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CORRELATION AND PATH CO-EFFICIENT ANALYSIS OF QUANTITATIVE AND QUALITATIVE TRAITS IN CHILLI (*CAPSICUM ANNUUM* L.)

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ABSTRACT
A field experiment was conducted during *Rabi* of 2012-13 at Vegetable Research Farm, Department of Horticulture, JNKVV, Jabalpur (M. P.). The experiment was laid out in Randomized Complete Block Design with 25 Chilli genotypes. The result express that seed yield plant^{-1} with dry fruit yield plant^{-1} (0.537), fruit yield plot^{-1} (0.368) and fruit yield ha^{-1} (0.368). Dry fruit yield plant^{-1} with green fruit yield plant^{-1} (0.573), fruit yield plot^{-1} (0.390) and fruit yield ha^{-1} (0.390) and fruit yield plot^{-1} expressed highly significant and positive correlation with fruit yield ha^{-1} (0.999). Highest positive direct effect *viz.,* green fruit yield plant^{-1} showed fruit yield ha^{-1} (9.941), number of fruits plant^{-1} (0.366), plant height at 90 DAT (0.145), seed yield plant^{-1} (0.106), days to flower initiation (0.097), plant height at 60 DAT (0.095), dry fruit yield plant^{-1} (0.061), number of primary branches plant^{-1} at 30 DAT (0.056), number of primary branches plant^{-1} at 60 DAT (0.053). Whereas, the highest negative direct effect *viz.,* green fruit yield plant^{-1} showed that fruit yield plot^{-1} (-9.914), plant height at 30 DAT (0.106), dry fruit weight (-0.090), plant height at 120 DAT (-0.085), fruit width (-0.049). Genotype US-611,-214, 947, 349,113, US-991, 2011/CHIVAR-3,-4, 5, 9, 2012/CHIVAR-2, 3 had light green colour. US-214, 991, 2011/CHIVAR-2, 3, 4,5,6,7, 2011/CHIVAR-8, 9, long fruits were observed among the genotypes.

INTRODUCTION

Chilli (*Capscium annuum* L.) 2n = 24 is an important vegetable as well as condiment crop, widely grown throughout India. Green fruit of chilli are one of the richest sources of anti-oxidant vitamins such as vitamin A, C and E. The capsaicin alkaloid is responsible for pungency and it has medicinal value also. In India, the major Chilli growing states are Andhra Pradesh, Karnataka, Maharashtra, Orissa, Tamil Nadu, Madhya Pradesh and Rajasthan. In India, it occupies 0.805 million ha area and annual production 1.276 million tons, while, in Madhya Pradesh it occupies 0.054 million ha area and produce 0.093 million tons (NHB, 2013-14).

Chilli is an often cross pollinated crop with high natural cross pollination and this also contributes to its variability, the aim of any breeding program depends on genetic diversity, characters association and direct and indirect effects on yield and its component characters. Before going to breeding programme through selection it is essential to know the importance and inter association of various components and their association with yield. The correlation coefficient analysis measures the mutual relationship between various characters and it determines the component traits on which selection can be relied upon the effect of improvement. Previous study resulted that fruit yield plant^{-1} expressed highly significant and positive correlation with green fruit yield ha^{-1} by Rathod *et al*. (2002), Dipendra Gautam (2003), Ajjapplavara *et al*. (2005), Abu and Uguru (2006), Vani *et al*. (2007). Dry fruit yield plant^{-1} has positive correlation with green fruit yield plant^{-1}, fruit yield plot^{-1} and fruit yield ha^{-1} by Mohammed Ibrahim *et al*. (2001), Abu and Uguru (2006), Farhad *et al*. (2008) and Pandit *et al*. (2009). Assessing the direct and indirect effects of each component towards yield through path coefficient analysis would help in identifying the reliable characters contributing to yield. By keeping this objective in view the present investigation was undertaken. Fruit yield ha^{-1} expressed positive indirect effect on green fruit yield plant^{-1} number of seed fruit $^{-1}$, dry fruit weight, fruit width, number of fruit plant^{-1}, number of primary branch at 60 DAT, green fruit weight, dry fruit yield plant^{-1}, fruit length and seed yield plant^{-1}, similar results were also reported by Singh and Singh (2004), Datta and Jana (2010), Raika *et al*. (2005), Shabarish *et al*. (2014), Sheela *et al*. (2014) in Cluster bean.

