

Effect of bioinoculants with reduced doses of inorganic fertilizers on growth and flowering of tuberose

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ABSTRACT

A field experiment was carried out during *kharif* season of 2003-2004 at the farm of Floriculture Nursery Unit, Central Research Station, Dr. Panjabrao Deshmukh Krishi Vidhyapeeth, Akola, to study the effect of bioinoculants with reduced doses of inorganic fertilizers for optimum growth and flowering of tuberose. The results obtained in the experiment suggested that use of bioinoculants with reduced doses of inorganic fertilizers significantly influenced the growth and flowering of tuberose. The vegetative growth of tuberose plants was positively influenced by the application of both the bioinoculants together with the reduced doses inorganic fertilizers. It was maximum under 100 per cent NPK (200:300:200 kg ha⁻¹) along with both the bioinoculants.

Key words : Tuberose, Inorganic, Flowering, Bioinoculants

INTRODUCTION

Tuberose (*Polianthes tuberosa*) is an ornamental bulbous plant. It belongs to family Amarillidaceae. Tuberose is grown through out the year but it blooms profusely during summer and rainy season. For obtaining good quality of flower, nutrition plays an important role and preferably nitrogen and phosphorus has been found more effective in improving vegetative growth of many flowering plant reported by Banker and Mukhopadhyay (1985). Indiscriminate use of chemical fertilizers has caused serious damage to soil. On the other hand, biofertilizers offer an economically attractive and ecologically sound mean of improving quality and quantity of internal sources. Therefore, an experiment was carried out to study the effect of bioinoculants on growth and flowering of tuberose.

MATERIALS AND METHODS

A field experiment was conducted at Floriculture Nursery, Parks and Garden Unit, Dr. Panjabrao Deshmukh Krishi Vidhyapeeth, Akola, during *kharif* season of 2003-2004. The trial was laid out in Randomized Block Design (RBD) with sixteen treatments replicated thrice. Treatments were undertaken by using *Azotobactor* and Phosphate Solubilizing Bacteria (PSB) with reduced doses of inorganic fertilizers. Preplanting treatment of application of bioinoculants to bulbs was given 15 minutes before planting and kept in shade. Bulbs selected for planting were about 20-25 g in weight. Bulbs were planted in flat bed giving spacing 20 x 20 cm and size of gross plot was 1.4 x 1.4 m² accommodating 49 plants. One third dose of nitrogen and the complete dose of

phosphorous and potash as per treatments was given at the time of planting. Out of remaining two third dose of nitrogen was given at 30th and 60th day after planting in two equal splits. Five plants were randomly selected from each treatment and observations regarding vegetative growth and flowering were recorded. All package of practices was followed during conduction of trial.

RESULTS AND DISCUSSION

Effect of bioinoculants with reduced doses of inorganic fertilizers on days required for sprouting of bulb:

It is revealed from data presented in Table 1 that the early sprouting (18.66 days) of bulb was observed under treatment T₁₃ (*Azotobactor* + PSB +100% NPK) closely followed by T₁₄ (*Azotobactor* + PSB + 75% NP+100% K) and T₇ (*Azotobactor* + 100% NPK) i.e. 19.00 days. These treatments were found statistically at par with each other. The late sprouting of bulbs (23.30 days) was observed under treatment T₁₆ (0% RDF). It is cleared that application of *Azotobactor* + PSB +100% NPK recorded early sprouting of bulbs followed by T₁₄ and T₇ and also alone or in combination of *Azotobactor* and PSB enhanced early sprouting of bulbs.

Effect of bioinoculants with reduced doses of inorganic fertilizers on height of plant (cm):

It is revealed from data presented in Table 1 that the maximum plant height was recorded under *Azotobactor* + PSB + 100% NPK (T₁₃) closely followed by *Azotobactor* + PSB + 75% NP+100% K (T₁₄) and *Azotobactor* +100% NPK (T₇) i.e. 58.5cm, 57.8cm and 56.5cm, respectively. These treatments (T₁₃, T₁₄ and T₇) were at par with each other in respect of plant height.