Click www.researchjournal.co.in/online/subdetail.html to purchase.

research article | International Journal of Plant Sciences, (July, 2010) Vol. 5 Issue 2 : 602-605

Study of correlation and path analysis in F_2 population of finger millet

B. NANDINI, C.R. RAVISHANKAR, B. MAHESHA, SHAILAJA HITTALMANI AND K.N. KALYANA MURTHY

Accepted : May, 2010

SUMMARY

Correlation and path analysis studies were carried out in F_2 generation of the seven crosses of finger millet (ragi) (*Eleusine coracana* Gaertn.) namely Indaf 5 X L 264 (Cross I), L 5 X IE 2936 (Cross II), GPU 26 X IE 2712 (Cross III), GPU 26 X GE 1409 (Cross IV), Indaf 5 X GE 1409 (Cross V), L 5 X IE 2656 (Cross VI) and L 5 X IE 2686 (Cross VII) for grain yield and its component traits. These F_2 populations of finger millet were evaluated at Zonal Agricultural Research Station, V.C, Farm, Mandya, Karnataka, India during 2008-09. The result reveled that Grain yield has strong positive correlation with weight of main ear, 1000 seed weight and total tillers per plant. Productive tillers and plant height exhibited moderate positive correlation. Weight of main ear 1000 seed weight showed positive direct effect on grain yield of main ear.

Key words : Correlation, Path analysis, Finger millet

Finger millet (*Eleusine coracana* (L.) Gaertn.) subspecies *coracana* belongs to family Graminae. The cultivated E. *coracana* is a tetraploid (2n = 36); has morphological similarities to both *E. indica* (L.) Gaertn. (2n = 18) and *Eleusine africana* O. Byrne (2n = 36). Finger millet is an important food crop in Africa and South Asia. It is a hardy crop that can be grown in diverse environments from almost at sea level in South India to high lands of Himalayas. It has dual importance as a source of food grain as well as straw. Finger millet is very nutritious with good quality protein, minerals, dietary fibers, phytochemicals and vitamins.

It is the richest source of calcium providing 8 – 10 times more than that of rice or wheat. Finger millet carbohydrate has unique property of slower digestibility and regarded as food for long sustenance (Barbeau and Hillu, 1993). Selection for yield on the basis of *per se* performance alone may not be as effective as that based on the component characters associated with it, which is biometrically determined by correlation coefficient and path analysis (Mahudeswaran and Murugesan, 1973). Character like yield is having complex in nature, so direct selection is not possible. Therefore, the knowledge of association is useful to the breeders for the improvement among the yield attributing characters considerably affect the methods of selection (Mishra *et al.*, 1980). Phenotypic correlation reflects the observed relationship while genotypic correlation underlines the true relationship among the characters. Knowledge of interrelationship between yield and its components is obvious for efficient selection of desirable segregants in plant breeding (Anantharaju and Meenakshiganesan, 2005). Unlike the correlation coefficient values which measure the extent of relationship, path coefficient analyses help in partitioning of the correlation coefficient into direct and indirect effects through other components (Wright, 1921). Correlation coefficient values which measure the extent of relationship, path coefficient measure the magnitude of direct and indirect effects of characters on complex dependent character like yield and thus enable the breeders to judge the best about the important component characters during selection (Dewey and Lu, 1959). Present investigation was carried in this direction with the utilization of seven crosses of finger millet to assess the yield attributing characters towards the yield of ragi by using coreelation and path analysis studies.

Correspondence to:
C.R. RAVISHANKAR, Zonal Agricultural Research Station, V.C. Farm, MANDYA (KARNATAKA) INDIA
Authors' affiliations:
B. NANDINI AND SHAILAJA HITTALMANI, Department of Genetics and Plant Breeding, College of Agriculture, University of Agricultural Sciences, G.K.V.K., BENGALURU (KARNATAKA) INDIA
B. MAHESHA, Department of Plant Pathology, University of Agricultural Sciences, University of Agricultural Sciences, G.K.V.K., BENGALURU, (KARNATAKA) INDIA
K.N. KALAYANA MURTHY, Department of Agronomy, College of Agriculture, University of Agricultural Sciences, G.K.V.K., BENGALURU (KARNATAKA) INDIA

MATERIALS AND METHODS

The experimental material for the present investigation comprised of F_2 generation of seven crosses of finger millet *viz.*, Indaf 5 X L 264, L 5 X IE 2936, GPU 26 X IE 2712, GPU 26 X GE 1409, Indaf 5 X GE 1409, L 5 X IE 2656, and L 5 X IE 2656, obtained from ragi breeder (AICSMIP), V.C.Farm, Mandya. The F_2 seeds of all the