The main objective of plant breeder is to evolve high yielding varieties. It is therefore, need of plant breeder to know the extent of association between yield and its various components, which will facilitate desirable selection based on component traits. Path analysis is a standardised partial regression coefficient measuring the direct influence of one variable upon the other and permits separation of correlation coefficient into components of direct and indirect effects. Correlation and path coefficient could be necessary tools at the disposal of the breeder in improvement programme for enhancing the production and productivity of Chilli, by keeping this objective in view the present investigation was undertaken.

MATERIALS AND METHODS

Field experiments were conducted during *Rabi* season of 2012-13 at Vegetable Research Farm, Department of Horticulture and J.N.K.V.V., Jabalpur (Madhya Pradesh) to study "correlation and path co-efficient analysis of quantitative and qualitative traits in Chilli (*Capsicum annuum* L.)".The experiment was laid out in Randomized Complete Block Design (RCBD) with 25 genotypes (23 genotypes + 2 check) and 3 replications, 17 genotypes were collected from IIVR, Varanasi namely 2011/ CHIVAR-1 to 9, 2012/CHIVAR-2,3,4,5,6,8,9, KA2 (C), seven genotypes were collected from Agri-seeds, Hyderabad namely US-611, 214, 947, 349, 113, 991,HP-11-306 and another check LCA-334 (C) was collected from LAM, Guntur. Appropriate agronomic practices were followed to raise a good crop. Various observations were recorded on morphological characters *viz.,* Plant height (cm) at 30, 60, 90 & 120 DAT, Number of primary branches plant^{-1} at 30, 60 DAT, Phonological parameters *viz.,* days to first flowering, days to 50% flowering, days to first picking, yield parameters *viz.,* fruit length (cm), fruit width (cm), number of fruits plant^{-1}, fruit weight of green chilli (g), fruit weight of dry chilli (g), fruit yield plant^{-1}, fruit yield plot^{-1}(kg), fruit yield ha^{-1} (q),green fruit yield plant^{-1}(g), dry fruit yield plant^{-1}. Correlation coefficients were calculated for all quantitative and qualitative traits combinations at phenotypic, genotypic and environmental levels by the formula given by Miller *et al*. (1958) and path co-efficient analysis developed by Wright (1921) and elaborated by Dewey and Lu (1959).

RESULTS AND DISCUSSION

Correlation coefficient analysis

Correlation coefficient wee workout at phenotypic level for all possible combination of yield and its attributing traits in chilli (Table1) results indicated that's genotypic coefficient of correlation in general were of higher magnitude than the corresponding phenotypic ones.

