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RESEARCH ARTICLE

EFFECT OF MICRO-NUTRIENTS (B, ZN AND CU) ON FLOWER YIELD OF GERBERA (*GERBERA JAMESONII* L.) CV. MARINILLA UNDER POLYHOUSE CONDITION

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ABSTRACT

Gerbera is one of the most important cut-flowers, successfully grown under different conditions in several areas of the world and meeting the requirements of various markets. This success is primarily due to the wide range in colour and shape of the flower. The present investigation was undertaken at Department of Horticulture, SHIATS, Allahabad, during the year 2015-2016. The experiment was laid out in simple R.B.D. with three replications and thirteen treatments separately. Studies showed that, significant effect on the number of cut flowers per plant (9.50), flower yield per m² (46.84), flower yield (Lakh no. ha⁻¹) (4.69), gross return (121771.00), net return (65782.50) and Cost : Benefit ratio is (1:2.17) was observed maximum in treatment (T₁₀) with 0.5% B +0.5% Zn +0.25% Cu.

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INTRODUCTION

Gerbera (*Gerbera jamesonii* L.) is one of the most important cut flowers, successfully grown under different conditions in several areas of the world. It belongs to family Asteraceae and is commonly known as Transvaal, African or Barbeton Daisy. It is native of Tropical Asia and Africa. Gerbera produces attractive flowers known as 'head' or capitulum. The plants are stem-less perennial herbs. Leaves are radial, petiolate, lanceolate, deeply lobed, sometimes leathery, narrower at the base and wider at the tip and arranged in a rosette fashion at the base. Flower heads are solitary in a wide range of colours i.e. yellow, orange, cream, white, pink, brick red, scarlet, terracotta, salmon peach, maroon and various other intermediate shades. Based on the flower heads they are grouped into single, semi-double and double. Double cultivars have attractive bicoloured flowers. Flower stalks are long, thin and leafless. In addition to NPK, micronutrients have a great bearing influencing the yield attributes and flower production. Micronutrients are involved in all metabolic and cellular functions. The nutrient elements which are required comparatively in small quantities are called as micro or minor nutrients or trace elements (Ganesh and Khanna 2013). Micronutrients are essentially as important as macronutrients to have better growth, yield and quality in plants.

MATERIALS AND METHODS

A field experiment was carried out at Experimental field, Department of Horticulture, Sam Higginbottom Institute of

Agricultural Technology & Sciences (formerly Known as Allahabad Agriculture Institute Deemed to be University, AAI-DU) during Rabi season of 2015-2016.

Planting material: The investigation was carried out on Gerbera. The cultivar of Gerbera used for the study was "Marinilla". The planting material was obtained from IHR-Bangalore.

Source of Micro-nutrients

Boron - Borax (11.34%B)

Zinc - Zinc sulphate (40% Zn)

Copper - Copper sulphate (25% Cu)

The experimental design was a complete randomized block with thirteen treatments of the following as inadequate levels of Boron (B) Zinc (Zn) and Copper (Cu) like doses of fertilizers: T₀ = Control, T₁ = 0.25% B + 0.5% Zn, T₂ = 0.25% B + 0.5 % Cu, T₃ = 0.25% Zn + 0.5% Cu, T₄ = 0.5%B + 0.25% Zn, T₅ = 0.5% B + 0.25% Cu, T₆ = 0.5% Zn + 0.25% Cu, T₇ = 0.25% B + 0.25 % Zn + 0.5 % Cu, T₈ = 0.25% B + 0.5 % Zn + 0.25% Cu, T₉ = 0.5% B + 0.25% Zn + 0.25% Cu, T₁₀ = 0.5% B + 0.5% Zn + 0.25% Cu, T₁₁ = 0.5%B + 0.25% Zn + 0.5% Cu and T₁₂ = 0.25% B +0.5% Zn +0.5% Cu. The first micro-nutrients were applied immediately 20 Days after transplanting and 2nd = 50 DAT, 3rd = 80 DAT, 4th = 110 DAT 5th = 140 DAT. Data on growth and development characters were taken duly. Data were statistically analyzed using computer MSTATC program.

