

Research
Paper

Effect of foliar spray of bio-enzymes on growth and flowering of brinjal (*Solanum melongena* L) cv. VAISHALI

S.D. JATURE, P.S. BHARADIYA, S.B. ROHIDAS AND A.S. PAWAR

See end of the article for authors' affiliations

Correspondence to :

P.S. BHARADIYA,
Department of Horticulture,
Rajiv Gandhi College of
Agriculture, PARBHANI
(M.S.) INDIA

ABSTRACT

A field experiment was conducted during *Rabi*, 2002-2003 at Department of Horticulture, Marathwada Agriculture University, Parbhani. (M.S.). The result of the experiment revealed that spray of bio-enzymes enhanced the growth and flowering attributes in brinjal over control. Almost all bio-enzymes tried supercropzyme 2 ml l⁻¹ of water was significantly superior over all bio-enzymes and control. The highest growth attributes like plant height, number of branches per plant, number of leaves per plant, fresh weight of plant, dry weight of plant and days required for initiation of flowering, day required for 50 per cent flowering were obtained under the treatment T₅ (Supercropzyme 2 ml l⁻¹) which was statistically at par with treatment T₆ (Supercropzyme 3 ml/lit). These treatments had a significant difference over rest of the treatments including control. Foliar spraying of supercropzyme 2 ml/lit produced highest plant height(70.13 cm) and minimum days required for initiation of flowering (40.53 days) after transplanting which was statistically significant over rest of the treatments including control. The treatment next in order was T₆ (Supercropzyme 3 ml/l of water).

Jature, S.D., Bharadiya, P.S., Rohidas, S.B. and Pawar, A.S. (2010). Effect of foliar spray of bio-enzymes on growth and flowering of brinjal (*Solanum melongena* L) var. VAISHALI, *Adv. Res. J. Crop Improv.*, 1 (2) : 134-136.

Key words : Bio-enzyme, Foliar spray, Growth, Flowering, Brinjal

INTRODUCTION

Brinjal (*Solanum melongena* L.) is one of the most important solanaceous vegetable crop which is highly productive and easy to cultivate. It is originated in India and has been cultivated from long time. Being second major vegetable of India, area under cultivation was 4.96 lakhs hectare with production of 78.81 lakh tons (Chadha, 2001). The bio-enzymes are an extract of vegetable origin contains different concentration of growth regulators along with micro-nutrients. Bio-enzyme influences various stages of plant growth from vegetative growth and flowering. Application of bio-enzymes was found very effective in brinjal which increased vegetative growth and yield (Jadhav,2000) Keeping all this points in mind, an investigation was conducted to evaluated the effect of foliar spray of bio-enzyme on growth and flowering of brinjal cv. VAISHALI.

MATERIALS AND METHODS

A field experiment was conducted during *Rabi*,

2002-2003 at Department of Horticulture, Marathwada Agriculture University, Parbhani. (M.S.). The experiment was laid out in randomized block design having 10 treatments of foliar spray of bio-enzymes including control with 3 replications, The treatments consisted of T₁(1 ml/ l multizyme spray), T₂(2 ml/l multizyme spray), T₃(3 ml/l multizyme spray), T₄(1 ml/l supercropzyme spray), T₅(2 ml/ 1 supercropzyme spray), T₆(3 ml/l supercropzyme spray), T₇(1 ml/l shaktizyme spray), T₈(2 ml/l shaktizyme spray), T₉(3 ml/l shaktizyme spray), T₁₀(Control water spray). Vaishali cultivars was used in experiment. The randomization of treatment was done with the help of random number table in 30 plots. The seeds sown on two raised beds treated with thirum 4 g per bed after germination. Seeding are sprayed twice with 15ml roger plus 25 g copper fungicide in 10 liter of water to protect form insect and diseases. Seeds were sown in shallow furrows prepared at 10-12 cm apart by dropping the seeds at 5-7 cm apart and at 1.5-2 cm depth. Five weeks old seedlings of brinjal were transplanted on 24th August, 2002 when average height of seedlings was about 10 cm. The

