Journal of Pharmacognosy and Phytochemistry

Available online at www.phytojournal.com

E-ISSN: 2278-4136
P-ISSN: 2349-8234
JPP 2018; 7(6): 1910-1914
Received: 15-09-2018
Accepted: 18-10-2018

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Correlation and path analysis studies of yield and yield components in brinjal (*Solanum melongena* L.)

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Abstract
Character association and path analysis was studied in thirty five genotypically diverse indigenous genotypes of brinjal at Sri Konda Laxman Telangana State Horticultural University during the Rabi, 2017-18. Correlation coefficient analysis assess the mutual relationship between two plant characters and establishes the yield components upon which selection is to be done for improvement in yield. From the present study, yield per plant exhibited high significant and positive association with fruit length, fruit width, average fruit weight and total phenol content. These characters should form selection criterion in breeding programmes. Direct selection based on these traits could result in simultaneous improvement of traits and fruit yield in brinjal. It was also observed that genotypic correlations were high as compared to their phenotypic correlations revealing strong inherent association between these characters. Path co-efficient analysis revealed the direct and indirect effects of various components characters on yield. Thus, characters *viz.* days to 50 percent flowering, number of flower clusters per plant, number of flowers per cluster, number of fruits per plant, days to first harvest, average fruit weight, days to last harvest, fruit length, fruit width, average fruit weight and total phenol content showed positive correlation and positive direct effect on fruit yield per plant.

Keywords: Correlation, brinjal *Solanum melongena*

Introduction
Brinjal or Aubergine or Eggplant [*Solanum melongena* L. [2n=2x=24] belongs to the family Solanaceae which is one of the most important commercial vegetable crops in the world, especially in the tropics and subtropics (Kalloo, 2002) [5]. The cultivated brinjal is of Indian origin and has been in cultivation for long time. Now, India is considered as center of origin and diversity of brinjal (Vavilov, 1951; Isshiki *et al*., 1994) [15, 4]. Various forms, colours and shapes of eggplant are found throughout Southeast Asia, suggesting that this area is an important center of variation and possibly of origin.

Yield is a complex character and selection for yield is made based upon its component characters. Therefore, for a rational approach to the improvement of vegetable yield, it is imperative to have information on the association among different yield components and their relative contribution to the yield and its component. Correlation and path co-efficient analysis are the important biometrical technique to determine the yield components. The characters that are positively correlated with yield are of considerably important to plant breeder for selection purpose

Correlation coefficient analysis assess the mutual relationship between two plant characters and establishes the yield components upon which selection is to be done for improvement in yield (Koundinya and Dhankhar, 2013) [6]. Path co-efficient analysis reveals the direct and indirect effect of various componentsthus providing understanding of the direct and indirect contribution of each character towards yield. Keeping the above in view, the present study was designed to study the correlation and path coefficient analysis in brinjal germplasm.

Materials and Methods
A field experiment to investigate the genetic diversity was laid out in Randomised Block Design (RBD) with three replications at PG Research Block, College of Horticulture, SKLTSHU, Rajendranagar, Hyderabad, during *rabi*, 2017-18. The experimental material comprised of thirty five genotypes collected from NBPGR, Hyderabad. Planting of each genotype was done with inter and intra row spacing of 45 cm x 60 cm. Observations were recorded on five randomly selected plants for fourteen plant growth and fruit yield characters *viz*., plant height (cm), number of branches per plant, days to first flowering, days to 50% flowering, number of flower per cluster, number of flower cluster per plant, number of fruits per cluster, number of fruits per plant, days to first harvest, days to last harvest, fruit, fruit length (cm), fruit girth (cm), fruit weight (g), fruit yield per plant (kg), ascorbic acid content

(mg/100g), total phenol content (mg/100g), shoot and fruit borer infestation (%). The correlation and path co-efficients were computed by using the formula of Dewey and Lu, 1959 [3].

