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Original Research Article

Field Evaluation of Gunduchillies (*Capsicum annuum* L.) under Konkan Agroclimatic Conditions for Growth, Yield and Yield Attributing Characters

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A B S T R A C T

Chilli is a small bushy perennial herb but cultivated as annual belong to genus *Capsicum* and family Solanaceae. The humid climate of Konkan region favours incidence of various diseases like powdery mildew, anthracnose as well as fruit rot. In this region local chilli genotypes are preferred for cultivation due to their specific taste, hardy nature and their adaptation to soil and climatic conditions. Such local chilli genotypes were collected and evaluated for their various growth and yield characters so as to identify the superior genotype for commercial exploitation. Twenty eight genotypes were selected and collected from Ratnagiri, Sindhudurg and Thane district of Konkan region for investigation from farmers' field based on their phenotypic characters with respect to growth, flowering and yield performance and were given the accession numbers. These types were evaluated along with KonkanKirti (Local Check) and ArkaLohit (National Check) under field conditions. The genotype DPL-CA-1 produced earliest flowering (45.42 DAP) whereas DPL-CA-30 (KonkanKirti) exhibited late flowering (64.33 DAP).The maximum number of fruits was seen in genotype DPL-CA-23 (115.67/plant)which was at par with DPL-CA-6, DPL-CA-9, DPL-CA-17, DPL-CA-28 and DPL-CA-29 (ArkaLohit). In pooled analysis also exhibited that, the maximum fruit yield was registered in genotype DPL-CA-8 (396.45 g/plant) which was significantly superior over all other genotypes. Similarly, the maximum fruit yield per hectare (19.33 t) was found in genotype DPL-CA-8 which was significantly superior over all other genotypes. The genotype DPL-CA-26 produced minimum fruit yield (6.17 t/ha) which was at par with DPL-CA-1, DPL-CA-19, DPL-CA-21 and DPL-CA-27.Along with DPL-CA-8, the genotypes DPL-CA-4, DPL-CA-14, DPL-CA-25, DPL-CA-9 and DPL-CA-23 also recorded better performance during the investigation as compared to other genotypes and were selected for further evaluation.

Keywords

gunduchilli, Capsicum annuum, growth, yield, yield attributing characters

Introduction

Chilli is a small bushy perennial herb but cultivated as annual belong to genus *Capsicum* and family Solanaceae. India is considered to be the secondary centre of diversity for chilli (Anonymous, 1983). Chillies are used in cooking, pickles, sauces, chutney and several other region specific delicacies. Konkan region of Maharashtra is not known for commercial chilli production as due to heavy rains and high humidity the improved and hybrid varieties of chilli cannot be cultivated successfully. The humid climate favours incidence of various diseases like powdery mildew, anthracnose as well as fruit rot. However, the present chilli cultivation is confined, mostly in rice based cropping system on small scale where local chilli genotypes are preferred for cultivation in the region due to their specific taste, hardy nature and are well adapted to the soil and climatic conditions. These local genotypes are grown for their characteristic shape (*Gundu* type – fat chillies round or triangular in shape with high seed content) and specific taste and flavour. The dry chillies of these types have considerable demand in local markets as well as from the adjoining state like Goa for specific flavour. Similarly, the mature green chillies of these genotypes are widely used for preparation of chilli pickle, salted and spiced chillies. In consideration with the above facts, it necessary to conduct systematic study of the available variability of *gundu* chilli in Konkan region; so that the superior genotypes can be identified for developing improved varieties or hybrids with superior characters suitable for commercial cultivation in Konkan region.

Materials and Methods

The present experiment was conducted on demonstration field of Department of Vegetable Science, College of Horticulture, Dapoli, Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli, Dist – Ratnagiri (M.S.) during two seasons *viz. kharif*- 2018 and 2019. Twenty eight genotypes were selected and collected from Ratnagiri, Sindhudurg and Thane district of Konkan region for investigation from farmers' field based on their phenotypic characters with respect to growth, flowering and yield performance and were given the accession numbers. These types were evaluated along with KonkanKirti (Local Check) and ArkaLohit (National Check) under field conditions. Various intercultural operations *viz.* nutrient management, weeding, earthing up as well as plant protection were carried out as per the recommendations for the region. The various growth and yield observations viz. plant height, plant canopy width, number of branches, days to commencement of flowering, days to fifty per cent flowering, days to fruiting, number of flowers per plant, days to horticultural maturity, days to physiological maturity, fruit bearing period, fruit length, fruit breadth, number of fruits per plant, yield per plant and yield per hectare were recorded by following standard procedures.

