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Growth, yield and important quality attributes chilli (*Capsicum* sp.) genotypes under the Sub Himalayan tracts of West Bengal

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ABSTRACT

An experiment was undertaken to study the performance of 65 chilli genotypes during the *rabi* (*i.e.* winter) season 2005-06 and 2006-07. Mean performance revealed significant variation in yield and quality characters among the different genotypes. Maximum green fruit yield was recorded in CA-29 (262.25 g/ plant), which was statistically *at par* with CA-47 (244.89 g/ plant). Higher yield was also recorded in CA-34 (233.38 g/ plant), CA-48 (232.62 g/ plant), CA-30 (230.27 g/ plant) and CA-40 (219.89 g/ plant). Ascorbic acid content in green fruit varied from 74.78 to 168.10 mg/100 g fresh. The highest capsaicin content in green fruit was recorded in CA-60 (2.08%) the lowest in CA-55 (0.19%). Highest amount of extractable colour in red ripe fruit was recorded in CA-55 (185.34 ASTA) followed by Utkal Abha (156.31 ASTA).

Key words: Chilli, capsaicin, genotypes, growth, quality, yield.

INTRODUCTION

Chilli (*Capsicum annuum* L.) is emerging as one of the commercial vegetable crops at the global level, and is probably most important vegetable after tomato (Grubeen, 6). It is also one of the most valuable and commercial vegetable and spice crops of West Bengal as well as in India. It is considered as one of the important cash crop in the northern parts of the West Bengal. Chillies are sold in local market or supplied to distant places as cash crop fetching a good return to the farmers. It is used for its pungency, colour and its spicy taste. Green chillies are also rich in vitamins A and C (Rahaman, *et al.*, 12). The average dry chilli yield of the country is low as compared to the progressive chilli producing countries like USA, Korea and Taiwan. Productivity of chilli in the Sub-Himalayan region is low (0.96 tonnes/ ha) as compared to national level (1.2 tonnes/ ha). Among several factors, lack of improved varieties is the main constraints for getting production. Studies on chilli genotypes revealed that great variation exists in ability to flowering, fruit set, yield and other qualitative attributes under different agro-climates (Wien *et al.*, 17; Rani, 14; Gupta, 7). Identification of a variety better suited for a particular region and its improvement is of immediate task to exploit its potential (Tembhurne *et al.*, 16).

Though a large number of varieties have developed from different research station but very few information is available for this agro-climatic region. Therefore, area based screening of superior genotypes is an important task for promoting its production, productivity and quality of the produce for improving the productivity of this crop is an important step to increase the production. Considering these points, the present investigation was undertaken to find out the suitable chilli genotypes for West Bengal.

MATERIALS AND METHODS

An experiment was conducted to study the performance of the 65 green chilli genotypes (among them 61 belongs under *Capsicum annuum* L. and rest 4 genotypes under *Capsicum frutescens* group) at the Experimental Farm (26°19'86" N latitude and 89^{0}23'53" E longitude) of Uttar Banga Krishi Viswavidyalaya, Pundibari, Cooch Behar, West Bengal during the winter season of two years. The experimental soil was sandy clay loam having pH 5.5, 0.91% organic carbon, 133.81 kg/ha available nitrogen, 45.62 kg/ha available phosphorus and 59.43 kg/ha potash. The climatic condition of this region is sub-tropical humid in nature. The experiment was laid out in randomized block design with three replications. Among the 65 genotypes, 58 (CA-1 to CA- 55 and CA-58 to CA-60) collected from different parts of the country and 7 were varieties collected from different research stations (Table 1). Healthy and uniform seedlings were transplanted in plots of 3.60 m × 3.0 m size with a spacing of 30 cm × 45 cm during Middle of November. The crops were grown with standard package of practices as suggested by Anon (1). Observations on yield attributing characters were recorded from

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Table 1. Collection area/ source of the different chilli genotypes.