Highly significant positive association was observed with fruit length (0.922) and negative but significant correlation with fruit yield plot^{-1} (-0.555), fruit yield ha^{-1} (-0.555), number of seed fruits^{-1} (-0.476), dry fruit weight (-0.469), seed yield fruit^{-1} (-0.373) and fruit width (-0.323), similar results were also reported by Benchaim and Paran (2000). A highly significant and negative correlation of fruit length with fruit yield plot^{-1} (-0.635), fruit yield ha^{-1} (-0.635), number of seed fruit^{-1} (0.539), dry fruit weight (-0.488), seed yield plant^{-1} (-0.449), fruit weight (-0.443) and dry fruit yield plant^{-1} (-0.259). Fruit width expressed highly significant and positive correlation with fruit yield plot^{-1} (0.270) and fruit yield ha^{-1} (0.270). Fruit weight of green chilli showed highly significant and positive correlation with fruit yield plot^{-1} (0.283) and fruit yield ha^{-1} (0.283), similar results were also reported by Munshi *et al*. (2000) and Tembhurne *et al*. (2009). Fruit weight of dry chilli showed highly significant and positive correlation with number of seeds fruit^{-1} (0.699), fruit yield plot^{-1} (0.403) and fruit yield ha^{-1} (0.403), similar results were also reported by Munshi *et al*. (2000). Highly significant and positive correlation of dry fruit yield plant^{-1} (0.668) and seed yield plant^{-1} (0.505). Highly significant and positive correlation of fruit yield plot^{-1} (0.406), fruit yield ha^{-1}(0.405) and green fruit yield plant^{-1} (0.264). Highly significant and positive correlation of seed yield plant^{-1} with dry fruit yield plant^{-1} (0.537), fruit yield plot^{-1} (0.368) and fruit yield ha^{-1} (0.368), similar results were also reported by Gagala *et al*. (2007), Shabarish *et al*. (2014), Sheela *et al*. (2014) in Cluster bean. Dry fruit yield per plant showed highly significant and positive correlation with green fruit yield plant^{-1} (0.573), fruit yield plot^{-1} (0.390) and fruit yield ha^{-1} (0.390). Similar results were also reported by Mohammed Ibrahim *et al*. (2001), Dipendra and Gautam (2003), Ajjapplavara *et al*. (2005), Abu and Uguru (2006), Farhad *et al*.(2008), Pandit *et al*.(2009), Tembhurne *et al*. (2009), Fruit yield plot^{-1} expressed highly significant and positive correlation with fruit yield ha^{-1} (0.999).

Path co-efficient analysis:

Path coefficient analysis permits partitioning of the correlation coefficients into components of direct and indirect effects. In general, it was observed that genotypic direct and indirect effects were higher than their corresponding phenotypic values. The results obtained in phenotypic direct and indirect effects are presented in (Table2).

Direct effects

Path coefficient analysis of different characters contributing towards the highest positive direct effect via green fruit yield plant^{-1} showed that fruit yield ha^{-1} (9.941), number of fruits plant^{-1} (0.366), plant height at 90 DAT (0.145), seed yield plant^{-1} (0.106), days to flower initiation (0.097), plant height at 60 DAT (0.095), dry fruit yield plant^{-1} (0.061), number of primary branches plant^{-1} at 30 DAT (0.056), number of primary branches plant^{-1} at 60 DAT (0.053), The results corroborated the findings of Bhalekar *et al*. (2002), Dipendra and Gautum (2003), Singh and Singh (2004), Sreelathakumar and Rajamony (2004), Vani *et al*. (2007), Pandit *et al*. (2009), Datta and Jana (2010). But highest negative direct effect via green fruit yield plant^{-1} showed that fruit yield plot^{-1} (-9.914), plant height at 30 DAT (0.106), dry fruit weight (-0.090), plant height at 120 DAT (-0.085), fruit width (-0.049), the results corroborated the findings of Karad *et al*. (2002).

Indirect effect

Fruit length was reported to have positive indirect effect on green fruit yield via dry fruit yield plant^{-1} (0.015), While negative indirect effect via dry fruit weight (-0.015) were expressed. Fruit width exhibited positive indirect effect on green fruit yield plant^{-1} via dry fruit weight (0.022), number of fruits plant^{-1} (0.017), However, the negative indirect effect of this trait was observed via fruit yield plot^{-1} (-0.014) and fruit yield ha^{-1} (-0.014). Fruit weight of green chilli expressed positive indirect effect on green fruit yield plant^{-1} through was dry fruit yield plant^{-1} (0.024) and negative indirect effect via, number of seeds fruit^{-1} (-0.017), number of fruits plant^{-1} (-0.015) and fruit yield plot^{-1} (-0.013). Fruit weight of dry chilli evaluated higher values of indirect effect on green fruit yield plant^{-1} through via seed yield plant^{-1} (-0.060), fruit yield plot^{-1} (-0.015), fruit yield ha^{-1} (-0.015). Number of fruits plant^{-1} expressed positive indirect effect on green fruit yield plant^{-1} via fruit yield plot^{-1} (0.143), fruit yield ha^{-1} (0.148), seed yield plant^{-1} (0.074) However, negative indirect effect was observed via number of seeds plant^{-1} (-0.045). Positive indirect effect of number of seeds fruit^{-1} on green fruit yield via dry fruit yield plant^{-1} (0.097) and