Result and Discussion

The correlation between fruit yield per plant with different yield attributes and among the attributes themselves are presented (Table 1). Out of nineteen characters, plant height exhibited a positive significant correlation with fruit yield per plant indicating that the association between yield and this character was positive and high. Similar significant and positive association with fruit yield per plant was reported for number of branches per plant and number of fruits per plant, while negatively correlated with number of branches per plant and ascorbic acid. Number of branches per plant exhibited negative and significant correlations with days to first flowering, days to 50 % flowering, number of fruits per plant, days to first harvest and fruit yield per plant. Thangamani and Jhansirani (2012) [14] also reported similar association of characters. Days to first flowering showed positive and significant correlations with days to 50 % flowering, number of flower cluster per plant, number of fruits per plant, days to first harvest, days to last harvest and fruit weight. These results are in conformity with results of Nayak and Nagre (2013) [11]. Days to 50 % flowering showed positive and significant correlations with number of flower cluster per plant, number of fruits per plant, days to first harvest, days to last harvest, fruit width and fruit weight. Arunkumar *et al*. (2013) [1] reported the similar character association. Number of flower clusters per plant showed negative and significant correlation with number of fruits per plant and number of flowers per cluster. These results are in consonance with Bansal and Mehta (2008) [2]. Number of flowers per cluster showed positive and significant correlation with days to last harvest. The result is in consonance with Sharma and Swaroop (2000). Number of fruits per cluster showed positive and significant correlation with number of fruits per plant, days to first harvest, days to last harvest and fruit yield per plant and negative significant correlation with shoot and fruit borer infestation. Lokesh *et al.* (2013) [10] also reported similar association of characters. Number of fruits per plant showed positive and significant correlation with days to first harvest, days to last harvest, total phenol content and fruit yield per plant and negative significant correlation with shoot and fruit borer infestation and ascorbic acid. The same kind of results are also earlier reported by Thangamani and Jhansirani (2012) [14]. Days to first fruit harvest and days to last fruit harvest showed positive and significant correlation with fruit yield per plant and negative significant correlation with shoot and fruit borer infestation. Positive and significant correlations was registered by fruit length with fruit width, fruit weight, fruit yield per plant, ascorbic acid. The same results are reported by Thangamani and Jhansirani (2012) [14]. Ascorbic acid content registered negative significant correlation with total phenol content. Similar results are reported by Praneetha *et al*. (2011) [12] and Thangamani and Jhansirani (2012) [14]. Total phenol content registered positive and significant correlation with fruit yield per plant. The findings are in conformity with the reports of Kranthi and Celine (2013) [7].

The total correlation between yield and a component trait may sometimes be misleading as it might be an over-estimate or under-estimate., Hence, direct selection based on character association may not be fruitful. Therefore, it is necessary to partition the total correlation coefficients into direct and indirect effect of cause as devised by Wright, 1921 [16]. Based on the above, the characters subjected to correlations were also subjected to path coefficient analysis for estimating the direct and indirect effects (Table 2), so as to formulate more authentic for selection in brinjal. The characters *viz.*,days to 50 percent flowering, number of flower clusters per plant, number of flowers per cluster, number of fruits per plant, days to first harvest, average fruit weight, days to last harvest, fruit length, fruit width, average fruit weight and total phenol content showed positive correlation and positive direct effect on fruit yield per plant. Path analysis was carried out at phenotypic and genotypic level considering fruit yield per plant as dependent variable and its attributes as independent variable. Lenka and Mishra, 1973 have suggested scales for path coefficients with values 0.00 to 0.09 as negligible, 0.10 to 0.19 low, 0.20 to 0.29 moderate, 0.30 to 0.99 high and more than 1.00 as very high path coefficients.