Sl. No.	Variety/ cultivar	Collection area/ Source	Sl. No.	Variety/ cultivar	Collection area/ Source
1	CA-1	Raijanj, Uttar Dinajpur, W.B.	34	CA-34	Madhupur, Cooch Behar, W.B
2	CA-2*	Kaminighat, Coochbehar, W.B.	35	CA- 35	Madhupur, Cooch Behar, W.B
3	CA-3	Tufanjang, Coochbehar , W.B.	36	CA-36	Madhupur, Cooch Behar, W.B
4	CA- 4	Sealdah market, Kolkata, W.B.	37	CA-37	Madhupur, Cooch Behar, W.B
5	CA-5	Suri, Birbhum, W.B.	38	CA- 38	Madhupur, Cooch Behar, W.B
6	CA-6	Malda, W.B.	39	CA-39	Bhubaneswar, Orissa
7	CA-7	Haldi bari, Cooch Behar, W.B.	40	CA-40	Madhupur, Cooch Behar, W.B
8	CA-8	Balurghat, Dahshin Dinajpur, W.B.	41	CA- 41	Cooch Behar market
9	CA-9	Jalpaiguri, W.B.	42	CA-42	Cooch Behar market
10	CA-10	Jalpaiguri, W.B.	43	CA-43	Chilapata,
11	CA-11	Haldibari, Cooch Behar, W.B.	44	CA-44	Chilapata,
12	CA-12	Haldibari, Cooch Behar, W.B.	45	CA-45	Rajabhat Khawa, jalpaiguri,W.B.
13	CA-13	Ghugumari, Cooch Behar, W.B.	46	CA-46	Madhupur, Cooch Behar, W.B
14	CA-14	Pundibari, Cooch Behar, W.B.	47	CA-47	Madhupur, Cooch Behar, W.B
15	CA-15	Pundibari, Cooch Behar, W.B.	48	CA-48	Madhupur, Cooch Behar, W.B
16	CA-16	Balurghat, Dahshin dinajpur, W.B.	49	CA-49	Tufanjanj, Cooch Behar, W.B.
17	CA-17	Raiganj , Uttar dinajpur, W.B	50	CA-50	Chilapata,
18	CA-18	Balurghat, Dahshin Dinajpur, W.B.	51	CA-51	Tufanjanj, Cooch Behar, W.B
19	CA-19	Balurghat, Dahshin Dinajpur, W.B.	52	CA-52	Tufanjanj, Cooch Behar, W.B
20	CA-20	Murshidabad, W.B.	53	CA-53	Varanasi, UP.
21	CA-21	Murshidabad, W.B.	54	CA-54	Tufanjanj, Cooch Behar, W.B.
22	CA-22	Burdwan, W.B.	55	CA-55	Udaipur, Rajasthan
23	CA-23	Katwa, Burdwan, W.B.	56	C. Philhal	PAU, Ludhiana, Punjab
24	CA-24	Bolpur, Birbhum, W.B.	57	DKC-8	YSPUHF, Solan
25	CA-25	Beldanga, Murshidabad, W.B.	58	Utkal Abha	OUAT, Bhubaneswar, Odisha
26	CA-26	Delhi	59	Pusa Sadabahar	NSC, Delhi
27	CA-27	Delhi	60	G-4	Sungro Seeds Limited, Delhi
28	CA-28	Delhi	61	Pusa Jwala	NSC, Delhi
29	CA-29	Sajerpar, Cooch Behar, W.B.	62	PC-1	Lead Better Seeds Pvt. Ltd., Hyderabad.
30	CA-30	Dinhata, Cooch Behar, W.B.	63	CA-58*	Kalimpong, W.B
31	CA-31	Madhupur, Cooch Behar, W.B	64	CA-59*	Hashimara, Jalpaiguri
32	CA-32	Madhupur, Cooch Behar, W.B	65	CA-60*	Gunjabari, Cooch Behar
33	CA-33	Madhupur, Cooch Behar, W.B			

*Indicates that genotype belongs under *Capsicum frutescens* group (and rest under *C. annuum* L.).

ten randomly selected plants for each replications. Ascorbic acid in chilli fruit was determined by colorimetric method based on the reduction of 2,6-dichlorophenol indophenol by ascorbic acid and was expressed in milligram of ascorbic acid per 100 g of sample (Ranganna, 13). Capsaicin content (%) of green fruits is measured by spectrophotometer method as described by Sadasivam and Manickam (15). In this method capsaicin is extracted with ethyl acetate and then made to react with ethyl acetate

solution of vanadium oxychloride. Then it is read at 720 nm. Total extractable colour (in ASTA unit) of red fruits was measured by using American Spice Trade Association techniques as suggested by Pruthi (11). Statistical analysis were done as per method suggested by Gomez and Gomez (4).