Results and Discussion

During present investigation**,** in pooled data (Table 1) it was observed that the highest plant height (142.33 cm) was recorded in DPL-CA-30 (KonkanKirti) and DPL-CA-29 (ArkaLohit) was at par (135.13 cm) with it. The lowest plant height (97.47 cm) was observed in DPL-CA-3 which was at par with DPL-CA-1 (103.58 cm).The highest number of branches (10.01) was found in DPL-CA-7 whereas the lowest number of branches (9.00) was noted in DPL-CA-6, however the difference among them was non-significant. Plant canopy width (Table 1) in various genotypes exhibited non-significant difference during *kharif* 2018 as well as in pooled analysis. During *kharif* 2019, the difference in the genotype with respect to

plant canopy width at 120 DAP was significant. The highest plant canopy width (60.17 cm) was registered in DPL-CA-18 and was at par with many other genotypes. The pooled analysis revealed that the difference between various genotypes for commencement of flowering (Table 2) was non-significant. The genotype DPL-CA-1 produced earliest flowering (45.42 DAP) whereas DPL-CA-30 (KonkanKirti) exhibited late flowering (64.33 DAP) as compared to other genotype under study. The days to fifty per cent flowering (Table 2) were minimum (48.67 DAP) in genotype DPL-CA-1 which was at par with DPL-CA-19 (49.50 DAP) whereas DPL-CA-30 (KonkanKirti) recorded late fifty per cent flowering (68.05 DAP) and no other genotype was comparable with it. DPL-CA-1 registered minimum days to fruiting (61.93) whereas the maximum days to fruiting (81.61 days) were noted in DPL-CA-30 (KonkanKirti). The genotype DPL-CA-5 (Table 3) produced maximum flowers per plant (252.21) but the genotypes DPL-CA-6, DPL-CA-12, DPL-CA-13 and DPL-CA-17 were at par with it. The genotype DPL-CA-14 produced minimum number of flowers (89.16) and no other genotype was statistically comparable to it. In pooled analysis, it was also observed that days for horticulture maturity (Table 3) were earliest in genotype DPL-CA-9 (15.88 days)which was at par with DPL-CA-1, DPL-CA-3, DPL-CA-4, DPL-CA-7, DPL-CA-8, DPL-CA-11, DPL-CA-13, DPL-CA-16, and DPL-CA-21 whereas DPL-CA-2 recorded late horticulture maturity (18.44 days) which was at par with genotypes, DPL-CA-6, DPL-CA-10, DPL-CA-12, DPL-CA-17, DPL-CA-19, DPL-CA-20, DPL-CA-22, DPL-CA-23, DPL-CA-24, DPL-CA-25, DPL-CA-26, DPL-CA-27 and DPL-CA-29 (ArkaLohit). The days for physiological maturity (Table 3) were lowest in genotype DPL-CA-22 (29.44 days) which was at par with DPL-CA-3, DPL-CA-7, DPL-CA-10, DPL-CA-13, DPL-CA-16, DPL-CA-17, DPL-CA-19 and DPL-CA-21 whereas DPL-CA-25 recorded highest number of days for physiological maturity (36.55 days) and the difference was significantly superior over all other genotypes.

The maximum (6.63 mm) fruit length (Table 4 and Figure 1) was found in genotype DPL-CA-29 (ArkaLohit) and was significantly superior over all other genotypes whereas genotype DPL-CA-1 exhibited the fruits with smallest fruit length (2.81 cm) which was at par with other genotypes *viz*. DPL-CA-16, DPL-CA-20 and DPL-CA-26. The highest (20.99 mm) fruit breadth (Table 4 and Figure 2) was recorded in genotype DPL-CA-14 and was significantly superior over all other genotypes whereas genotype DPL-CA-29 (ArkaLohit) noticed lowest fruit breadth (8.46 mm) which was at par with DPL-CA-5, DPL-CA-19 and DPL-CA-30 (KonkanKirti). Maximum fruit bearing period (Table 4) was registered in DPL-CA-12 (54.59 days) which was at par with DPL-CA-1, DPL-CA-6, DPL-CA-7, DPL-CA-8, DPL-CA-9, DPL-CA-11, DPL-CA-13, DPL-CA-14, DPL-CA-15, DPL-CA-17, DPL-CA-19, DPL-CA-21, DPL-CA-24 and DPL-CA-27 whereas it was minimum inDPL-CA-30 i.e. KonkanKirti (41.54 days). The maximum fruit weight (5.72 g) was noted in genotype DPL-CA-14 which was significantly superior over all other genotypes under study. The smallest fruit weight (1.54 g) was observed in genotype DPL-CA-21 which was at par with genotypes DPL-CA-19 and DPL-CA-26 (Table 5 and Figure 3).