Table 1: Estimate of genotypic (G) and phenotypic (P) correlation coefficient between yield and its components in chilli

Characters		NPBR	DFRI	DFFL	DFP	FRLT(cm)	FRWT(cm)	GFW(g)	DFW(g)	NFRP	NSPF	SYPP(g)	DFYP(g)	GFYP(g)	FYPL(kg)	FYPH(q)
Plant height (cm)	G	-0.043	0.077	-0.275	-0.304	-0.181	0.248	-0.116	0.069	0.229	-0.094	0.121	-0.023	-0.042	0.100	0.100
	P	0.026	0.016	-0.177	-0.235*	-0.151	0.255*	-0.080	0.062	0.203	-0.085	0.130	-0.007	-0.039	0.088	0.088
No. of primary branches plant^{-1}	G		0.959	-0.722	-0.774	-0.916	0.499	-0.353	0.731	0.356	0.929	0.548	0.720	0.565	0.959	0.959
	P		0.298**	-0.359**	-0.372***	-0.416***	0.260*	-0.053	0.247*	0.175	0.382***	0.270*	0.285*	0.229*	0.384***	0.384***
Days to flower initiation	G			-0.559	-0.471	-0.363	0.223	-0.057	0.674	0.154	0.545	0.025	0.355	0.087	0.641	0.641
	P			-0.305**	-0.222	-0.170	0.118	-0.018	0.359**	0.094	0.307**	-0.004	0.215	0.070	0.410***	0.410***
Days to 50% flowering	G				0.962	0.851	-0.304	0.080	-0.548	0.156	-0.568	-0.271	-0.094	-0.250	-0.474	-0.474
	P				0.929***	0.801***	-0.248*	0.069	-0.452***	0.104	-0.499***	-0.243*	-0.090	-0.217	-0.395***	-0.395***
Days to first picking	G					0.943	-0.381	-0.056	-0.529	0.040	-0.523	-0.405	-0.188	-0.206	-0.625	-0.625
	P					0.922***	-0.323**	-0.055	-0.469***	0.033	-0.476***	-0.373***	-0.156	-0.166	-0.555***	-0.556***
Fruit length (cm)	G						-0.485	0.009	-0.522	-0.008	-0.562	-0.478	-0.289	-0.249	-0.684	-0.684
	P						-0.443***	0.000	-0.488***	-0.018	-0.539***	-0.449***	-0.259*	-0.221	-0.635***	-0.635***
Fruit width (cm)	G							-0.172	0.161	-0.183	-0.056	0.080	0.028	0.031	0.290	0.290
	P							-0148	0.153	-0.137	-0.050	0.086	0.049	0.033	0.270*	0.270*
Fruit weight of green chilli (g)	G								-0.002	0.085	-0.144	0.167	0.228	-0.079	0.288	0.289
	P								-0.006	0.094	-0.142	0.150	0.194	-0.081	0.283*	0.283*
Fruit weight of dry chilli (g)	G									-0.064	0.722	0.070	0.184	0.060	0.423	0.423
	P									-0.054	0.699***	0.066	0.180	0.055	0.403***	0.403***
No. of fruit plant^{-1}	G										0.057	0.571	0.726	0.172	0.209	0.209
	P										0.052	0.505***	0.668***	0.162	0.172	0.173
No. of seeds fruit^{-1}	G											0.186	0.209	0.271	0.426	0.426
	P											0.181	0.202	0.264*	0.406***	0.405***
Seed yield plant^{-1} (g)	G												0.582	0.112	0.405	0.405
	P												0.537***	0.116	0.368**	0.367**
Dry fruit yield plant^{-1} (g)	G													0.578	0.435	0.435
	P													0.573***	0.390***	0.390***
Green fruit yield plant^{-1} (g)	G														0.093	0.093
	P														0.090	0.090
Fruit yield plot^{-1} (kg)	G															1.000
	P															0.999**