Plant height showed low positive direct effect on fruit yield per plant. These findings are in agreement with the results of Thangamani and Jansirani (2012) [14] in brinjal. Number of branches per plant recorded low negative direct effect on fruit yield per plant, which has similar conclusion in Kranthi and Celine (2013) [7] in brinjal.Days to first flowering showed negligible negative direct effect on total yield per plant at phenotypic level and high negative direct effect at genotypic level. These outcomes are in agreement with the results of Nayak and Nagare (2013) [11] in brinjal. Days to 50% flowering showed low negative direct effect at phenotypic level and highly positive direct effect at genotypic level on fruit yield per plant. These findings are in conformity with the results of Kranthi and Celine. Number of fruits per plant recorded high positive direct effect on fruit yield per plant. Similar results are reported by Kranthi and Celine (2013) [7] in brinjal. At both phenotypic and genotypic level, days to last fruit harvest exhibited low and moderate positive direct effect on fruit yield per plant. Ascorbic acid was recorded negligible negative direct effect on total yield per plant. This trait also showed negligible positive and negative indirect effects through different traits on fruit yield per plant. Similar kind of results is obtained by Thangamani and Jansirani (2012) [14] in brinjal. Total phenol content recorded positive direct effect on fruit yield per plant. This trait exhibited low to moderate positive and negative indirect effect through different traits on fruit yield per plant. Shoot and fruit borer infestation displayed low, moderate negative direct effects on fruit yield per plant. The negative significant correlation with fruit yield per plant was also recorded. Similar results are obtained by Prabhu and Natarajan (2008) in brinjal.

Table 1: Phenotypic (P) and genotypic (G) correlation coefficients among yield and yield attributes in thirty five genotypes of brinjal

Characters		Plant height (cm)	No. of branches per plant	Days to first flowering	Days to 50 % flowering	No. of flower clusters per plant	No. of flowers per cluster	No. of fruits per cluster	No. of fruits per plant	Days to first harvest	Days to last harvest	Fruit length (cm)	Fruit width (cm)	Fruit weight (kg)	Ascorbic acid content (mg/ 100g)	Total phenol content (mg/ 100g)	Shoot and fruit borer infestation (%)	Cumulative wilt incidence (%)	Little leaf incidence (%)	Fruit yield per plant (kg)
Plant height (cm)	P	1.0000	-0.167	0.155	0.054	0.035	0.162	-0.101	0.176	0.050	0.077	-0.036	-0.146*	0.125	-0.192	0.049	-0.118	0.00	0.00	0.224**
	G	1.0000	-0.332*	0.206	0.191	0.045	0.200	-0.198	0.237	0.111	0.076	-0.124	-0.210*	0.128	-0.245**	0.121	-0.167	0.00	0.00	0.309**
No. of branches per plant	P		1.0000	-0.545**	-0.519**	-0.097	-0.142	0.065	-0.339**	-0.218*	-0.078	-0.085	0.055	-0.089	0.032	-0.114	0.113	0.00	0.00	-0.161