The other yield attributing parameters also varied significantly among various genotypes under study. The maximum number of fruits (Table 5 and Figure 4) was seen in genotype DPL-CA-23 (115.67/plant)which was at par with DPL-CA-6, DPL-CA-9, DPL-CA-17, DPL-CA-28 and DPL-CA-29 (ArkaLohit)

whereas genotype DPL-CA-14 (50.41/plant) exhibited minimum number of fruits. In pooled analysis also exhibited that, the maximum fruit yield (Table 5) was registered in genotype DPL-CA-8 (396.45 g/plant) which was significantly superior over all other genotypes. The genotype DPL-CA-27 produced minimum fruit yield (123.81 g/plant) which was at par with DPL-CA-1, DPL-CA-3, DPL-CA-12, DPL-CA-19, DPL-CA-20, DPL-CA-21, DPL-CA-26 and DPL-CA-30 (KonkanKirti). Similarly, the maximum fruit yield per hectare (19.33 t) was found in genotype DPL-CA-8 which was significantly superior over all other genotypes. The genotype DPL-CA-26 produced minimum fruit yield (6.17 t/ha) which was at par with DPL-CA-1, DPL-CA-19, DPL-CA-21 and DPL-CA-27 (Table 5 and Figure 5). Based on investigation, along with DPL-CA-8, the genotypes DPL-CA-4, DPL-CA-14, DPL-CA-25, DPL-CA-9 and DPL-CA-23 also recorded better performance during the investigation as compared to other genotypes and were selected for further evaluation. During present investigation various chilli genotypes exhibited significant variation in various growth and yield attributing characters. Plant height is one of the important growth parameter deciding the volume of the plant which ultimately governs various yield deciding factors.

The variation in the plant height can be attributed to the different eco-geographical background to which these genotypes were exposed earlier followed by natural and human selections (Idowu *et al.,* 2012 and Sreelathakumary and Rajamony, 2003). Santhosha *et al*., 2019 also reported wide range of variability in plant height of 31 genotypes and was in the range of 51 to 106.5 cm. Naganirmala and Mallikarjuna (2019) reported that plant height in chilli genotypes was influenced by season, cultivar as well as their interaction. The variation in number of branches is dependent on the plant architecture which is in turn dependent on genetic constituent as well as the edaphic factors under which the crop is being grown. The increase in the number of branches as varietal response is due to accumulation of assimilates in the growing plant which initiates more number of branches (Ngullie and Biswis, 2019).

Plant canopy width along with plant height and number of branches is responsible for formation of productive area of a particular genotype. It also influences the plant population per hectare and ultimately the yield. Large canopy width usually provides more leaf surface which enhances the interception of solar radiation and thus increases the photosynthetic activity which correspondingly elevates the assimilatory ability of the plant.

Commencement of early flowering is desirable trait in chilli. It usually starts early harvesting as well as may increase the harvesting span of the particular variety. Commencement of flowering is affected by genetic makeup of the genotype, weather condition, edaphic factors, etc. Precociousness in bearing is governed by earliness in flowering which is a beneficial in multiple harvest crops to get continuous yield throughout the life cycle of the plant.

Days to fifty per cent flowering indicate the earliness of the variety and it is usually governed by genetic constituent of the plant as well as soil and climatic factors prevailing at the site of cultivation. During present investigation, it was observed that wide range of flowers were produced in various genotypes however, the genotype producing higher number of flowers necessarily did not produce more number of fruits per plant. It might be due to the varying rate of fruit set in different genotypes.

Table.1 Variation in growth parameters among chilli genotypes during *kharif* season at 120 DAP (Pooled data 2018-2019)

S.N.	Genotype	Plant height (cm)	No. of branches	Plant canopy width (cm)
1	DPL CA-1	103.58	9.44	59.46
2	DPL CA-2	112.21	9.25	61.37
3	DPL CA-3	97.47	9.81	59.02
4	DPL CA-4	111.98	9.63	62.42
5	DPL CA-5	121.90	9.20	60.76
6	DPL CA-6	111.28	9.00	61.31
7	DPL CA-7	115.63	10.01	60.92
8	DPL CA-8	115.45	9.59	62.77
9	DPL CA-9	107.32	9.57	59.96
10	DPL CA-10	115.18	9.22	62.35
11	DPL CA-11	107.07	9.47	61.53
12	DPL CA-12	112.17	9.69	61.34
13	DPL CA-13	115.37	9.68	62.43
14	DPL CA-14	111.77	9.44	60.59
15	DPL CA-15	115.20	9.34	59.27
16	DPL CA-16	114.73	9.34	60.82
17	DPL CA-17	125.75	9.55	61.73
18	DPL CA-18	114.77	9.65	62.17
19	DPL CA-19	115.11	9.18	59.45
20	DPL CA-20	119.37	9.56	61.83
21	DPL CA-21	106.69	9.71	61.02
22	DPL CA-22	108.38	9.37	60.10
23	DPL CA-23	108.20	9.39	62.34
24	DPL CA-24	124.60	9.35	60.79
25	DPL CA-25	115.34	9.29	61.29
26	DPL CA-26	115.75	9.15	60.21
27	DPL CA-27	113.95	9.05	61.20
28	DPL CA-28	113.77	9.07	60.51
29	DPL CA-29 (ArkaLohit)	135.13	9.48	59.92
30	DPL CA-30 (KonkanKirti)	142.33	9.54	57.45
S.E.±		**2.63**	**0.19**	**0.99**
C.D. @ 5%		**7.45**	**NS**	**NS**
C.V.		**3.96**	**3.46**	**2.81**

