Assessment of genetic variability for yield and its components across multiple locations in rice (*Oryza sativa* L.)

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ABSTRACT

The present investigation was undertaken to estimate genetic variability parameters for yield and quality traits using pooled data across three environments in Andhra Pradesh *viz.*, RARS, Maruteru; ARS, Ragolu and ARS, Bapatla, during *kharif* 2024-25. The experimental material consisted of 28 medium-duration genotypes along with two checks (MTU 1224 and MTU 1239), evaluated in a randomized block design with two replications. Analysis of variance revealed significant differences among genotypes for all traits, confirming ample genetic variability. Moderate genotypic and phenotypic coefficients of variation were recorded for filled grains per panicle, 1000-seed weight, grain yield per plant, head rice recovery, kernel L/B ratio, protein, and zinc content. High heritability coupled with high genetic advance as a percent of mean was recorded for filled grains per panicle, 1000-seed weight, grain yield per plant, head rice recovery, kernel L/B ratio, protein, iron, and zinc content indicating the predominance of additive gene action, and hence simple phenotypic selection would be effective for improvement of this traits. The results are also useful for identification of potential donor genotypes for developing high-yielding and nutritionally enriched rice varieties adaptable to diverse agro-environments.

Keywords: *Genetic advance, Genetic variability and Heritability*