

Combining ability of pod yield and related traits of groundnut (*Arachis hypogaea* L.) under salinity stress

ABSTRACT

A study was performed using 6×6 F1 diallel population without reciprocals to assess the mode of inheritance of pod yield and related traits in groundnut with imposed salinity stress. Heterosis was found for pod number and yield. Data on general and specific combining ability (gca and sca) indicated additive and nonadditive gene actions. The gca: sca ratios were much less than unity suggesting predominant role of nonadditive gene effects. Cultivars "Binachinabadam-2" and "Dacca-1" and mutant M 6/25/64-82 had the highest, second highest, and third highest pod number, as well as gca values, respectively. These two cultivars and another mutant M6/15/70-19 also had the highest, second highest, and third highest pod yield, as well as gca values, respectively. Therefore, "Dacca-1", "Binachinabadam-2", M6/25/64-82, and M6/15/70-19 could be used as source of salinity tolerance. Cross combinations showing high sca effects arising from parents with high and low gca values for any trait indicate the influence of nonadditive genes on their expression. Parents of these crosses can be used for biparental mating or reciprocal recurrent selection for developing high yielding varieties. Crosses with high sca effects having both parents with good gca effects could be exploited by pedigree breeding to get transgressive segregants.

Keyword: *Arachis hypogaea*; Crosses; Genetic; Salinity