

### **B-33 Genetic improvement of tomato variety Manik through induced mutations**

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Tomato is a crop that gives income to growers, improves human nutrition and generates employment in urban and rural areas; but farmers face many problems. Lack of improved varieties with Bacterial wilt resistance and good quality characteristics are one of the major constraints.

This study was initiated with the objective of identifying promising mutants having high yield potential, (> 20 t/ha) with Bacterial wilt resistance and acceptable fruit quality characteristics. The variety Manik which has resistance to Bacterial wilt and big fruits was used and mutation breeding was applied to create genetic variability by altering 1 or 2 characters without derailing the main genetic constitution.

As a preliminary investigation, to find out the best dosage giving highest mutation frequency this study was carried out in the greenhouse at HORDI. The moisture content of the seeds were adjusted to 14% and the seeds were treated with a series of mutagen doses (0 - 40 Kr) by exposing to gamma rays from  $Co_{60}$  source. The experimental design was Randomized Complete Block Design with 3 replicates. The seedling heights were recorded in each replicate, 10 days from sowing.

The statistical analysis of the seedling height measurements clearly revealed that there is a significant difference among the treatments. There was a seedling growth depression in height from 11.7 cm to 7.44 cm. Seedling growth reduction of 30-40% gave a high mutation yield and in this study the best dose rate for the induction of desirable mutants in tomato variety Manik was 39.25 Kr of gamma rays.

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