	G		1.0000	-0.690**	-0.782**	-0.202	-0.283	0.042	-0.428**	-0.343**	-0.136	-0.220	0.119	-0.144	0.072	-0.250	0.157	0.00	0.00	-0.231**
Days to first flowering	P			1.0000	0.854**	0.212**	0.031	0.001	0.319**	0.197	0.278**	0.122	0.243**	0.273**	-0.105	0.128	0.068	0.00	0.00	0.122
	G			1.0000	0.983**	0.224**	0.032	0.001	0.325**	0.225	0.297**	0.147	0.276**	0.328**	-0.140	0.121	0.095	0.00	0.00	0.172
Days to 50 % flowering	P				1.0000	0.234**	-0.052	0.048	0.312**	0.205**	0.223**	0.126	0.279**	0.254**	-0.092	0.199	0.046	0.00	0.00	0.109
	G				1.0000	0.263**	-0.038	0.044	0.381**	0.257**	0.256**	0.199	0.285**	0.291**	-0.175	0.240	0.060	0.00	0.00	0.125
No. of flower clusters per plant	P					1.0000	-0.167	-0.055	-0.406**	0.035	0.039	-0.027	-0.072	-0.111	0.091	0.099	0.058	0.00	0.00	-0.049
	G					1.0000	-0.244*	-0.062	-0.418**	0.026	0.002	-0.050	-0.075	-0.141	0.101	0.169	-0.020	0.00	0.00	-0.022
No. of flowers per cluster	P						1.0000	0.036	0.017	0.012	0.230*	-0.037	0.010	0.045	0.132	-0.090	-0.022	0.00	0.00	0.037
	G						1.0000	0.034	-0.004	0.020	0.212*	-0.045	0.029	0.135	0.170	-0.103	0.008	0.00	0.00	0.049
No. of fruits per cluster	P							1.0000	0.545**	0.461**	0.394**	0.005	0.097	-0.025	-0.149	0.203	-0.203*	0.00	0.00	0.438**
	G							1.0000	0.714**	0.616**	0.597**	-0.002	0.194	-0.067	-0.133	0.410	-0.356	0.00	0.00	0.627**
No. of fruits per plant	P								1.0000	0.605**	0.446**	-0.003	-0.036	-0.105	-0.196	0.336**	-0.392**	0.00	0.00	0.528**
	G								1.0000	0.715*	0.475**	-0.008	-0.038	-0.086	-0.233*	0.509**	-0.460**	0.00	0.00	0.606**
Days to first harvest	P									1.0000	0.498**	0.099	-0.072	-0.085	0.016	0.131	-0.277**	0.00	0.00	0.429**
	G									1.0000	0.631**	0.162	-0.074	-0.066	-0.022	0.187	-0.380**	0.00	0.00	0.513**
Days to last harvest	P										1.0000	-0.101	0.010	-0.046	0.020	0.042	-0.226*	0.00	0.00	0.303**
	G										1.0000	-0.150	-0.186	0.026	-0.057	0.117	-0.225	0.00	0.00	0.415**
Fruit length (cm)	P											1.0000	0.231*	0.489**	0.189	-0.154	-0.079	0.00	0.00	0.259**
	G											1.0000	0.341	0.625**	0.245**	-0.196	-0.016	0.00	0.00	0.289**
Fruit width (cm)	P												1.0000	0.558**	0.086	0.097	0.148	0.00	0.00	0.152
	G												1.0000	0.729**	0.057	0.115	0.178	0.00	0.00	0.190
Fruit weight(kg)	P													1.0000	0.197	-0.080	0.040	0.00	0.00	0.278**
	G													1.0000	0.286	-0.138	0.096	0.00	0.00	0.244**
Ascorbic acid content (mg/100g)	P														1.0000	-0.402***	0.065	0.00	0.00	-0.134
	G														1.0000	-0.606	0.093	0.00	0.00	-0.154
Total phenol content (mg/100g)	P															1.0000	0.055	0.00	0.00	0.239**
	G															1.0000	0.022	0.00	0.00	0.372**
Shoot & fruit borer infestation (%)	P																1.0000	0.00	0.00	-0.370**
	G																1.0000	0.00	0.00	-0.468**
Cumulative wilt incidence																		0.000	0.00	0.000
																		0.000	0.00	0.000
Little leaf incidence (%)																			0.000	0.000
																			0.000	0.000