Table.2 Variation in flowering and fruiting characters among chilli genotypes during *kharif* season (Pooled data 2018-2019)

S.N.	Genotype	Days to commencement of flowering	Days to fifty percent flowering	Days to fruiting
1	DPL CA-1	45.42	48.67	61.93
2	DPL CA-2	49.35	50.46	67.79
3	DPL CA-3	50.34	51.96	66.72
4	DPL CA-4	48.68	50.52	64.92
5	DPL CA-5	50.70	51.82	67.61
6	DPL CA-6	47.75	49.82	65.01
7	DPL CA-7	48.45	50.10	65.05
8	DPL CA-8	49.98	51.41	66.72
9	DPL CA-9	49.34	51.57	64.88
10	DPL CA-10	49.59	51.30	67.16
11	DPL CA-11	48.17	50.11	64.69
12	DPL CA-12	49.03	51.45	67.05
13	DPL CA-13	48.57	51.49	65.34
14	DPL CA-14	49.78	51.06	66.76
15	DPL CA-15	49.08	51.43	65.96
16	DPL CA-16	49.62	51.98	66.17
17	DPL CA-17	47.71	49.97	65.57
18	DPL CA-18	48.82	51.55	65.59
19	DPL CA-19	46.97	49.50	64.92
20	DPL CA-20	49.01	50.82	66.72
21	DPL CA-21	47.40	50.16	63.74
22	DPL CA-22	49.79	51.69	67.48
23	DPL CA-23	49.08	51.26	66.93
24	DPL CA-24	48.14	50.41	65.83
25	DPL CA-25	49.59	51.91	67.38
26	DPL CA-26	49.80	51.80	67.58
27	DPL CA-27	48.26	50.28	66.07
28	DPL CA-28	49.35	51.87	66.74
29	DPL CA-29 (ArkaLohit)	58.37	60.93	76.02
30	DPL CA-30 (KonkanKirti)	64.33	68.05	81.61
S.E.±		**0.49**	**0.40**	**0.55**
C.D. @ 5%		**1.39**	**1.12**	**1.56**
C.V.		**1.71**	**1.32**	**1.42**

Table.3 Variation in number of flowers per plant, days to horticultural maturity and physiological maturity among chilli genotypes during *kharif* season at 120 DAP (Pooled data 2018-2019)

S.N.	Genotype	Number of flowers per plant	Days to horticultural maturity	Days to physiological maturity
1	DPL CA-1	155.44	16.51	31.22
2	DPL CA-2	210.21	18.44	31.58
3	DPL CA-3	214.39	16.38	30.86
4	DPL CA-4	181.74	16.27	32.28
5	DPL CA-5	252.21	16.92	32.21
6	DPL CA-6	250.84	17.59	31.99
7	DPL CA-7	172.82	16.59	30.93
8	DPL CA-8	167.94	16.73	30.60
9	DPL CA-9	198.94	15.88	31.36
10	DPL CA-10	148.53	17.61	30.03
11	DPL CA-11	160.88	16.53	31.48
12	DPL CA-12	218.08	17.68	31.56
13	DPL CA-13	221.43	16.77	30.78
14	DPL CA-14	89.16	16.98	31.93
15	DPL CA-15	154.23	16.88	31.59
16	DPL CA-16	196.47	16.56	29.64
17	DPL CA-17	248.73	17.86	30.38
18	DPL CA-18	200.60	17.11	31.45
19	DPL CA-19	171.83	17.95	30.79
20	DPL CA-20	177.77	17.72	31.18
21	DPL CA-21	216.12	16.33	30.69
22	DPL CA-22	193.38	17.69	29.44
23	DPL CA-23	198.47	17.85	31.00
24	DPL CA-24	197.99	17.68	32.37
25	DPL CA-25	172.86	17.79	36.55
26	DPL CA-26	190.41	17.78	30.26
27	DPL CA-27	155.16	17.81	31.69
28	DPL CA-28	213.96	17.38	34.17
29	DPL CA-29 (ArkaLohit)	214.38	17.73	33.88
30	DPL CA-30 (KonkanKirti)	198.22	17.28	34.85
S.E.±		**12.97**	**0.31**	**0.54**
C.D. @ 5%		**36.81**	**0.89**	**1.53**
C.V.		**11.74**	**3.016**	**2.95**

Table.4 Variation in fruit length, fruit breadth and fruit bearing period among chilli genotypes during *kharif* season at 120 DAP (Pooled data 2018-2019)