** Significant at 1% level, *** significant at 0.5 % level; PLHT: Plant height (cm), NPBR: No. of primary braches plant^{-1}, DFRI : Days to flower initiation, DFFL : Days to 50% flowering, DFP : Days to first picking, FRLT: Fruit length (cm), FRWT: Fruit width, GFW: Green fruit weight (g), DFW: Dry fruits weight (g), NFRP : No. of fruits plant^{-1}, NSPF : No. of seeds fruit^{-1}, SYPP: Seed yield plant^{-1}, DFYP: Dry fruit yield plant^{1}, GFYP: Green fruit yield plant^{-1} (g), FYPL : Fruit yield plot^{-1} (kg), FYPH : Fruit yield ha^{-1} (q).

Table 2: Estimates of phenotypic path co-efficient analysis showing direct and indirect effect on fruit yield plant^{-1} in chilli

Characters		PLHT (cm) 30	60	90	120	NPBR 30DAT	60DAT	DFRI	DFFL	DFP	FRLT (cm)	FRWT (cm)	GFW (g)	DFW (g)	NFRP	NSPF	SYPP (g)	DFYP (g)	FYPL (kg)	FYPH (q)	GFYP (g)
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
PLHT	30	-0.398	-0.371	-0.319	-0.270	0.106	0.012	0.121	0.135	0.089	-0.015	-0.025	-0.015	-0.016	-0.004	-0.032	0.029	0.007	-0.006	-0.006	0.018
(cm)	60	0.008	0.008	0.007	0.005	-0.002	0.001	-0.002	-0.002	-0.001	0.001	0.001	0.000	0.000	-0.001	0.000	-0.001	-0.001	0.001	0.001	0.094
	90	0.610	0.677	0.761	0.617	-0.152	0.107	-0.102	-0.178	-0.116	0.251	0.124	0.022	0.095	-0.016	0.127	0.004	-0.103	0.199	0.199	0.174
	120	-0.280	-0.269	-0.335	-0.413	0.018	-0.032	0.114	0.126	0.075	-0.102	0.048	-0.029	-0.095	0.039	-0.050	0.010	0.017	-0.041	-0.041	0.026
NPBR	30	0.024	0.027	0.018	0.004	-0.091	-0.088	0.066	0.071	0.084	-0.046	0.032	-0.067	-0.033	-0.085	-0.050	-0.066	-0.052	-0.088	-0.088	1.119
	60	0.004	-0.018	-0.016	-0.009	-0.110	-0.114	0.064	0.054	0.042	-0.026	0.007	-0.077	-0.018	-0.062	-0.003	-0.041	-0.010	-0.073	-0.073	0.774
DFRI		-0.029	-0.021	-0.013	-0.026	-0.068	-0.053	0.094	0.091	0.080	-0.029	0.008	-0.052	0.015	-0.054	-0.026	-0.009	-0.024	-0.045	-0.045	-0.497
DFFL		0.212	0.165	0.146	0.190	0.484	0.295	-0.601	-0.625	-0.589	0.238	0.035	0.330	-0.025	0.327	0.253	0.118	0.129	0.391	0.391	-0.596
DFP		-0.093	-0.059	-0.063	-0.075	-0.380	-0.151	0.353	0.391	0.414	-0.201	0.004	-0.210	-0.004	-0.233	-0.198	-0.120	-0.103	-0.239	-0.239	-0.674
FRLT(cm		0.000	-0.002	-0.004	-0.003	-0.006	-0.003	0.003	0.004	0.005	-0.011	0.002	-0.002	0.002	0.001	-0.001	0.000	0.000	-0.003	-0.003	0.249
FRWT(cm)		-0.015	-0.018	-0.037	0.027	0.081	0.013	-0.018	0.013	-0.002	0.040	-0.230	0.001	-0.020	0.033	-0.039	-0.052	0.018	-0.007	-0.007	0.147
GFW(g)		-0.003	-0.005	-0.003	-0.007	-0.068	-0.063	0.051	0.049	0.049	-0.015	0.000	-0.093	0.006	-0.067	-0.007	-0.017	-0.06	-0.035	-0.035	0.577
DFW(g)		-0.002	0.000	-0.005	-0.009	-0.014	-0.006	-0.006	-0.002	0.000	0.007	-0.003	0.003	-0.039	-0.002	-0.023	-0.029	-0.007	-0.008	-0.008	0.167
NFRP		0.006	-0.052	-0.128	-0.058	0.576	0.338	-0.353	-0.325	-0.349	-0.035	-0.088	0.449	0.035	0.620	0.115	0.013	0.168	0.264	0.264	0.652
NSPF		-0.012	0.004	-0.025	-0.018	-0.082	-0.004	0.041	0.061	0.072	-0.012	-0.025	-0.011	-0.086	-0.028	-0.150	-0.087	-0.017	-0.061	-0.061	0.357
SYPP(g)		-0.022	-0.045	0.002	-0.007	0.212	0.105	-0.028	-0.056	-0.085	0.009	0.067	0.054	0.214	0.062	0.172	0.295	0.171	0.129	0.129	0.418
DFYP(g)		0.001	0.011	0.010	0.003	-0.042	-0.007	0.019	0.015	0.019	-0.002	0.006	-0.005	-0.013	-0.020	-0.008	-0.043	-0.075	-0.007	-0.007	0.177
FYPL(kg)		2.103	13.724	39.396	15.121	144.78	96.771	-71.59	-94.411	-103.22	43.88	43.500	63.93	31.640	64.300	61.130	65.760	14.084	150.2	150.220	0.934
FYPH(q)		-2.095	-13.664	-39.219	-15.047	-144.12	96.349	71.278	93.992	102.761	-43.68	-43.130	-63.65	-31.500	-64.022	-60.850	-65.46	14.018	-150.2	-150.220	0.934

