

Irradiating seeds of Rathu Heenati and PTB33 with γ -rays at various doses and developing mutant populations (M_1 generation) and evaluation

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SUMMARY

Induced mutation has been used to a good extent to create genetic variability in plant species to achieve the desired genetic variability. To attain maximum useful mutation density per unit genome and comparative effectiveness of γ -rays optimal dose for treatment is the key to success. This study focuses on the development and evaluation of mutant population from Rathu Heenati and PTB 33. The data collected on germination percentage, plant height, number of tillers/plant, single plant yield and spikelet sterility and its percentage were analyzed and significance among genotypes, mutagens and levels of mutagens was observed for all traits under study. The probit analysis carried out for determining the LD_{50} values for Rathu Heenati and PTB33 revealed the LD_{50} values of 271.1Gy and 257.2Gy Rathu Heenati and PTB33, respectively. Spikelet sterility showed gradual reduction with increased doses of γ -rays in both the accessions. In Rathu Heenati, the mean percentage of spikelet sterility was 81.05 with gamma ray dose of 350Gy derived plants. Reduction in the yield of single plants was observed with the increasing doses of γ -rays in both the accessions. The mean single plant yield was found to be 18.40 g and 5.160 g in Rathu Heenati and PTB33, respectively at 350Gy of γ -rays.

Key Words : Evaluation, γ -rays, Mutant population, M_1 generation, Rice

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