S.N.	Genotype	Fruit length (cm)	Fruit breadth (mm)	Fruit bearing period (days)
1	DPL CA-1	2.81	14.66	53.52
2	DPL CA-2	4.36	12.19	48.18
3	DPL CA-3	3.04	14.61	50.73
4	DPL CA-4	4.44	13.53	51.21
5	DPL CA-5	4.86	8.71	50.37
6	DPL CA-6	3.53	10.65	53.12
7	DPL CA-7	4.71	10.86	53.85
8	DPL CA-8	5.51	15.59	53.41
9	DPL CA-9	3.55	17.65	53.30
10	DPL CA-10	4.81	14.62	51.15
11	DPL CA-11	4.90	13.58	53.77
12	DPL CA-12	3.57	13.26	54.59
13	DPL CA-13	3.04	12.60	52.80
14	DPL CA-14	4.90	20.99	54.42
15	DPL CA-15	3.30	13.96	52.61
16	DPL CA-16	2.87	14.84	48.49
17	DPL CA-17	4.82	10.72	53.74
18	DPL CA-18	4.44	11.61	47.08
19	DPL CA-19	4.38	8.68	53.99
20	DPL CA-20	2.99	12.25	49.84
21	DPL CA-21	4.20	9.03	53.42
22	DPL CA-22	3.70	12.75	49.19
23	DPL CA-23	4.18	12.68	49.38
24	DPL CA-24	4.04	11.67	52.58
25	DPL CA-25	5.60	12.78	51.54
26	DPL CA-26	2.92	13.03	50.32
27	DPL CA-27	5.19	12.83	53.64
28	DPL CA-28	5.40	11.87	50.52
29	DPL CA-29 (ArkaLohit)	6.63	8.46	45.54
30	DPL CA-30 (KonkanKirti)	5.10	8.52	41.54
S.E.±		**0.08**	**0.11**	**1.00**
C.D. @ 5%		**0.21**	**0.31**	**2.82**
C.V.		**3.07**	**1.51**	**3.36**

Table.5 Variation in fruit weight, number of fruits per plant, yield per plant and yield per among chilli genotypes during *kharif* season at 120 DAP (Pooled data 2018-2019)

S.N.	Genotype	Fruit weight (g)	Number of fruits /plant	Yield /plant (g)	Yield /ha (t)
1	DPL CA-1	2.62	64.03	131.36	6.56
2	DPL CA-2	2.56	97.18	227.49	10.02
3	DPL CA-3	2.78	88.09	143.24	7.76
4	DPL CA-4	2.88	101.20	264.35	12.84
5	DPL CA-5	2.29	97.04	172.45	7.97
6	DPL CA-6	1.96	107.14	198.18	10.30
7	DPL CA-7	2.42	75.33	171.31	8.51
8	DPL CA-8	4.49	94.99	396.45	19.33
9	DPL CA-9	3.23	105.75	322.65	15.52
10	DPL CA-10	3.55	76.83	239.72	10.40
11	DPL CA-11	3.46	69.75	257.26	10.99
12	DPL CA-12	2.75	89.33	141.94	7.69
13	DPL CA-13	1.92	94.79	176.02	8.63
14	DPL CA-14	5.72	50.41	334.19	13.50
15	DPL CA-15	2.68	74.81	188.73	9.45
16	DPL CA-16	3.03	92.17	258.40	11.55
17	DPL CA-17	2.47	110.85	272.76	12.72
18	DPL CA-18	2.75	98.34	272.54	12.80
19	DPL CA-19	1.79	69.04	133.43	7.08
20	DPL CA-20	2.67	87.44	141.28	7.73
21	DPL CA-21	1.54	101.56	132.08	6.88
22	DPL CA-22	2.51	99.76	220.44	10.75
23	DPL CA-23	3.09	115.67	286.98	14.69
24	DPL CA-24	2.15	100.77	162.29	8.30
25	DPL CA-25	4.70	91.38	361.18	18.56
26	DPL CA-26	1.55	70.37	127.70	6.17
27	DPL CA-27	3.49	63.44	123.81	7.09
28	DPL CA-28	2.92	105.30	291.76	14.98
29	DPL CA-29 (ArkaLohit)	2.67	106.92	201.22	8.98
30	DPL CA-30 (KonkanKirti)	2.69	85.59	137.37	7.41
S.E.±		**0.10**	**4.38**	**7.73**	**0.33**
C.D. @ 5%		**0.29**	**12.42**	**21.93**	**0.95**
C.V.		**6.14**	**8.47**	**6.16**	**5.50**

Fig.1 Variation in fruit length among chilli genotypes during *kharif* seasons (Pooled data 2018-2019)

