

COMBINING ABILITY ANALYSIS FOR YIELD AND DROUGHT TOLERANT TRAITS IN HYBRID RICE (*ORYZA SATIVA* L.) USING LINE X TESTER ANALYSIS UNDER SEMI-ARID TROPICS CONDITION

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ABSTRACT : Combining ability study was carried out on rice (*Oryza sativa* L.) during Rabi 2011 -2012 by following the line x tester analysis in the research farm at Department of Plant Breeding and Genetics, Tamil Nadu Agricultural University, Madurai. Observations were recorded on 15 yield contributing and drought tolerant characters *viz.*, day to 50% flowering, plant height, number of productive tillers per plant, panicle length, number of grains per panicle, spikelet fertility, 100 grain weight, relative water content, proline content, chlorophyll stability index, root length, root dry weight, root : shoot ratio, harvest index and single plant yield for all the parents and hybrids, involving two CMS (Cytoplasmic Male Sterile) lines with nine testers (aerobic cultures and upland genotype) from this 18 hybrids (cross combinations) were obtained. Predominance of non-additive gene action was recorded for days to 50% flowering, number of productive tillers per plant, panicle length, number of grains per panicle, spikelet fertility, 100 grain weight, relative water content, root length, root dry weight, root: shoot ratio, harvest index, single plant yield, while additive gene action was predominant for plant height, proline content and chlorophyll stability index. Among the parents IR 58025 A, MAS 946-1, CB 87 R and BI 33 were found to be general combiners for majority of the traits including drought tolerance and yield characters. The hybrids IR 58025 A XCB 87 R, IR 68897 A XMAS 946 -, IR 68897 A XIR 65912 R AND IR 58025 A X MAS 26 were specific combiners for most of the yield contributing and drought tolerant traits including single plant yield.

Key words : *Hybrid rice, Combining ability, Line x Tester analysis, Semi-arid tropics condition.*