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Research Paper

Effect of plant growth regulators on growth and yield parameters of okra

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ABSTRACT

A field experiment was conducted with different concentration of GA_3, IAA and NAA as seed treatment followed by foliar spray 30 DAS in Okra variety Akola Bahar in Randomized Block Design with three replications. The data revealed that significant effect for plant height (107.74 cm), internodal length (3.1 cm) was obtained in treatment GA_3 at 150ppm whereas, numbers of branches (3.53) were found maximum in treatment IAA at 100ppm. However, significantly minimum number of days required for first flowering (39.67 days) and first harvesting (44.67 days) were recorded in treatment GA_3 at 150 ppm. The significantly maximum parentage of fruit set (74.79) and fruit yield per hectare were observed in same treatment.

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Key words : Okra, Plant growth regulator, GA_3, IAA, NAA

Okra [*Abelmoschus esculentus* (L.) Moench] is herbaceous annual plant belongs to family Malvacae growing in tropical and subtropical parts of the world. Now it is grown through out the year for its tender green fruits. India is the largest producer of okra. Besides being a vegetable, it also has medicinal and industrial important.

Role of plant growth regulators in crop production is well known phenomenon. Its use in crop promotes growth along the longitudinal area, increase number of branches, early flower initiation, fruit set, fruit quality and subsequently contributes towards higher production when applied at various concentration. Due to this it is possible to achieve the desirable standards and norms in term of quality for exportable production.

Therefore, present investigation was carried out to find out suitable plant growth regulator, concentration and its effect on growth and yield parameters of okra.

MATERIALS AND METHODS

An experiment entitled effect of plant growth regulators on growth, yield and quality of okra was carried out during the year 2009-2010 at the Main garden, Department of Horticulture, Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola with the objectives to study the effect of different plant growth regulators on growth, yield and quality of okra and to find out the suitable concentration of plant growth regulator on growth, yield and quality of okra. Okra variety 'Akola Bahar' was sown at 60cm x 30cm spacing during *Kharif* season with a net plot size of $4.5m^2$. The experiment was laid out in Randomized Block Design with three replications and thirteen treatments including plant growth regulators as GA3 (50, 100, 150, 200ppm), IAA (25, 50, 75, 100ppm), NAA (10, 20, 30, 40ppm) and one control (water soaked and foliar spray). Each treatment comprised seed soaking followed by foliar spray 30 DAS.

RESULTS AND DISCUSSION

The response with growth regulators depend upon the amount of particular compound absorbed by the seed or plant and ability of seed or plant to respond to the stimulus of the chemical applied. It is however, belived that the mechanism of action of a growth regulator in plant through same fundamental process involving the activities of the cell and the enzyme concerned in the process.

Plant height:

Data presented in Table 1 showed that significantly maximum height of the plant was recorded under treatment GA_3 at 150ppm (107.74cm), followed by GA_3 at 200ppm (101.21 cm) which was at par with treatment NAA at 30ppm (102.40 cm).