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Effect of vermicompost and bio-control agents on growth and flowering of gladiolus cv. J.V. GOLD

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ABSTRACT : A field experiment on gladiolus was carried out to see the influence of vermicompost and various bio-control agents on growth and flowering attributes. Treatment consisted of control, *Trichoderma harzianum*, *Pseudomanas fluorescens*, *Bacillus subtilis*, Vermicompost, *Trichoderma* + *Pseudomonas*, *Trichoderma* + *Bacillus*, *Trichoderma* + vermicompost, *Pseudomonas* + *Bacillus*, *Pseudomonas* + vermicompost, *Bacillus* + *vermicompost* and *Trichoderma* + *Pseudomonas* + *Bacillus* + vermicompost. Experiment was laid out in a Randomised Block Design with three replications at Horticulture Research Farm, B.H.U, Varanasi. Early sprouting was recorded with *Bacillus subtilis*. Maximum number of sprouts and leaves per plant was observed with *Trichoderma harzianum* + vermicompost. Whereas, treatment *T. harzianum* + *P. fluorescens* + *B. subtilis* + vermicompost registered maximum length of leaf, plant height, length of spike and duration of flowering. Application *B. subtilis* + vermicompost registered maximum fresh and dry weight of leaf, early spike emergence and diameter of fifth floret. Early colour show and floret opening were recorded with *T. harzianum* + *B. subtilis*. However, maximum number of florets per spike was recorded with *P. fluorescens* + *B. subtilis*. It is interesting to note that application of various bio-control agents alone or in combination and vermicompost was found beneficial to improve plant growth and various flowering attributes.

KEY WORDS : Gladiolus, Vermicompost, Bio-control agents, Growth, Flowering

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Gladiolus is very popular bulbous flowering plant grown throughout the world. It is native to tropical and southern Africa and belongs to family Iridaceae. Gladiolus with its long flower spikes having rich variations of colours and long vase life has ever increasing demand in the flower market. Vermicompost act as valuable organic manure and it is higher in content as compare to usual rural compost. Among biocontrol agents, *Trichoderma harzianum*, *Pseudmonas fluorescens* and *Bacillus sultilis* occupy significant place for their antagonistic property against *Fusariun oxysporum* f. sp. *gladioli* causing *Fusarium* wilt of gladiolus. Beneficial effect of organic manure and biocontrol agents has been well documented in various horticultural crops. Effect of vermicompost and biocontrol agents on growth and flowering of gladiolus has been reported earlier (Mishra and Mukhopadhyay, 2000; Sharma and Chandel, 2003; Bhalla *et al.*, 2006; Dongardive *et al.*, 2007.) In view of the above background, the present study was undertaken in gladiolus with the objective to find out the effect of vermicompost and biocontrol agents on growth and flowering of gladiolus cv. J.V. GOLD.

RESEARCH METHODS

The present experiment was carried out at Horticulture Research Farm, Department of Horticulture, Institute of Agricultural Sciences, B.H.U., Varanasi during November 2010-May 2011. The soil of experiment field was alluvial loam. The experiment was conducted on gladiolus cv. J.V. GOLD with 12 treatment combinations consisted of Control, *Trichoderma harzianum*, *Pseudomanas fluorescens*, *Bacillus subtilis*, Vermicompost, *Trichoderma* + *Pseudomonas*, *Trichoderma* + *Baciluls*, *Trichoderma* + vermicompost, *Pseudomonas* + *Bacillus*, *Pseudomonas* + vermicompost, *Bacillus* + vermicompost and *Trichoderma* + *Pseudomonas* + *Bacillus*