

Effect of bioenzymes on growth, flowering and yield of okra

P.J. SATAO, P.M. PAWAR, V.N. SHINDE, V.P. DAMODHAR, R.V.BHALERAO

See end of article for
authors' affiliations

Correspondence to :
V.P. Damodhar
Department of Horticulture,
Banana Research Station,
NANDED (M.S.) INDIA

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ABSTRACT

The experiment was conducted at Vegetable Research Scheme, Sub-Campus, Marathwada Agricultural University, Parbhani (M.S.) during summer season to study the effect of bioenzymes and aminocel on growth, flowering and pod yield of okra Cv. Parbhani Kranti. The treatments consists of three bioenzymes viz. Welzyme, Miraculan and Humicil with two concentrations, aminocel with three concentrations, urea with two concentrations and distilled water as control were applied as foliar spray at 35,50,65 and 80 days after sowing. Miraculan at 0.8 ml/l was observed more effective in increasing plant height, number of leaves, number of flowers, number of pods and green pod yield, Aminocel at 3 ml/l was found most effective in increasing leaf area.

Key words : Bioenzymes, Flowering, Yield okra.

Okra is grown for the fresh market and also for export and processing. It is a cash crop and fetches higher prices during summer when other vegetables are short supply in the market. Average yield per hectare of vegetable crop is less in India. Among the latest horticultural advances one of the method of increasing production per unit area and quality produce is use of growth regulators and bioenzyme. Bioenzyme is commercial product obtained from *Asephyllum modosum*, a seaweed alga known to be rich in cytokine and auxin precursors, enzyme and hydrolyzed protein. However, their use is limited because farmers have not sufficient knowledge about different bioenzymes available, their role, spraying concentrations, stage of the crop at which spraying should be carried out to secure the better stand of the crop in terms of growth, early and profuse flowering, high fruit set and other export quality attributes. Therefore, the study was undertaken to assess the efficiency of bioenzymes, aminocel and urea as foliar spray on growth, flowering and green pod yield of okra (*Abelmoschus esculentus*, (L.) Moench).

MATERIALS AND METHODS

The experiment was conducted at Vegetable Research Scheme, Sub-campus, Marathwada Agricultural University, Parbhani during summer season. Experiment was laid out in Randomized Block Design with twelve treatments replicated thrice. Okra variety Parbhani kranti was used for the experiment. The seeds were dibbled at a spacing of 30x30 cm. A common dose of fertilizer, NPK @ 100:50:50 kg./ha was applied to all the treatments uniformly and other operations were carried out as per recommendations. The different bioenzymes, aminocel,

Urea and distilled water were spread on the entire plant. The spraying was done at 35,50,65 and 80 days after sowing. Five plants per treatment were randomly selected for recording the growth, flowering and yield attributing characters. The growth observations were recorded at 35 days after sowing and then after 15 days interval. The final observations were recorded at 90 days after sowing. The picking was carried out for tender fruits at an interval of three days.

RESULTS AND DISCUSSION

The growth attributes were significantly influenced by the various treatments (Table 1). The treatments of bioenzymes and aminocel were found effective in increasing height of plant, number of leaves per plant and leaf area which constitute vegetative growth of the plant. Strong vegetative growth is essential for further production of pods. Leaves are seat of photosynthesis, while height are bearing surfaces. All these parameters were significantly influenced due to bioenzymes, since they are precursors of growth regulators, enzymes, proteins and micronutrients which promotes stem elongation by increasing rate of cell division, elongation and rapid meristematic activity accompanied by a greater chlorophyll synthesis. The results are supported by the findings reported by Nargis Jahan et. al (1997) in okra, El-Sayed (1995) in sweet pepper varieties and Sharma (1995) in tomato.

Treatments of aminocel and bioenzymes were found effective in reducing days required for initiation and 50 per cent flowering. Aminocel 2 ml/l brought significantly earlier initiation as well as 50 per cent flowering than rest of the treatments (41.66 and 46.50 days respectively) which might be due to early completion of vegetative growth. This was in confirmation with findings of Pandita