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EARLY ASSESSMENT OF LENTIL AND CHICKPEA MUTANT AND EVALUATION OF LOW COST TILLING ON M2 CHICKPEA

Algeria is the third most importers in the world of lentil (*Lens culinaris* Medik.) and chickpea (*Cicer arietinum* L.). The productions are very low because specially the lack of adapted and productive varieties. Radio-mutagenesis is one of ways to create new variability for selection according to environmental conditions. Mutation was induced using gamma rays in two varieties Idlib-3 (lentil) and Ghab4 (chickpea) by 100 and 258 Gy corresponding to the lethal doses (DL50) respectively. For each species, from 10000 seeds M1 we generated about 140 families M1 and about 4000 genotypes M2 were characterized in the field. Many important agronomic traits was carry on and the generated data were statistically analyzed for genetic evaluation among families and correlation between traits. For 87 DNA of chickpea the low cost Tilling was tested. It was done on 10 candidate genes (resistant to *Aschochyta* blight and *Fusarium* wilt, early flowering). To validate the results the sequencing were conducted. Yield, yield component and harbor variability, heritability, and genetic advance were assessed on putative mutant. The range of variability for main traits was high. High correlation showed between number of total pods and seed yield. About 3% of families' mutants (M2) showed superiority than the control for days to flowering, days to maturity and other traits. High heritability associated with high genetic advance was observed from seed yield and hundred seed weight; this indicates the expected effectiveness of selection for the traits under consideration. The analysis of 10 primer pairs on chickpea showed no bands, neither mutation nor natural polymorphism. It was concluded that the material which was used for mutagenesis was very homogenous. So, no mutations were discovered in this small subset of mutagenesis material that confirmed by the sequencing. Additional M2 mutants could be analyzed by low cost Tilling.

Country or International Organization

Algeria

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