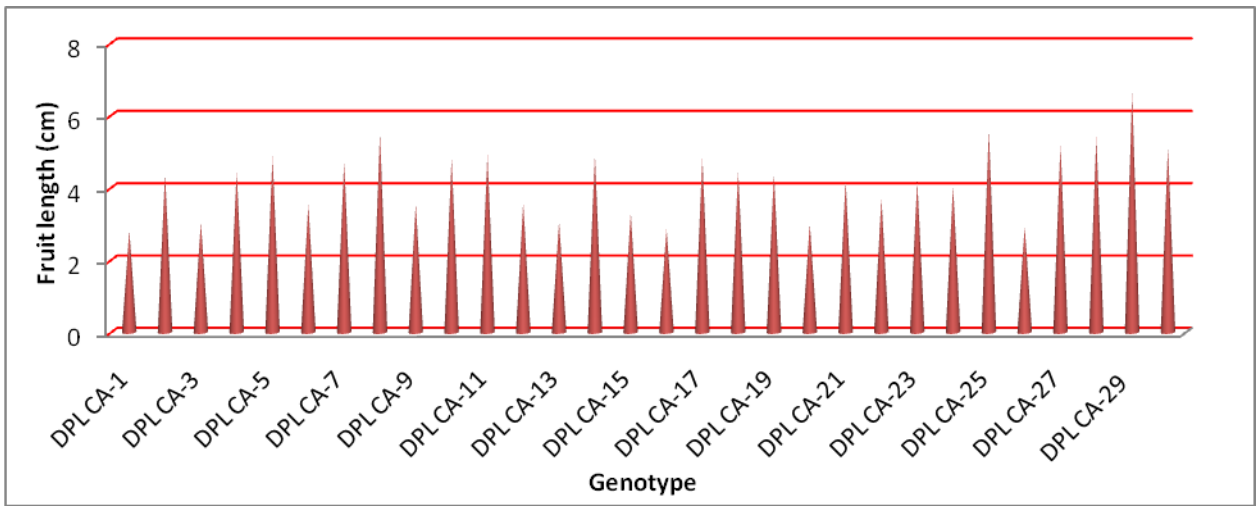


Fig.2 Variation in fruit breadth among chilli genotypes during *kharif* seasons (Pooled data 2018-2019)

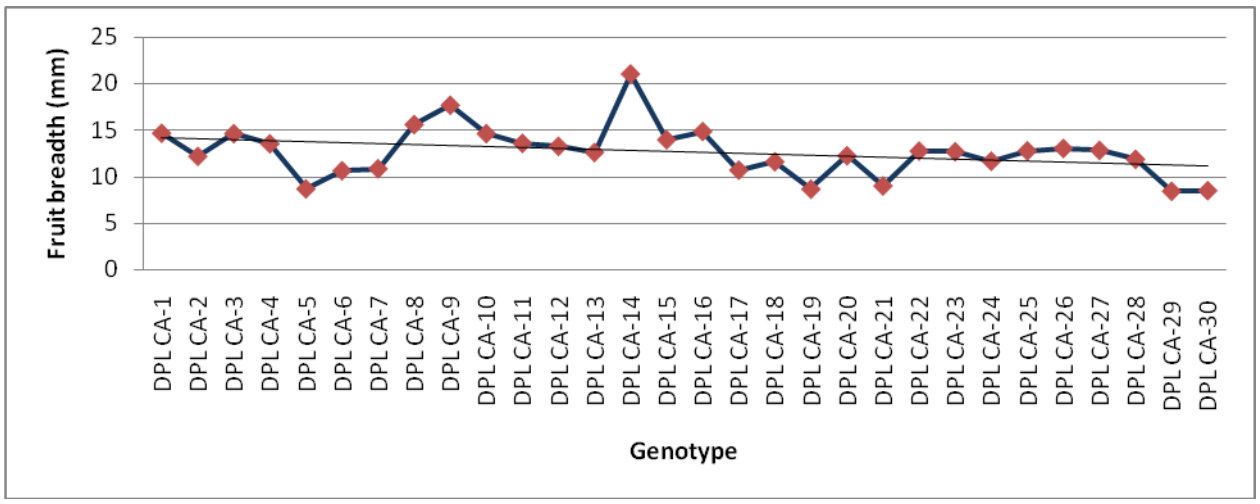


Fig.3 Variation in fruit weight among chilli genotypes during *kharif* seasons (Pooled data 2018-2019)

