

Correlation and path analysis of yield and yield attributes in local rice cultivars (*Oryza sativa* L.)

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The associations among the yield components and direct and indirect influence of yield components on the grain yield of local rice were investigated at Agricultural college farm, Navile, Shimoga. The experiment was laid out in a 10 x 10 Simple Lattice Design with two replications which consisted of 100 local genotypes during *Kharif* 2010. The correlation analysis indicated that grain yield was significantly associated with panicle length, test weight, number of tiller per plant, number of productive tiller per plant, number of spikelet per panicle, per cent spikelet fertility and amylase per cent. Path co-efficient analysis revealed that days to 50 per cent flowering, plant height, panicle length, panicle number, number of productive tiller per plant, per cent spikelet fertility and amylase per cent had positive direct effect on grain yield. Hence, selection on these traits could be suggested to bring simultaneous improvement of yield and yield attributes.

Key words : Correlation, Path analysis, Rice, Yield

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INTRODUCTION

Grain yield and quality are complex characters and are associated with number of component characters which are themselves interrelated. Such independence often affects their relationship with yield, thereby making correlation ineffective. So, there is a need to path analysis is that it permits the partitioning of the correlation co-efficient into its components, one component being the path co-efficient that measures the direct effect of a predictor variable upon its response variable; the second component being the indirect effect(s) of a predictor variable on the response variable through another predictor variable (Dewey and Lu, 1959). Partition the correlation into direct and indirect effects to get the information on actual contribution of each character to yield. Therefore, the present investigation was undertaken to study the association and interrelationships of different yield and quality attributes in the selected lines of rice.

RESEARCH METHODOLOGY

The experimental material consisted of 100 diverse local genotypes of rice, which were grown at Agricultural college

farm, Navile, Shimoga, in *Kharif* season 2010, in a 10 x 10 Simple Lattice Design with two replications Thirty days old seedlings were transplanted at the rate of one seedling per hill with a spacing of 30 x 20 cm. Recommended package of practices were followed to raise the crop. Observations were recorded on 13 yield and its attribute characters *viz.*, days to 50 per cent flowering, days to maturity, plant height, panicle length, panicle number, test weight, number of tillers per plant, number of productive tillers per plant, number of spikelet per panicle, per cent of spikelet fertility, protein per cent, amylase per cent and grain yield per plant. The genotypic and phenotypic correlations were determined as per Johnson *et al.* (1955). Path co-efficient analysis was done as suggested by Wright (1921) and as described by Dewey and Lu (1959).

RESEARCH FINDINGS AND ANALYSIS

The data in respect of correlation co-efficient analysis between important characters, both phenotypic and genotypic are presented in Table 1. In general, the genotypic correlation co-efficients were higher than phenotypic correlation co-efficients and this is due to the masking effect of environment in genetic association between the characters (Johnson *et*