RESULTS AND DISCUSSION

Perusal of the data presented in Tables 2 & 3 revealed that there was a significant variation with respect to yield and quality characters among the different genotypes. Significantly, the highest (468.54) number of fruits per plant was recorded in CA-60

Table 2. Number of fruits and yield of different chilli genotypes.

Genotype	No. of fruits per plant			Individual plant yield (g/ plant)			Fresh green fruit yield (tonnes/ ha)		
	1st Yr	2nd Yr	Pooled	1st Yr	2nd Yr	Pooled	1st Yr	2nd Yr	Pooled
CA-1	66.73	72.33	69.53	95.38	97.38	96.38	6.67	6.93	6.80
CA-2	49.30	89.93	69.62	81.96	116.31	99.14	5.31	8.59	6.95
CA-3	129.40	114.00	121.70	155.42	147.86	141.64	10.71	10.43	10.57
CA-4	146.20	126.13	136.17	175.31	143.21	159.26	12.24	10.63	11.44
CA-5	139.80	167.27	153.54	185.31	183.21	184.26	10.71	14.94	12.83
CA-6	122.53	162.00	142.27	112.66	172.25	142.46	8.82	13.19	11.01
CA-7	102.67	137.80	120.24	81.96	155.24	138.60	7.05	12.37	9.71
CA-8	114.07	128.27	121.17	132.19	165.84	149.02	10.53	10.87	10.70
CA-9	122.80	103.40	113.10	159.00	124.79	141.90	10.92	9.32	10.12
CA-10	93.00	153.93	123.47	154.33	197.05	175.69	8.92	14.67	11.80
CA-11	86.13	136.40	111.27	138.00	192.52	165.26	7.97	12.53	10.25
CA-12	69.53	103.93	86.73	104.08	104.62	104.35	6.01	9.13	7.57
CA-13	68.17	61.73	64.95	93.77	79.17	86.47	6.57	5.72	6.15
CA-14	68.27	75.20	71.74	88.06	97.04	92.55	6.24	6.84	6.54
CA-15	62.73	54.20	58.47	88.44	79.28	83.86	5.97	5.40	5.69
CA-16	125.60	151.73	138.67	151.13	221.04	186.09	11.04	14.41	12.73
CA-17	79.33	73.20	76.27	84.86	82.69	83.78	6.64	6.35	6.50
CA-18	97.13	85.40	91.27	143.17	124.79	133.98	8.85	7.38	8.12
CA-19	88.00	134.13	111.07	120.31	184.67	152.49	8.11	11.87	9.99
CA-20	80.13	60.33	70.23	134.16	76.73	115.45	8.91	6.27	7.59
CA-21	123.67	117.27	120.47	172.12	161.08	151.60	11.97	10.69	11.33
CA-22	117.13	110.73	113.93	159.75	152.73	156.24	10.96	10.28	10.62
CA-23	68.87	64.20	66.54	121.38	108.75	115.07	7.01	6.64	6.83
CA-24	89.33	117.33	103.33	112.92	149.06	130.99	7.85	10.71	9.28
CA-25	53.87	86.27	70.07	95.42	127.11	111.27	5.51	8.12	6.82
CA-26	116.27	125.93	121.10	154.50	164.10	159.30	10.66	10.85	10.76
CA-27	102.67	137.27	119.97	127.23	186.98	157.11	8.51	12.40	10.46
CA-28	163.73	146.53	155.13	206.59	197.63	207.11	13.76	11.77	12.77
CA-29	167.20	181.67	174.44	247.50	277.00	262.25	14.68	15.96	15.32
CA-30	158.60	147.73	153.17	223.15	217.38	220.27	14.37	13.10	13.74
CA-31	119.27	85.40	102.34	139.52	99.04	119.28	10.53	7.72	9.13
CA-32	100.33	86.47	93.40	182.31	185.27	183.79	8.11	7.53	7.82
CA-33	108.60	152.40	130.50	140.42	135.65	138.04	9.91	13.92	11.92

Contd...

Table 2 Contd...