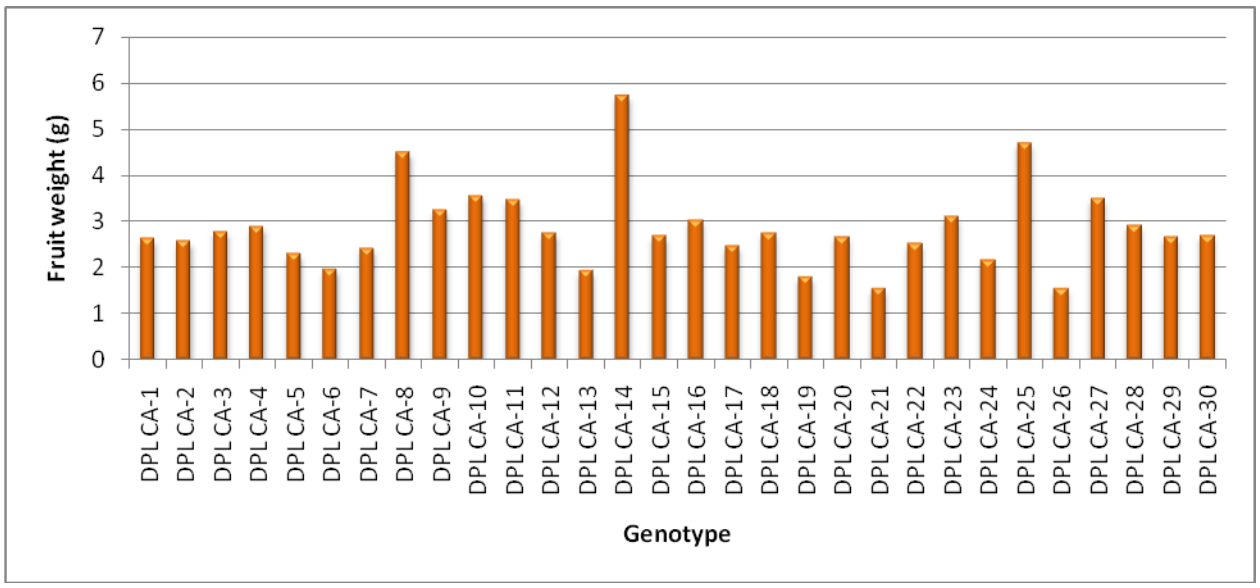


Fig.4 Variation in number of fruit per plant among chilli genotypes during *kharif* seasons (Pooled data 2018-2019)

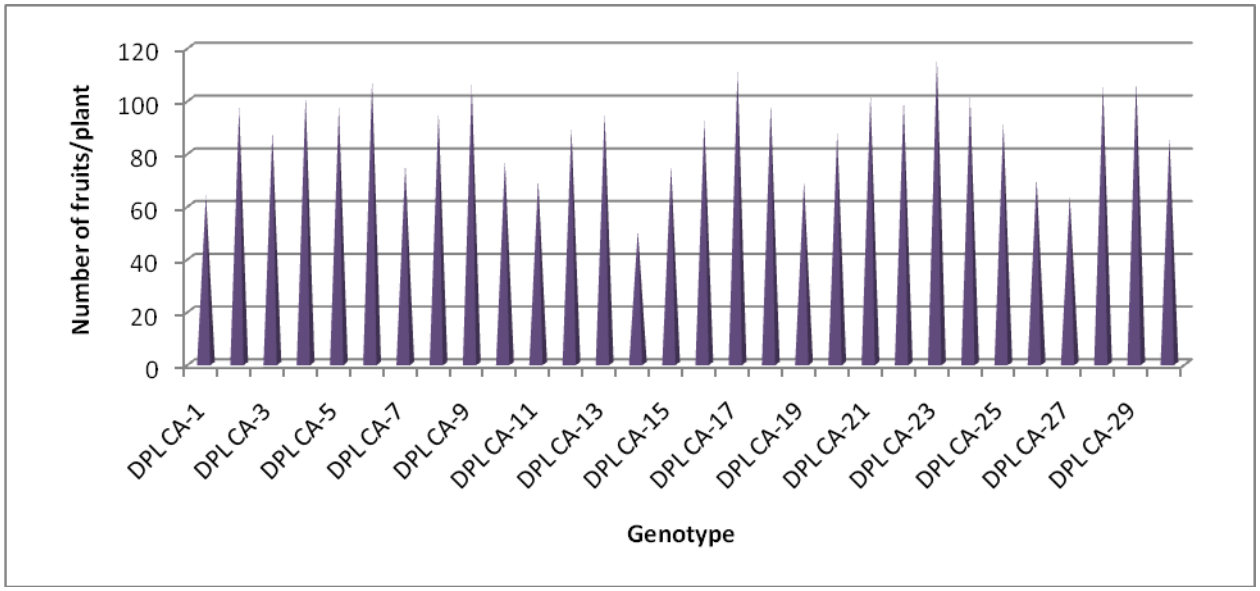
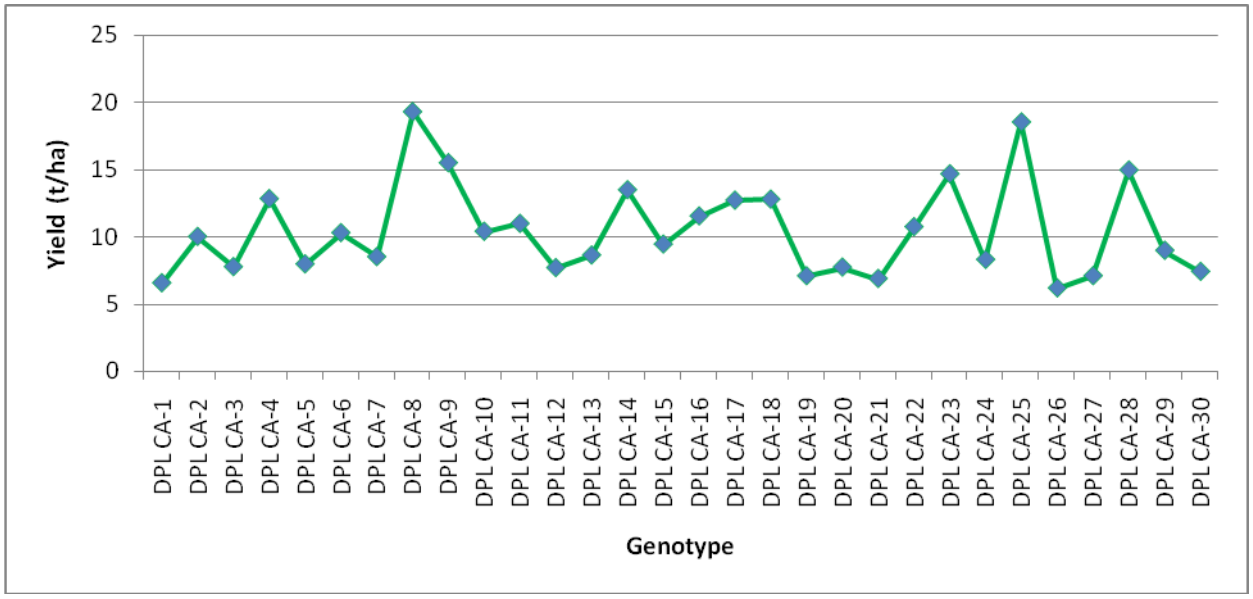