R square = 0.960 Residual effect G = 0.197; PLHT: Plant height (cm), NPBR: No. of primary braches plant^{-1}, DFRI : Days to flower initiation, DFFL : Days to 50% flowering, DFP : Days to first picking, FRLT: Fruit length (cm), FRWT: Fruit width, GFW: Green fruit weight (g), DFW: Dry fruits weight (g), NFRP : No. of fruits plant^{-1}, NSPF : No. of seeds fruit^{-1}, SYPP: Seed yield plant^{-1}, DFYP: Dry fruit yield plant^{-1}, GFYP: Green fruit yield plant^{-1} (g), FYPL : Fruit yield plot^{-1} (kg), FYPH : Fruit yield ha^{-1} (q).

fruit yield plot^{-1} (0.011). Seed yield plant^{-1} manifested positive indirect effect on green fruit yield plant^{-1} through effect of dry fruit weight (0.071), number of seed fruits^{-1} (0.057), fruits yield plot^{-1} (0.041) and number of primary branch plant^{-1} at 30 DAT (0.030), While negative indirect effect was recorded via days to first picking (-0.027) and days to 50% flowering (-0.016). Dry fruit yield plant^{-1} expressed positive indirect effect on green fruit yield plant^{-1} through fruit yield ha^{-1} (0.041) and negative indirect effect via seed yield plant^{-1} (-0.011). Similar results were also reported by Sarkar *et al*. (2009), Datta and Jana (2010).

Fruit yield plot^{-1} manifested positive indirect effect on green fruit yield plant^{-1} via days to 50 flowering (4.403), days to flower initiation (1.587) and days to first picking (0.807). While negative indirect effect was observed via number of seed fruit^{-1} (-9.366), dry fruit weight (3.817), fruit width (-2.633), number of fruit plant^{-1} (-2.437), green fruit weight (-2.230), number of primary branch plant^{-1} at 60 DAT (-2.050), dry fruit yield plant^{-1} (-2.019), fruit length (-1.588) and seed yield plant^{-1} (1.207). Fruit yield ha^{-1} expressed positive indirect effect on green fruit yield plant^{-1} number of seed fruit $^{-1}$ (9.611), dry fruit weight (3.933), fruit width (2.833), number of fruit plant $^{-1}$ (2.716), number of primary branch at 60 DAT (2.715), green fruit weight (2.507), dry fruit yield plant^{-1} (2.212), fruit length (1.773) and seed yield plant^{-1} (1.471). Whereas, higher negative indirect values was recorded via days to 50% flowering (-4.785), days to flower initiation (-1.860) and days to first picking (1.242). Similar results were also reported by Bhalekar *et al*. (2002), Singh and Singh (2004), Sarkar *et al*. (2009), Datta and Jana (2010), Shabarish *et al*. (2014) Sheela *et al*. (2014) in Cluster bean.

