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Determining Genetic Architecture of Upland Rice (*Oryza Sativa* L.) Genotypes under Suboptimal Rainfed Ecosystem

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Abstract: Analysis of variance revealed significant difference among genotypes for all parameters under study, except for days to flowering and crop duration, indicating physiological threshold of the traits in the prevailing environments. Heritability estimation revealed that one tenth of variability, as measured by σ^2, was due to environment and nine tenth was genetic in origin for yield factors. The present study reports high heritability and low genetic advance for economic yield *viz*., economic yield (94% and 0.77, respectively), biological yield (97% and 1.99) and harvest index (86% and 23.31); which specifies that the character is predominantly governed by non-additive gene action (dominance and epistasis). Among variability coefficients, phenotypic and genotypic proportion was maximum for economic yield (51.57 and 50.26) followed by biological yield (41.88 and 41.36), denoting probability of genetic manipulations among test populations. Grain yield was found to coinherit with plant height (0.438**), panicle length (0.695**), and biological yield (0.908**) and harvest index (0.416**).

***Key Words*:** Assimilates partition, Heritability, Genetic advance, Rainfed ecology, Water stress