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CHEMICAL INDUCTION OF MALE STERILITY IN CHICKPEA

D. S. MATHUR AND S. K. LAL

Division of Genetics,
Indian Agricultural Research Institute, New Delhi 110 012

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Chemical induction of male sterility has been considered desirable because it has the potential to provide for the development of hybrids directly out of elite germplasm without the time and effort required to transfer male sterility and fertility restorer gene [1]. It is also helpful in effecting crosses where flower size is small and emasculation is difficult. Small flower size and flower droping in chickpea makes crossing a difficult proposition. Therefore, to facilitate emasculation a gametocide - Fluoro oxanil was tried to induce male sterility in chickpea. Chemical hybridizing agents (CHA) that selectively inhibit pollen development or reduce its fertility have been reported for quite some time in rice and wheat [2] but there is no report of gametocidal use in chickpea. Fluoro oxanil was sprayed one week before flowering on two lines of chickpea namely Pusa-267 (*kabuli*) and a bushy mutant IC-9100403 (*desi*). Two treatments of 800 ppm and 1000 ppm Fluoro-oxanil were tried. Distilled water sprayed plants were used as controls. Pollen sterility was studied using aceto-carmine staining method. Pollen sterility among treated plants was observed to vary between 70- 80%. Pod setting/seed formation by self-pollination was found to be affected in both the *kabuli* and *desi* type in the treated plants. The observation are based on ten randomly selected treated plants. The data for each plant was collected on ten randomly selected branches and is presented in Table 1.

Table 1. Nodal position of first pod-setting

Genotype	Nodal position of pod setting (Mode)		
	Control	800 ppm	1000 ppm
Pusa-267 (*kabuli*)	12	14	Nil
IC-9100403 (*desi*)	09	Nil	Nil

Chickpea is a self-pollinated crop with cleistogamous flowers. No pod setting will be observed if either of the gametophyte gets sterile [3]. Results presented in Table 1 suggest that pod setting in control started from lower nodes in comparison

to CHA treated plants. However, *desi* type was more sensitive than *kabuli* and the treatment of 1000 ppm was more effective than 800 ppm. Thus the preliminary studies suggest that Fluro oxanil is effective in inducing male-sterility in chickpea. However, a study comparising more number of chickpea lines and different doses of the CHA will be required to standardise the use of induced male sterility in the crossing programme.

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