Qualitative traits

All the genotypes (Table3) showed pendent bearing habit except US-349, HP-11-306, 2011/CHIVAR-4, 2012 CHIVAR-2. Colour of fruit was observed to be light green and dark green colour. Genotype US-611, US-214, US-947, US-349, US-113, US-991, 2011/CHIVAR-3, 2011/CHIVAR-4, 2011/CHIVAR-5, 2011/CHIVAR-9, 2012/CHIVAR-2, 2012/CHIVAR-3, 2012/CHIVAR-4, 2012/CHIVAR-5, 2012/CHIVAR-6, 2012/CHIVAR-9, LCA-334 (c) and KA-2 (c) had light green colour. Remaining genotypes exhibited dark green colour.

Size of fruit was observed to be long, medium and short. Long fruits were observed in genotypes US-214, US-991, 2011/CHIVAR-2, 2011/CHIVAR-3, 2011/CHIVAR-4, 2011/CHIVAR-5, 2011/CHIVAR-6, 2011/CHIVAR-7, 2011/CHIVAR-8, 2011/CHIVAR-9. Whereas, genotypes US-947, US-349, US-113, HP-11-306, 2011/CHIVAR-1, 2012/CHIVAR-3, 2012/CHIVAR-4, 2012/CHIVAR-5, 2012/CHIVAR-6, 2012/CHIVAR-8 were exhibited medium fruit, Genotype US-611, 2012/CHIVAR-2, 2012/CHIVAR-9, LCA-334 (c), KA-2 (c) found small size. Similar results were also reported by Dipendra and Gautam (2003), Benchaim and Paran (2000), Datta and Jana (2010).

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Table 3: Qualitative characters in 25 Chilli genotypes

S.No.	Genotypes	Fruit size	Fruit colour	Bearing habit
1.	US-611	Short	Light green	Pendent
2.	US-214	Long	Light green	Pendent
3.	US-947	Medium	Light green	Pendent
4.	US-349	Medium	Light green	Erect
5.	US-113	Medium	Light green	Pendent
6.	US-991	Long	Light green	Pendent
7.	HP-11-306	Medium	Dark green	Erect
8.	2011/CHIVAR-1	Medium	Dark green	Pendent
9.	2011/CHIVAR-2	Medium	Dark green	Pendent
10.	2011/CHIVAR-3	Long	Light green	Pendent
11.	2011/CHIVAR-4	Long	Light green	Erect
12.	2011/CHIVAR-5	Long	Light green	Pendent
13.	2011/CHIVAR-6	Long	Dark green	Pendent
14.	2011/CHIVAR-7	Long	Dark green	Pendent
15.	2011/CHIVAR-8	Long	Dark green	Pendent
16.	2011/CHIVAR-9	Medium	Light green	Pendent
17.	2012/CHIVAR-2	Short	Light green	Erect
18.	2012/CHIVAR-3	Medium	Light green	Pendent
19.	2012/CHIVAR-4	Medium	Light green	Pendent
20.	2012/CHIVAR-5	Medium	Light green	Pendent
21.	2012/CHIVAR-6	Medium	Light green	Pendent
22.	2012/CHIVAR-8	Medium	Dark green	Pendent
23.	2012/CHIVAR-9	Short	Light green	Pendent
24.	LCA-334 (Check)	Short	Light green	Pendent
25.	KA-2 (Check)	Short	Light green	Pendent

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