CORRELATION AND PATH COEFFICIENT ANALYSIS OF YIELD COMPONENTS IN RICE (*ORYZA SATIVA* L.) UNDER SIMULATED DROUGHT STRESS CONDITION

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ABSTRACT

Morphological and yield related traits of twenty (20) genotypes were studied to ascertain the genetic and phenotypic correlation among some drought related and morphological traits and contribution of these traits to the yield under drought stress directly and indirectly in rice. The results indicate that root length (0.465**), root shoot ratio (0.242*), thousand grain weight (0.476**), grains per panicle (0.733**), spikelet fertility (0.709**) and drought response index (0.642**) showed positive and significant association with yield per plant under drought stress at genotypic level; whereas, leaf drying (-0.599**) had significantly negative correlation with yield. Higher phenotypic correlation values for all traits indicated that the environmental effects on traits under stress are high under drought stress. Root shoot length ratio showed highest positive direct effect (2.945**) on yield per plant under drought stress, followed by drought response index (2.449**), thousand grain weight (0.805**). Results suggest that root to shoot length ratio, thousand grain weight, leaf drying and drought response index may be used as reliable criteria for improving drought resistance. Higher heritability and Genetic Advance estimates for all the traits under drought condition indicates that these characters can be exploited more efficiently through selection in further generations.

Key Words: Yield; Morphological traits; Correlation; Path analysis; Drought stress; *Oryza sativa* L.