



Research Paper

Article history :

Received : 24.04.2012

Revised : 19.11.2012

Accepted : 10.12.2012

Effect of ethrel on hybrid seed production of cucumber (*Cucumis sativus* L.) under open and protected conditions

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ABSTRACT : The present investigation was carried out in open field and greenhouse conditions to study the effect of ethrel concentrations on hybrid seed production of cucumber. Five ethrel levels *viz.*, 0, 200, 300, 400 and 600 ppm were tried in two genotypes *i.e.*, Japanese Green Long and Green Express. Ethrel at 200-400 ppm under green house conditions and 400-600 ppm under open field conditions proved superior to all other concentrations including control in increasing ultimate fruit yield per plant. There was a significant increase in seed production of fruits after treating plants with ethrel, though the maximum number of seeds was recorded by 300 ppm under greenhouse condition and 600 ppm under open field conditions. Application of ethrel at 200 and 300 ppm being at par with control recorded significantly more test weight (100 seed weight) than its upper concentrations. 200 ppm and 300 ppm concentrations recorded higher seed germination percentage than control and upper levels of ethrel. Spray application of ethrel at 300 ppm under green house and 600 ppm under open field in both genotypes increased seed yield, net return and benefit cost ratio as compared to other treatments.

KEY WORDS : Cucumber, Ethrel, Hybrid seed production

HOW TO CITE THIS ARTICLE : Mehdi, M., Ahmed, N., Jabeen, N., Khan, S.H. and Afroza, Baseerat (2012). Effect of ethrel on hybrid seed production of cucumber (*Cucumis sativus* L.) under open and protected conditions, *Asian J. Hort.*, 7(2) : 558-560.

Cucumber (*Cucumis sativus*) is grown throughout world and is fourth most important vegetable crop after tomato, cabbage and onion (Talioglu, 1993). Cucumber comprises of 30 species distributed over two geographically distant areas- Africa and Asia (Karoon *et al.*, 1979). *Cucumis sativus* is largely confined to the areas around South and Eastern Himalayas.

On the basis of flowering habit, cucumber has three types- gynoecious which produces only female flowers, predominantly gynoecious which also bears some male flowers and monoecious which produces both male and female flowers. The first two types produce fruits parthenocarpically and fruit development takes place without pollination whereas pollination is required by monoecious types for seed setting which is accomplished by honey bees. For green house cultivation, predominantly gynoecious types are used with confidence, because they are less vigorous, requiring limited pruning, come to production earlier, produce more and can be grown at a lower temperature while under open conditions

both monoecious and gynoecious types could be used.

From hybrid seed production point of view, gynoecious lines are very important as there is no male part and hence no pinching of male flowers is required resulting in low cost of hybrid seed. So it has become imperative to develop a technique which can ease or help to bring down the cost of hybrid seed production by inducing femaleness or by drastically reducing male flowers. The application of ethrel for inducing female flowers in cucurbits is very common but the action varies with environment (Alvarez, 1989), crop and the genotype (Robenson *et al.*, 1969 and Vadigeri *et al.*, 2001). Therefore, an investigation involving ethrel at varying levels was carried out on female lines of newly developed hybrids both under field as well as protected conditions with the objective to study effect of ethrel on seed characteristics and to study the economics of ethrel application on hybrid seed production.