*Significant at 5 per cent level; ** Significant at 1 per cent level

Table 2: Direct and indirect effects of various yield attributes on fruit yield in thirty five genotypes of brinjal

Characters		Plant height (cm)	No. of branches per plant	Days to first flowering	Days to 50 % flowering	No. of lower clusters per plant	No. of flowers per cluster	No. of fruits per cluster	No. of fruits per plant	Days to first harvest	Days to last harvest	Fruit length (cm)	Fruit width (cm)	Fruit weight (kg)	Ascorbic acid (mg/ 100g)	Total phenol content (mg/ 100g)	Shoot and fruit borer infestation (%)	Cumulative wilt incidence (%)	Little leaf incidence (%)	Fruit yield per plant (kg)
Plant height (cm)	P	0.1341	-0.0225	0.0209	0.0073	0.0047	0.0218	-0.0136	0.0237	0.0068	0.0104	-0.0049	-0.0197	0.0169	-0.0258	0.0066	-0.0159	0.00	0.00	0.224
	G	2.6409	-0.878	0.546	0.5063	0.1190	0.5298	-0.5230	0.6279	0.2939	0.2027	-0.3288	-.05556	0.3404	-0.6477	0.8482	-0.4410	0.00	0.00	0.309
No. of branches per plant	P	0.0144	-0.0860	0.0469	0.0446	0.0084	0.0123	-0.0056	0.0292	0.0188	0.0067	0.0073	-0.0047	0.0077	-0.0028	0.0099	-0.0098	0.00	0.00	-0.161
	G	0.1069	-0.3214	0.2218	0.2513	0.0650	0.0910	-0.0135	0.1378	0.1105	0.0439	0.0709	-0.0384	0.0466	-0.0233	0.0805	-0.0505	0.00	0.00	-0.231
Days to first flowering	P	-0.0126	0.0441	-0.0808	-0.0690	-0.0172	-0.0025	-0.0001	-0.0258	-0.0159	-0.0225	-0.0099	-0.0197	-0.0221	0.0086	-0.104	-0.0056	0.00	0.00	0.122
	G	-4.7026	15.6954	-22.7390	-22.3678	-5.0955	0.7453	-0.0358	-7.4028	-5.1321	-6.7642	-3.3542	-6.2876	-7.4671	3.1828	-2.7704	-2.1670	0.00	0.00	0.172
Days to 50 % flowering	P	-0.0085	0.0815	-0.1340	-0.1570	-0.0368	0.0083	-0.0075	-0.0491	-0.0322	-0.0350	-0.0199	-0.0438	-0.0399	0.0145	-0.0312	-0.0073	0.00	0.00	0.109
	G	3.7322	-15.2276	19.1510	19.4687	5.1306	-0.7541	0.8710	7.4237	5.0185	4.9962	3.8824	5.5490	5.6792	-3.4209	4.6793	1.1732	0.00	0.00	0.125
No. of flower clusters / plant	P	0.0008	-0.0021	0.0046	0.0051	0.0217	-0.0003	-0.0012	-0.0005	0.0008	0.0009	-0.0006	-0.0016	-0.0024	0.0020	0.0022	-0.0013	0.00	0.00	-0.049
	G	0.0700	-0.3143	0.3481	0.4094	1.5536	-0.0726	-0.0966	-0.0542	0.0417	0.0037	-0.0779	-0.1179	-0.2196	0.1570	0.2628	-0.0315	0.00	0.00	-0.022
No. of flowers per cluster	P	-0.0045	0.0040	0.0009	0.0015	0.0003	-0.0277	-0.0010	-0.0005	-0.0003	-0.0064	0.0010	-0.0003	-0.0013	-0.0037	0.0025	0.0006	0.00	0.00	0.037
	G	0.0083	-0.0117	0.0014	-0.0016	-0.0019	0.0412	0.0014	-0.0002	0.0008	0.0088	-0.0019	0.0012	0.0056	0.0070	-0.0043	0.0000	0.00	0.00	0.049
No. of fruits per cluster	P	-0.0159	0.0103	0.0002	0.0075	-0.0086	0.0058	0.1569	0.0856	0.0725	0.0619	0.0008	0.0153	-0.0041	-0.0235	0.0319	-0.0319	0.00	0.00	0.438
	G	0.2442	-0.05518	-0.0019	-0.0552	0.0767	-0.0421	-1.2331	-0.8807	-0.7598	-0.7369	0.0026	-0.2396	0.0836	0.1635	-0.5065	0.4396	0.00	0.00	0.627
No. of fruits per plant	P	0.0443	-0.0852	0.0803	0.0786	-0.0056	0.0044	0.1371	0.2514	0.1523	0.1123	-0.0008	-0.0091	-0.0265	-0.0493	0.0845	-0.0986	0.00	0.00	0.528
