ABSTRACT

Key words: gladiolus, corms, physical treatments, benzyl adenine, pre-soaking

Gladiolus is a popular flowering plant that is cultivated all over the world for its beautiful spikes. The pre planting corm treatments definitely influence the sprouting, plant growth, flowering and corm production in great extent. Farmers are facing constraints in the commercial cultivation of gladiolus due to increased cost of planting material and reduced spike yield from the plant. Lack of awareness about the modern techniques on gladiolus cultivation is a drawback for production of this crop.

The experiment entitled, “Effect of physical treatments and pre-soaking of corms with benzyl adenine on growth, flowering and corm production of gladiolus cv. Psittacinus” was carried out at High-Tech Horticultural Park, Department of Horticulture, Junagadh Agricultural University, Junagadh during October 2015 to April 2016. The experiment was assigned with factorial concept in Randomized Block Design (FRBD) with twelve treatment combinations arising from three levels of physical treatments (P₁ - Control, P₂ - Removal of terminal sprout, P₃ - One slit on corm) and four different concentrations of benzyl adenine (C₁ - Control; C₂ - BA @ 100 ppm; C₃ - BA @ 200 ppm; C₄ - BA @ 300 ppm).

The results indicated that the application of pre corm treatment removal of terminal sprout, significantly improved percentage of sprouting at 10 DAP (75.86 %), plant height at 45 DAP (46.14 cm) and plant height at 60 DAP (59.97 cm), number of leaves at 45 DAP (3.92), number of leaves at 60 DAP (5.85), number of tillers per plant (4.35), number of spikes per plant (3.26), number of spikes per plot (109.25), yield of spikes per hectare (4.88 lakhs), number of corms per plant (3.49), number of cormels per plant (7.57), yield of corms per hectare (5.95 lakhs), yield of cormels per hectare (11.35 lakhs), weight of corms (24.97g), weight of cormels (4.20 g) and
Abstract
diameter of corms (3.43 cm). While percentage of sprouting at 5 DAP (32%), plant height at 30 DAP (32.24 cm), minimum days required for emergence of first spike (78.41 days), minimum days required for opening of first floret in the spike (91.61 days) and rachis length (35.17 cm) were significantly influenced by the treatments.

Growth, flowering, quality, yield and corm production also influenced due to the pre soaking treatments of corms with different concentrations of benzyl adenine. The maximum percentage of sprouting (32%) at 5 DAP, plant height (48.29 cm) at 45 DAP, plant height at 60 DAP (63.00 cm), number of leaves at 45 DAP (4.16), number of leaves at 60 DAP (6.55), spike length (77.06 cm), rachis length (39.20 cm), floret diameter (6.15 cm), weight of corms per plant (25.98 g), weight of cormels per plant (4.87 g) and diameter of corms (3.39 cm) was found best in BA @ 100 ppm. While the soaking of corms with BA @ 300 ppm showed maximum number of tillers per plant (5.89), flowering span(21.07 days), number of spikes per plant (3.12), number of spikes per plot (117.78), yield of spikes per hectare (4.70 lakhs), number of corms per plant (5.20), number of cormels per plant (8.24), yield of corms per hectare (8.53 lakhs) and yield of cormels per hectare (12.37 lakhs). However, in case of percentage of sprouting at 10 DAP (100%), plant height at 30 DAP (35.85 cm), number of leaves at 30 DAP (2.70) highest result was observed in treatment C1 (Control). Whereas, minimum days required for emergence of first spike (74.15 days), days required for opening of first floret in spike (87.25 days) and fresh weight of whole spike (87.28 g) was in treatment control.

The interaction effect of physical treatments and benzyl adenine also significantly influenced the growth, flowering, quality, yield and corm production in gladiolus. Maximum plant height at 60 DAP (63.48 cm), weight of corms per plant (24.94 g), weight of cormels per plant (5.69 g) and diameter of corms (4.03 cm) was found in the treatment combination removal of terminal sprout + BA @ 100 ppm. While maximum number of leaves per plant at 60 DAP (6.62), number of spikes per plant (4.00), number of spikes per plot (121.67), yield of spikes per hectare (6.00 lakhs), number of corms per plant (6.00), number of cormels per plant (8.43), yield of corms per hectare (9.00 lakhs) and yield of cormels per hectare (12.65 lakhs), was noticed in interaction effect of removal of terminal sprout + BA @ 300 ppm. However, the treatment control + BA @ 100 ppm showed maximum increase in plant height at 45 DAP (48.85 cm), percentage of sprouting (100%) at 10 DAP, length of spike (79.61 cm), length of rachis (42.22 cm) and floret diameter (6.37 cm). Whereas, maximum percentage of sprouting at 5 DAP (42.5%) and maximum plant height at 30 DAP (36.73 cm) was found in treatment P1C1 (control), minimum days required for emergence of first spike (72.10 days) and minimum days required for opening of first floret in spike (86.50 days) was found in treatment control.

Therefore, from the present study it can be concluded that the treatment combination removal of terminal sprout + BA @ 300 ppm proved to be the best in increasing the spike, corm and cormel production. However, for quality flower production purpose the treatment with removal of terminal sprout + BA at 100 ppm may be recommended to get good quality spikes. On the other hand from economic point of view, the treatment combination removal of terminal sprout + BA at 300 ppm can be considered as the best for getting higher profit.