

Agricultural Sciences Employing Induced Mutation Technique for the Improvement of Agronomic Traits in Lentil (*Lens culinaris* Medik.) Cultivars

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Abstract

The essence of mutation breeding is to create genetic variability for selection of superior genotypes, which is cardinal to successful crop improvement programme. The current research is aimed to evaluate the performance of two lentil (*Lens culinaris* Medik.) cultivars; microsperma (PL 406) and macrosperma (DPL 62) following gamma ray (100 Gy, 200 Gy, 300 Gy and 400 Gy) treatments and thereafter the comparative response of the varieties in relation to various yield attributing traits in M₁ generation were assessed. Efforts were also made to identify and screened the induced morphological variants for reference in subsequent generations. Significant deviations in the mutagenic response of the two cultivars were observed in the polygenic parameters studied. Explicitly, the macrosperma variety responded more significantly towards the mutagenic treatments than the microsperma variety. Moreover, assortments of agro-morphological variations were induced and isolated in both the varieties using lentil descriptors. M₁ generation progenies of the treated seeds performed better than their parental counterparts in yield traits, including seed yield. Therefore, the implication is that M₁ seeds can be advanced to M₂ generation for the release of genetic blueprint through segregation, for trait stability assessment and screening of economically important mutants.