	G	1.1754	-2.1201	1.6093	1.8849	-0.1724	-0.0227	3.5303	4.9433	3.5342	2.3518	-0.0403	-0.1920	-0.4250	-1.1521	2.5185	-2.2783	0.00	0.00	0.606
Days to first harvest	P	0.0062	-0.0268	0.0242	0.0251	0.0043	0.0015	0.0566	0.0743	0.1226	0.0611	0.0122	-0.0088	-0.0105	-0.0021	0.0161	-0.0340	0.00	0.00	0.429
	G	-0.2768	0.8552	-0.5615	-0.6413	-0.0667	-0.0507	-1.5328	-1.7786	-2.4877	-1.5707	-0.4032	0.1861	0.1647	0.0560	-0.4654	.99459	0.00	0.00	0.513
Days to last harvest	P	0.0086	-0.0087	0.0310	0.0249	0.0044	0.0257	0.0440	0.0498	0.0555	0.1115	0.0008	0.0184	0.1505	0.0032	0.0245	-0.0450	0.0000	0.0000	0.467**
	G	0.2921	-0.5200	1.1323	0.9768	0.0091	0.8083	2.2746	1.8109	2.4033	3.8064	0.0024	0.0440	0.1308	0.0033	0.0501	-0.0603	0.0000	0.0000	0.470**
Fruit length (cm)	P	-0.0033	0.0064	0.0009	0.01088	-0.0044	0.0000	-0.0127	-0.0975	-0.0185	-0.0105	0.1554	0.0360	0.0761	0.0294	-0.0240	-0.0123	0.0000	0.0000	0.399**
	G	-0.0015	0.0117	0.0399	-0.02167	-0.0088	0.0001	-0.0099	-0.0644	-0.0202	-0.0137	-0.2765	-0.0945	-0.1729	-0.0680	0.0544	0.0044	0.0000	0.0000	0.407**
Fruit width (cm)	P	-0.0004	-0.0112	0.0014	0.01365	-0.0060	-0.0010	-0.0002	-0.0272	-0.0462	0.0475	0.0192	0.0830	0.0463	0.0072	0.0081	0.0123	0.0000	0.0000	0.654**
	G	-0.0002	-0.0254	0.0575	-0.02633	-0.0131	0.0028	0.0000	-0.0180	-0.0504	0.0620	1.3547	3.9622	2.8919	0.2265	0.4585	0.7064	0.0000	0.0000	0.659**
Fruit weight(kg)	P	-0.0026	0.0090	0.0004	0.00409	-0.0016	-0.0023	-0.0025	-0.0311	-0.0325	0.0371	0.1352	0.1542	0.2762	0.0546	-0.0223	0.0112	0.0000	0.0000	0.759**
	G	-0.0012	0.0173	0.0191	-0.00787	-0.0027	0.0061	-0.0019	-0.0203	-0.0353	0.0484	-0.6622	-0.7727	-1.0587	-0.3028	0.1466	-0.1020	0.0000	0.0000	0.762**
Ascorbic acid content (mg/100g)	P	-0.0006	0.0101	-0.0021	-0.01995	0.0075	0.0011	-0.0038	0.0323	0.0172	-0.0089	-0.0151	-0.0070	-0.0158	-0.0800	0.0322	-0.0052	0.0000	0.0000	-0.114
	G	-0.0003	0.0212	-0.0902	0.03955	0.0150	-0.0033	-0.0032	0.0216	0.0186	-0.0119	-0.6417	-0.1492	-0.7464	-2.6097	1.5822	-0.2427	0.0000	0.0000	-0.115
Total Phenol content (mg/100g)	P	0.0018	-0.0493	0.0062	0.06379	0.0056	-0.0030	0.0141	0.0961	-0.0153	0.0852	-0.0212	0.0134	-0.0111	-0.0553	0.1375	0.0076	0.0000	0.0000	0.423**
	G	0.0008	-0.1193	0.2691	-0.13213	0.0116	0.0085	0.0104	0.0655	-0.0170	0.1154	1.3796	-0.8118	0.9712	4.2535	0.0159	-0.1567	0.0000	0.0000	0.441**
Shoot &fruit borer infestation (%)	P	0.0031	-0.0360	0.0054	0.05317	0.0050	0.0015	-0.0005	0.0032	-0.0374	0.0494	0.0123	-0.0231	-0.0063	0.0101	-0.0086	-0.1556	0.0000	0.0000	-0.007
	G	0.0015	-0.0771	0.2280	-0.10658	0.0105	-0.0035	-0.0002	0.0015	-0.0415	0.0657	-0.0414	0.4618	0.2495	0.2408	0.0579	-0.5901	0.0000	0.0000	-0.009
Cumulative wilt Incidence (%)	P	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	0.0000	0.0000	0.000
	G	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	0.0000	0.0000	0.000
Little leaf Incidence (%)	P	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	0.0000	0.0000	0.000
	G	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	0.0000	0.0000	0.000