Table 1. Effect of Micro nutrients (B, Zn and Cu) on Flower Yield of Gerbera (*Gerbera jamesonii* L.) cv. Marinilla under polyhouse condition

Treatment No.	No. of flowers/Plant	No. of flowers/m ²	First flowerharvest	Flower yieldlakh no. ha ⁻¹
T0	7.12	35.10	91.50	3.52
T1	7.58	37.37	89.40	3.74
T2	7.66	37.78	89.44	3.78
T3	7.66	37.78	88.30	3.78
T4	7.79	38.40	89.40	3.85
T5	7.83	38.60	88.87	3.87
T6	7.37	36.35	89.37	3.64
T7	7.96	39.23	87.87	3.93
T8	7.71	37.99	90.13	3.81
T9	7.67	37.80	87.60	3.79
T10	9.50	46.84	87.43	4.69
T11	7.95	39.21	88.10	3.93
T12	8.92	43.96	88.18	4.40
F- test	S	S	S	S
S. Ed. (±)	0.3437486	1.69468064	0.852451	0.16975
C. D. at 5%	0.7094623	3.4976489	1.759372	0.350347

RESULTS AND DISCUSSION

The present investigations, observations on various plant characteristics were recorded to evaluate the “Effect of micro-nutrients on Flower yield of Gerbera (*Gerbera jamesonii* L.) cv. marinilla under Polyhouse condition”. The tabulated data were statistically analyzed with a view to find out the significant effect of different factors which are present in the appendix. The results of the experiment are presented in this chapter. The increased in number of flower per plant (9.50) was recorded in T₁₀ followed by (8.92) T₁₂ Minimum no. of flower yield per plant (7.12) was found in T₀ control (no-treatments). The numbers of flowers increased through foliar application of micro-nutrients were also reported by Ganga *et al.* (2008) in Gerbera. The increased in number of flower per m² (46.84) was recorded in T₁₀ followed by T₁₂ (43.96), Minimum flower yield per plot (35.10) was found in T₀ control (No-treatment). The increased in flower yield (lakh no.ha⁻¹) 4.69 was recorded in T₁₀ followed by T₁₂ (4.40), minimum flower yield per ha. (3.52) was found in (T₀) control (no- treatment). The maximum vase life (8.00) was recorded in T₇, followed by (7.83) was recorded in T₁₀ and T₅. Vase life (5.67) was found to be minimum in T₀ control (Table 2). Similar findings were obtained by Khoshgoftarmanesh *et al.* (2008). On the basis of experiment, It is concluded that treatment (T₁₀) 0.5% B + 0.5% Zn + 0.25% Cu is the best treatment regarding studied parameters like number of leaves, plant spread, yielding attributes, gross return, net return and Cost : Benefit ratio is (1:3.02) and the treatment (T₇) 0.25% B +0.25% Zn + 0.5% Cu reported best in vase life. However, since this is based on one-season experiment, further trials may be needed to substantiate the results.

REFERENCES

- Ahmad, I., Khan, M. A., Qasim, M., Rashid A., Randhawa, M. A. 2010. Growth, yield and quality of *Rosa hybrida* L.as influenced by various micronutrients. *Pakistan J. of Agric. Sci.* 47 (1), 5-12.
- Ganesh, S. and Kannan, M. 2013. Essentiality of Micronutrients in Flower Crops. *RRJAAS.* 2 (3)
- Ganga, M., Jagadeeswari, V., Padmadevi, K. and Jawaharlal, M. 2008. Response of chrysanthemum cv. CO.1 to the application of micronutrients. *J. Orna. Hort.*, 11(3): 220-223
- Halder, N. K., Ahmed, R., Sharifuzzaman, S. M., Anzu-Man-Ara Bagam and Siddiky, M. A. 2007. Effect of boron and zinc fertilization on corm and cormel production of gladiolus in grey terrace soils of Bangladesh. *Int J Sustain Crop Prod.* 2(5): 85-89
- Jadhav, A. H., Dalal, S. R., Shinde, R. D., Deshmukh, R. P. 2005. Effect of micronutrients on growth and flower production of Gerbera under polyhouse conditions. *Advances in Plant Sci.* 18 (2): 755-758.
- Joshi, K. I.; Parekh, N. S.; Kikani, K. P. 2002. Effect of sulphur and micronutrients on *Rosa damascena*. *Floriculture Res. trend in India. Proceedings of the national symposium on Indian floriculture in the new millennium, Lal-Bagh, Bangalore, 234-235.*
- Khoshgoftarmanesh, A. H., Khademi, H., Hosseini, F. and Aghajani, R. 2008 Influence of additional micronutrient supply on growth, nutritional status and flower quality of three rose cultivars in a soilless culture *J. P. Nutrition* 31(9): 1543-1554.
- Misra H. P. 2001. Response of chrysanthemum to zinc and boron on growth, yield and quality of flowers. *Scientific Hort.* 7: 201-208.
- Nath M.R. and Biswas J. 2002. Studies on effect of boron on vegetative and reproductive growth in tuberose (*Polianthes tuberosa* L.) cv. Single. *The Orissa J Hort.* 30(2): 39-42.
