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Research Article

CHARACTER ASSOCIATION AND PATH ANALYSIS IN FINGER MILLET (*ELEUSINE CORACANA* L. GAERTN) ACCESSIONS BELONGS TO LATE MATURITY GROUP

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ABSTRACT
Association and effect and effect of yield attributing traits on seed yield have been studied to identify a set of characters for effective selection during breeding programme. Days to maturity, number of fingers per ear showed positive significance at genotypic level. Path analysis revealed days to maturity and number of fingers per ear exhibited positive association and positive direct towards seed yield.

Keywords: *Correlation Coefficient, Path Analysis, Finger Millet*

INTRODUCTION
Finger millet (*Eleusine coracana* (L.) Gaertn.) is one of the most important small millets grown in eastern and southern Africa. It serves as a subsistence and food security crop that is especially important for its nutritive and cultural value. It is an important food crop in traditional low input cereal-based farming systems in Africa, and is of particular importance in upland areas of and It is an important food crop in traditional low input cereal-based farming systems in Africa, and is of particular importance in upland areas of eastern Africa, where it commands a high market price compared with other cereals Finger millet has also a high-yielding potential though yields are variable (compared to other cereals) but are generally good and needs improvement. Improvement in any crop usually involves exploiting the genetic variability in specific traits and associations among them. Simultaneous improvement of these traits depends on the nature and degree of association between traits (Mnyenyembe and Gupta, 1998). Knowledge of the present in a population of a given crop is absolutely essential for further improvement of the crop. To facilitate selection in breeding for high yield, therefore, it is logical to examine various components and give more attention to those having the greatest influence on yield. In correlation studies, it is customary to emphasize a large number of varieties and use the correlation to establish an index in deciding the direction of selection.

MATERIALS AND METHODS
A field experiment was conducted with twenty finger millet genotypes having late maturity period were grown in a randomized block design with three replications at research farm of Agricultural Research Station, Vizianagaram, Andhra Pradesh during *Kharif* of 2012 with recommended agronomical practices with 50 N : 40 P : 25 K in kg/ha. Each genotype was sown in ten rows of 3.0 m length by adopting 22.5 cm between rows and 10 cm between the plants. Ten randomly selected plants were selected from each genotype/replication for recording the observations. Correlation and path analysis were estimated as per the methods given by (Singh and Choudhary, 1997; Dewey and Lu, 1959)

RESULTS AND DISCUSSION
At genotypic level, the positive and significant association with seed yield for days to maturity and number finger per ear such association was reported by several workers (Nandini *et al.*, 2010; Satish *et al.*, 2004). Positive and significant association was found between days to maturity and number of productive tillers per plant; plant height and number of fingers per ear; days to 50 % flowering and ear length, number of productive tillers and ear length.

Table 1: Correlation coefficient values for different traits at genotypic level in finger millet

Characters	Days to 50 % flowering	Days to maturity	Plant height	No. of Productive tillers/ plant	No. of fingers/ear	Ear length	Seed yield
Days to 50 % flowering	--	-1.1121**	0.6597	0.0306	-0.2788	0.9043**	-1.0856**
Days to maturity		--	-1.5735	1.0252**	-0.0131	-0.1186	1.0247**
Plant height			--	-1.3814**	0.9776**	-0.1333	-0.0529
No. of Productive tillers/ plant				--	-1.3522**	1.0414**	-0.2678
No. of fingers/ear					--	-1.3401**	1.0054**
Ear length						--	-1.3736**
Seed yield							--

Table 2: Genotypic path coefficient values of different for different traits

Characters	Days to 50 % flowering	Days to maturity	Plant height	No. of Productive tillers/ plant	No. of fingers/ear	Ear length	Seed yield
Days to 50 % flowering	**8.8595**	-6.5979	-1.1875	0.0669	-2.3604	0.1338	-1.0856
Days to maturity	-9.8526	**5.9329**	2.8326	2.24	-0.1106	-0.0176	1.0247
Plant height	5.8445	-9.3356	**-1.8002**	-3.0184	8.2764	-0.0197	-0.0529
No. of Productive tillers/ plant	0.2712	6.0821	2.4867	**2.185**	-11.447	0.1541	-0.2678
No. of fingers/ear	-2.4702	-0.0775	-1.7599	-2.9545	**8.4657**	-0.1983	1.0054
Ear length	8.0117	-0.7039	0.2399	2.2755	-11.345	**0.148**	-1.3736

***significance at 5% level, * significance at 1% level, Bold values signifies direct effects*

The positive and significant association of days to maturity, number of fingers per ear with seed yield and significant association among these traits at genotypic level could enhance augmentation of seed yield. Conceptually correlation coefficient value between a component character and yield does not reflect the actual contribution, so the correlation value is untangled into direct effect of the character and its indirect effect via other characters, i.e. correlation of a character with seed yield is the resultant of its direct as well as indirect effect, employing path coefficient analysis. In the present study, correlation values computed at genotypic levels for seven characters were compartmentalized into direct and indirect effect on seed yield. Days to maturity and number of fingers per ear has high positive direct effect along with significant positive association.

Whereas the characters days to 50% flowering, number of productive tillers per plant, ear length has positive direct effect but showed negative association this may be due high negative indirect effect which contributed to negative correlation. Finally the path analysis revealed the importance of days to maturity, number of fingers per ear hence during selection these traits should be given utmost attention for developing high yielding late maturity accessions.

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