Table 1 : Growth and flowering attributes of brinjal influenced by different treatments

Treatments	Symbol	Plant height (cm)	Number of branches plant ⁻¹	Number of leaves plant ⁻¹	Fresh weight of plant (g)	Dry weight of plant (g)	Initiation of flowering (Days)	Days required for 50% flowering (Days)
1ml/l Multizyme spray	T ₁	63.40	14.06	94.00	449.53	129.07	44.00	51.06
2ml/l Multizyme spray	T ₂	65.66	15.93	110.13	455.07	130.87	43.93	50.73
3ml/l Multizyme spray	T ₃	67.13	16.20	114.80	468.13	135.27	42.13	49.33
1ml/l Supercropzyme spray	T ₄	66.40	16.06	113.73	464.40	134.27	43.33	50.46
2ml/l Supercropzyme spray	T ₅	70.13	18.86	128.67	515.67	146.53	40.53	48.66
3ml/l Supercropzyme spray	T ₆	68.20	16.73	128.33	496.20	145.07	41.53	48.80
1ml/l Shaktizyme spray	T ₇	62.00	13.60	86.73	424.47	123.60	44.40	51.56
2ml/l Shaktizyme spray	T ₈	67.53	16.53	117.40	479.60	137.00	41.93	48.86
3ml/l Shaktizyme spray	T ₉	65.53	14.20	105.20	451.67	129.80	44.00	50.93
Control water spray	T ₁₀	51.73	8.06	74.93	386.47	108.60	50.26	57.53
S.E. (±)		0.70	0.38	60.65	5.45	1.72	0.32	0.50
C.D. (P=0.05)		2.10	1.12	19.74	16.19	5.13	0.96	1.50

distance between plant to plant as well as row to row was kept at 60 cm. NPK was applied at the rate of 100:50:50 kg ha⁻¹ as per recommendation . A full dose of PK was applied at the time of transplanting, while urea was applied in two split doses. *i.e.* half at the time of transplanting and remaining half dose nitrogen 30 days after transplanting. Five plants were randomly selected in each plot and tagged. Growth and flowering contributing parameters were recorded from these plants.

RESULTS AND DISCUSSION

The results obtained from the present investigation are presented in Table 1 :

Effect of bio-enzymes on growth attributes:

Table 1 revealed that foliar spray of different bio-enzymes in lower concentration, in general, significantly increased growth attributes over control. Highest growth attributes like plant height(70.13 cm), number of branches per plant (18.86),number of leaves per plant (128.67) fresh weight of plant (515.67 g)and dry weight of plant (146.53 g) were obtained under the treatment T₅ in which foliar spray of 2 ml/l spuercropzyme was done. This might be due to action of bio-enzyme which consisted of precursors of auxin, enzyme, proteins and micro-elements were responsible to improve vegetative growth. The present

result pertaining to the growth attributes are in accordance with the findings of Jadhav(2000), Kulkarni(2000), Patil (2002).

Effect on flowering attributes:

Data on various flowering attributes revealed that spray of 2mi/l supercropzyme spray (T₅) significantly required less number of days for initiation of flowering (40.53 days), days required for 50 per cent flowering (48.66) over control. Due to effect of bio-enzyme which fasten the reproductive growth of plant by carrying vital role in number of metabolic activities which enhanced vegetative and reproductive growth of plant by modifying various physiological process of plant. The present result pertaining to flowering attributes are in accordance with finding of Jadhav (2000) and Patil(2002).

Authors' affiliations:

S.D. JATURE AND A.S. PAWAR, Department of Horticulture, Marathwada Agricultural University, PARBHANI (M.S.) INDIA

S.B. ROHIDAS, Horticulture Research Scheme, Marathwada Agricultural University, PARBHANI (M.S.) INDIA

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