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A MULTIRACEMOSE INFLORESCENCE MUTANT OF GREEN GRAM INDUCED BY GAMMA RAYS

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ABSTRACT

A multiracemose inflorescence mutant of green gram cv. T. 44 induced by recurrent gamma irradiation was found to be higher yielder than the parent.

Key words: Green gram, multiracemose mutant, gamma rays.

Studies were undertaken to induce variability in green gram. In this communication we report a mutant of green gram induced by recurrent gamma irradiation which produces multiracemose inflorescences, leading to a greater number of pods and, consequently, higher grain yield as compared to the parent.

Two hundred seeds (moisture 8%) of green gram (*Vigna radiata* L. Wilczek) cv. T. 44 obtained from M_1 generation of 40 kR gamma irradiated seeds were exposed to ^{60}Co gamma rays at 5, 10, 20, 30, 40 and 50 kR doses. A mutant bearing profuse inflorescence was identified from 40 kR treatment in M_2 generation that showed multiracemose inflorescences with significantly increased number of pods than the parent. The mutant bred true in M_3 generation.

Table 1. Comparison of mean performance of parent and mutant (M_3 generation) for certain phenotypic characters

Character	Parent	Mutant
Plant height (cm)	33.5 ± 0.18	32.2 ± 0.19
Nodes/plant	6.7 ± 0.16	6.5 ± 0.13
Days to flowering	32.0 ± 0.21	45.8 ± 0.94**
Inflorescences/plant	10.5 ± 0.20	26.2 ± 0.18**
Pods/plant	31.8 ± 1.26	70.6 ± 2.12**
Pod length (cm)	6.6 ± 0.17	6.6 ± 0.17
Seeds/pod	10.6 ± 0.19	10.2 ± 0.21
Seeds/plant	300.2 ± 9.16	632.6 ±17.23**
Grain yield/plant (g)	10.8 ± 0.22	25.3 ± 1.20**
Pollen sterility (%)	4.4 ± 0.17	7.3 ± 0.19*
Ovule sterility (%)	4.2 ± 0.23	6.4 ± 0.18*

* ** Significant at P = 0.05 and P = 0.01, respectively.

Green gram possesses racemose inflorescence with floral buds arranged alternately. The mutant, on the other hand, showed multiracemose inflorescences with alternate arrangement of floral buds. The multiracemose inflorescence of the mutant was relatively longer than the racemose inflorescence of the parent (Fig. 1).

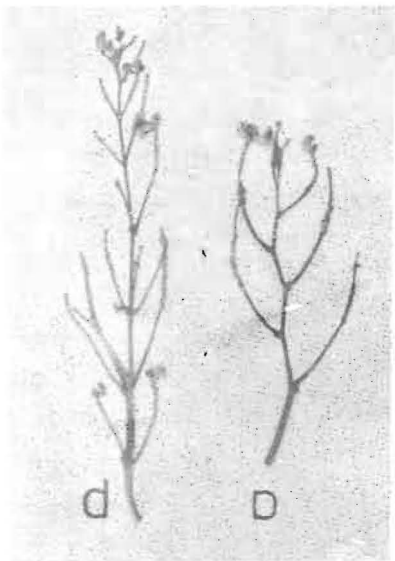

Fig. 1. Inflorescences of green gram cv. T. 44 (a) and multiracemose mutant (b).

Observations on different characters from 20 randomly selected plants from the parent and mutant strains were recorded (Table 1). It is evident that the mutant differed significantly from the parent for inflorescences/plant, days to flowering, pods/plant, and grain yield/plant. The data indicate that the high yielding ability of the mutant is due to higher number of pods and seeds per plant. It is, therefore, inferred that gamma irradiation could be successfully employed to induce genetic variability for quantitative traits in green gram, as demonstrated earlier for various traits by a number of workers [1–3].

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