

Effect of plant growth regulators on sex expression and yield of sponge gourd [*Luffa Cylindrica* (Roem.)] cv. 'PUSA CHIKNI'

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ABSTRACT

During *Kharif* season in the year 2004 an experiment was carried out to know the effects of various plants growth regulators on sex expression and yield in sponge gourd Cv. 'Pusa Chikni'. Two sprays of plant growth regulators were done at 2nd and 4th leaf stages. The lowest number of male flowers (230.0), the highest number of female flowers (44.0) and lowest male: female sex ratio (1:5.26) was observed in Ethrel 300 ppm treatment. The yield characters such as fruit length (25.95 cm) and diameter (16.50 cm) were observed maximum in treatment Ethrel 300 ppm. Similarly, maximum fruit yield 23.90 t/ha was also observed in Ethrel 300 ppm.

Key words : Bio-regulators, Etheral, CCC, Sex reversion

The sponge gourd [*Luffa cylindrica* (Linn.) M. Roem.] is one of the important cucurbitaceous crop, grown extensively throughout in India. The tender fruits are used as vegetable or as cooked vegetables. Besides its use as vegetable, this gourd is utilized for various purposes (e.g. ornamental purposes. good pot holders, table mats, bathroom mats, slipper soles have been made out from the fibers). The sponge gourd possess monoecious forms and also possess a great diversity in the pistillate and staminate flowering ratio.

In monoecious forms the production of staminate flower is far in excess of pistillate counter part. Since the yield of the crop depends upon the production of pistillate flowers, it is worth while to study the possibility of bringing about a shift in favour of pistillate flowers. Plant growth regulators have profound influence on fruit production in cucurbits. It can modify growth and sex expression, improve fruit set and ultimately increase the yield in number of cucurbits. A relationship between growth substances and sex expression probably exists in these plants. Sex modification shift towards femaleness by exogenous application of auxins, gibberellins, growth retardants, other plant growth regulators.

MATERIALS AND METHODS

The present investigation was undertaken during *Kharif* season of 2004 on sponge gourd cv. PUSA CHIKNI at the Instructional farm of Department of Agronomy, College of Agriculture, Junagadh Agricultural University, Junagadh (Gujarat). Three seeds of 'Pusa Chikni' were dibbled at each hill at a distance of 3.0 m x 0.5 m between

row and plant, respectively. The experiment was incorporated in Randomized Block Design with three replications and seven treatments *viz.*, three concentrations each of Ethrel (200, 300 and 400 ppm), CCC (200, 300 and 400 ppm), and control (*i.e.* water spray). Two sprays of plant growth regulators were done at 2nd and 4th leaf stages. In the present investigation, eight vines were selected from each net plot to record the observations with regard to sex expression (*viz.*, number of male, female flowers per vine and sex ratio) and yield characters (*viz.*, fruit length (cm), diameter in cm and fruit yield in tone per hectare).

RESULTS AND DISCUSSION

The results obtained from the present investigation are summarized below:

Etherel :

The response of different concentrations of Ethrel on number of male flowers, number of female flowers and sex ratio was found significant over control (Table 1). Among the Ethrel concentrations, minimum number of male flowers (230.0/vine), maximum number of female flowers (44.0/vine) and lowest male: female sex ratio (5.26 : 1) were recorded with Etherel 300 ppm. The reduced level of endogeneous gibberellin and increased level of auxin after Ethrel spray was reported by Rudinch *et al.* (1972). This may be probable reason for increased number of female flowers, decreased number of male flowers and thereby lowered sex ratio. Further it can be supported by the hypothesis suggested by Heslop