Path using genotypic correlation (Residual Effect: 0.09) Path using phenotypic correlations: (Residual effect: 0.08)

Conclusion

Correlation provides a measure of genetic association between the characters and reveals the traits that might be useful as an index of selection. Thus, it could be possible to bring about genetic upgradation in one trait by selection of the other trait. It can be conclude that yield per plant exhibited high significant positive association with fruit length, fruit width, average fruit weight and total phenol content. These characters should form selection criterion in breeding programmes. Direct selection based on these traits could result in simultaneous improvement of traits and fruit yield in brinjal.

References

1. Arunkumar B, Kumar SSV, Prakash JC. Genetic variability and divergence studies in brinjal (*Solanum melongena* L.). *Bioinfolet.* 2013; 10(2B):739-744.
2. Bansal S, Mehta AK. Genotypic correlation and path analysis in brinjal (*Solanum melongena* L.). National Journal of Plant Improvement. 2008; 10:34-36.
3. Dewey DI, Lu KH. A Correlation and Path-Coefficient Analysis of Components of Crested Wheatgrass Seed Production. Agronomy Journal. 1959; 51:515-518.
4. Isshiki K, Sen GBA, Elder DE, Guerry D, Linneabach AJ. Chromosome 9 deletion sporadic and familial melanomas *in vivo*. *Oncogenea*. 1994; 9:1649-1653.
5. Kalloo G, Banerjee MK, Singh SN, Singh M. Genetics of yield and its component characters in brinjal (*Solanum melongena* L.). *Vegetable Science*. 2002; 29:24-26.
6. Koundinya AVV, Dhankhar SK. Correlation and path analysis of seed yield components in Okra *Abelmoschus esculentus* (L.) Moench. Indian Journal of Agriculture Science. 2013; 6(1):145-148.
7. Kranti Rekha G, Celine VA. Correlation and path analysis studies in round fruited brinjal. *Vegetable Science.* 2013; 40(1):87-89.
8. Lenka D, Mishra B. Path coefficient analysis of yield in rice varieties. Indian Journal of Agricultural Science. 1973; 43:376-379.
9. Lohakare AS, Dod VM, Peshattiwar PD. Correlation and path analysis studies in green fruited brinjal. Asian Journal of Horticulture. 2008; 3(1):173-175.
10. Lokesh B, Reddy SP, Reddy RVSK, Sivaraj N. Variability, heritability and genetic advance studies in Brinjal (*Solanum melongena* L.). Electronic Journal of Plant Breeding. 2013; 4(1):1097-1100.
11. Nayak BR, Nagre PK. Genetic variability and correlation studies in brinjal (*Solanum melongena* L.). International Journal of Applied Biology and Pharmaceutical Technology. 2013; 4(4):211-215.
12. Praneetha S, Rajashree V, Pugalendhi L. Association of characters on yield and shoot and fruit borer resistance in brinjal (*Solanum melongena* L.). Electronic Journal of Plant Breeding. 2011; 2(4):574-577.
13. Singh AK, Tripathi MK, Rai VK, Mishra R. Character association and path coefficient analysis in brinjal (*Solanum melongena* L.) Environment and Ecology. 2011; 29(3):1201-1203.
14. Thangamani C, Jansirani P. Correlation and path coefficient analysis studies on yield and attributing characters in brinjal (*Solanum melongena* L.). Electronic Journal of Plant Breeding. 2012; 3(3):939-944.
15. Vavilov NI. The phytogeographic basis of plant breeding. In: The origin, variation, immunity and breeding of cultivated plants. New York: The Ronald Press Company, 13–54 Translated by Chester KS, 1951.
16. Wright S. Correlation and causation. Journal of Agricultural Research. 1921; 20:557-585.