

# FAO/IAEA International Symposium on Plant Mutation Breeding and Biotechnology



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## DEVELOPMENT OF GENETIC VARIABILITY FOR YIELD, EARLINESS AND MORPHOLOGICAL CHARACTERS BY INDUCED MUTATION IN LINSEED (*LINUM USITATISSIMUM* L.)

Linseed is one of the important rabi oilseed crops of India. Paira/utera (zero tilling) cropping system has been in practice for efficient use of residual moisture in rice fields. About 25% of the linseed area (0.5 million ha) is under utera cropping. Development of early maturing cultivars with high yield will be best suited for utera cropping to overcome the poor yield levels by maximising utilisation of residual moisture and nutrients present in the soil. One thousand seeds of linseed cultivar NL-97 were exposed to 250 Gy gamma rays from a  $^{60}\text{Co}$  source and the treated seeds along with the parent were sown as M1 generation. A total of 725 M1 plants were harvested individually and the seeds obtained were sown as M2 generation as plant to row progenies. In the M2 generation, chlorophyll and viable mutants affecting morphological and physiological characters were identified. The morphological mutants included those affecting plant height, flower colour, sterility, leaf shape, number of pods per plant, seed colour, and days to maturity. Breeding behaviour and salient features of the true breeding mutants were studied up to M3 –M7 generations. In the M7 generation, six true breeding, early maturing mutants were evaluated for various quantitative characters. One of the mutants, TL-142, flowered in 39 days and matured in 107 days, in comparison to the parent NL-97 (125 days). The early maturing mutant TL-142 (7.6 g) showed significantly higher seed yield per plant as against the parent NL-97 (4.5 g). In the current study, induced mutagenesis was successful in creating mutants with wide genetic variability, which can be further utilized in future breeding programme.

### Country or International Organization

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