

## Studies on Heritability and Genetic Advance in Brinjal (*Solanum melongena* L.) Genotypes

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### Abstract

This experiment existed towards assessing the magnitude of heritability and genetic advance in 15 brinjal genotypes. Under this study, genotypes had shown significant differences for various traits. Genotypic and phenotypic coefficient of variations remained high for fruit and shoot borer incidence (37.72 % and 39.75 %), fruit yield plant<sup>-1</sup> (37.96 kg and 38.84 kg), vitamin C (37.01 mg 100g<sup>-1</sup> and 38.82 mg 100g<sup>-1</sup>), stem girth (27.67 cm and 27.96 cm), number of fruits plant<sup>-1</sup> (20.06 and 21.04), dry matter (19.09 g and 13.39 g), fruit weight (16.01 g and 16.72 g), number of primary branches plant<sup>-1</sup> (14.79 and 17.63) and fruit length (14.12 cm and 14.99 cm). High magnitude of heritability for fruit yield plant<sup>-1</sup> (95.50 %) followed by stem girth (93.70 %), fruit weight (91.70 %), number of fruits plant<sup>-1</sup> and vitamin C are having similar heritability values (90.90 %), fruit and shoot borer incidence (90.00 %), fruit length (88.70 %), days to first harvest (77.60 %), number of primary branches plant<sup>-1</sup> (70.50 %), TSS (69.20 %), plant spread (N-S) (68.0 %), flesh thickness (67.70 %), fruit girth (67.30 %), days to first flowering (63.80 %), days to 50% flowering (61.10 %). Genetic advance, in general, was high for fruit yield plant<sup>-1</sup> (76.43 %) followed by vitamin C (72.68 %), stem girth (53.96 %), number of fruits plant<sup>-1</sup> (39.40 %), fruit weight (31.58 %), fruit length (27.39 %) and number of primary branches plant<sup>-1</sup> (25.59 %), fruit and shoot borer incidence (20.26 %). The characteristics such as fruit yield plant<sup>-1</sup>, vitamin C, stem girth, fruit length, number of fruits plant<sup>-1</sup>, fruit weight, number of primary branches plant<sup>-1</sup>, and fruit and shoot borer incidence were established by high heritability along with high genetic advance. Therefore in addition to pedigree selection, a simple selection process corresponding to mass selection will remain successful for character-based improvement. Hence, the particular traits might exist for selection criteria in a breeding program.

**Key words:** Brinjal, Genetic variability, Genetic advance, Genotypic coefficient of variation, Heritability and Phenotypic coefficient of variation.

### Introduction

In India brinjal (*Solanum melongena* L.) be present as a major important also popular solanaceous vegetable crop. De Candolle (1883), stated that brinjal existed and well-known in India in antiquated times as well as indigenous of India. In India, brinjal accounts an area for 726 million ha area and producing 12660000 metric tonnes. (Agriculture research data book, ICAR 2019). Due to its sky-scraping production rate all over the world, it is often referred to as a poor man's vegetable (Kumar *et al.*, 2014). Rapid improvement in yield in addition to further required traits and headed for select the potential