Fig.5 Variation in yield (t/ha) among chilli genotypes during *kharif* seasons (Pooled data 2018-2019)



Flower drop in chilli is a major problem, which can be attributed to many reasons like production of imperfect flowers, hormonal imbalance, prevailing stress condition in the field etc. Hasan *et al.*, 2014 reported the number of flowers per plant in the range of 22.3 to 49.8 in chilli under Bangladesh conditions which are comparatively less than those reported in present study. Chilli is consumed both as vegetable as well as spice. For green chilli purpose the fruits are harvested at tender stage before attaining physiological maturity. The genotypes having more fruit breadth were selected for evaluation as breadth of the fruit is an important factor which decides the preference of fruit for pickle purpose and many other value-added products. The wide range of variation in diameter of the fruits of various genotypes was recorded. It might be due to the genetic variation in the genotypes. The present genotypes were collected from various locations depending upon their consumer acceptability in the specific region. The genotypic variation along with their interaction with the environment might be responsible for the variation in the breadth of the fruit. Fruit length is governed by number of factors including genotype of the plant, environmental conditions and their interaction. Usually higher fruit length is acceptable for commercial purpose, however for value addition and pickle lesser fruit length with higher breadth is supposed to be more ideal. The significant variation was observed in the fruit bearing period of various genotypes which might be due to difference in the days for flowering commencement and fifty per cent flowering. The interaction of environment with the genotype is also responsible for the variation (Pawar *et al.*, 2019).

Higher fruit weight is one of the major yield contributing character. Fruit weight along with number of fruits per plant ultimately decides the yield potential of that variety. Though fruit weight is genetically controlled character, it is also affected by availability of nutrient and moisture. The number of fruits

per plant is dependent on number of flowers produced per plant and per cent fruit set which in turn are dependent on the genetic makeup as well as the crop management practices and season in during which it is grown. The variation in number of fruits in chilli genotypes was also reported by Sandeep *et al.,* (2008), Ajjappalavara and Channagoudra (2009), Indu Arora *et al.,* (2015), Priyanka Bijalwan and Naidu Madhvi (2016), Yatagiri *et al.,* (2017), Bharadwaza *et al.,* (2018), Mena *et al.,* (2019) and Ngullie and Biswas (2019).

The number of fruits in present investigation manifested huge variation indicating the ample scope for selection of elite genotypes for this character. Yield per plant is complex character and is dependent on number of other characters like number of fruits per plant and average fruit weight. Most of the selections by the breeder are made based on yield.

In present investigation, yield per hectare ranged between 6.34 tonnes per hectare to 18.70 tonnes per hectare and thus created wide scope for imparting selection to develop high yielding variety. Though, yield is basically genetically controlled character, it is also deviated by season of cultivation as well as management practices.

During present investigation, thirty chilli genotypes were evaluated for their growth and yield attributing characters. It was observed that wide variability existed among different chilli genotypes. Based on various yield and yield attributing characters *viz*. days to fifty per cent flowering, fruit length, fruit breadth, fruit weight, number of fruits per plant, yield per plant and yield per hectare ; it was concluded that the genotype DPL-CA-8 was found to be most promising genotype. It recorded highest yield as well as better fruit length, fruit breadth and fruit weight. Similarly, the genotypes DPL-CA-4, DPL-CA-14, DPL-CA-25, DPL-CA-9 and DPL-CA-23 also recorded better performance during the investigation as compared to other genotypes.

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