doses.