Genotype	No. of fruits per plant			Individual plant yield (g/ plant)			Fresh green fruit yield (tonnes/ ha)		
	1st Yr	2nd Yr	Pooled	1st Yr	2nd Yr	Pooled	1st Yr	2nd Yr	Pooled
CA-34	123.77	190.53	157.15	205.38	261.38	233.38	11.57	16.42	14.00
CA-35	108.47	143.47	125.97	147.25	187.34	167.30	9.17	12.97	11.07
CA-36	102.13	161.07	131.60	158.77	241.33	200.05	9.57	15.38	12.48
CA-37	93.20	142.80	118.00	135.64	182.29	158.97	8.75	13.26	11.01
CA-38	89.33	162.60	125.97	151.38	228.65	190.02	7.84	15.60	11.72
CA-39	124.93	155.00	139.97	175.75	216.98	196.37	10.74	13.55	12.15
CA-40	119.33	187.27	153.30	175.94	263.83	219.89	10.42	16.39	13.41
CA-41	108.87	140.13	124.50	140.40	204.23	172.32	9.11	13.12	11.12
CA-42	90.13	139.53	114.83	137.62	198.52	168.07	8.62	12.51	10.57
CA-43	45.53	71.33	58.43	60.05	91.00	75.53	3.58	6.10	4.84
CA-44	97.73	140.87	119.30	119.19	181.94	150.57	8.62	12.76	10.69
CA-45	121.27	150.13	135.70	109.14	189.75	149.45	9.80	13.77	11.79
CA-46	113.60	182.40	148.00	149.67	245.94	197.81	9.22	15.95	12.59
CA-47	147.07	176.27	161.67	240.71	249.06	244.89	13.95	15.24	14.60
CA-48	128.67	170.20	149.44	221.38	243.86	232.62	12.57	15.20	13.89
CA-49	125.27	151.60	138.44	187.56	242.75	220.16	10.24	14.01	12.13
CA-50	124.20	102.67	113.44	157.29	135.92	146.61	11.53	9.75	10.64
CA-51	98.80	182.67	140.74	139.50	232.25	185.88	8.87	14.13	11.50
CA-52	124.53	166.20	145.37	163.46	231.83	197.65	10.92	14.56	12.74
CA-53	100.27	131.00	115.64	129.54	169.92	149.73	8.65	11.34	10.00
CA-54	112.20	151.77	131.99	149.65	200.79	175.22	9.72	12.66	11.19
CA-55	124.00	158.27	141.14	169.34	215.25	192.30	10.94	12.86	11.90
DKC-8	122.07	145.73	133.90	146.96	173.08	160.02	9.65	11.55	10.60
Pusa Sadabahar	121.47	126.87	124.17	112.89	176.83	154.86	8.83	11.70	10.27
Chilli Philhal	85.97	141.07	113.52	110.52	144.71	127.62	6.96	10.47	8.72
Pusa Jwala	95.87	83.73	89.80	119.33	97.93	108.63	7.63	6.90	7.27
Utkal Abha	109.47	180.47	144.97	110.71	96.06	103.39	9.86	15.37	12.62
G-4	104.60	75.87	90.24	145.13	125.67	135.40	8.96	7.08	8.02
PC-1	121.87	137.30	129.59	158.17	191.04	174.61	10.17	11.24	10.70
CA-58	78.20	81.87	80.04	105.96	113.92	109.94	7.20	7.42	7.31
CA-59	283.60	302.00	292.80	120.62	126.06	123.34	8.51	8.80	8.65
CA-60	460.87	476.20	468.54	97.29	106.60	101.95	6.96	7.12	7.04
Range	45.53-460.87	54.20-476.20	58.47-468.54	60.50-247.50	82.69–277.00	75.53-262.25	3.58-14.68	5.40-16.42	4.84-15.32
CD (P = 0.05)	8.24	7.79	7.98	9.02	8.52	8.65	1.17	1.44	1.30

followed by CA-59 (292.80) and CA-29 (174.44. But it was significantly less in CA-43 (58.43), which was statistically *at par* with CA-15 (58.47). Finding regarding the fruit number of Pusa Jwala is also corroborate with findings of Phulari (10). It was noted from the different chilli genotypes showed a variation among themselves and year to year with respect fresh green fruit yield. Among the different genotypes maximum fresh fruit yield was recorded in CA-29 (262.25 g/ plant, 15.32 tonnes/ha, respectively), which was statistically *at par* with CA-47 (244.89 g/ plant, 14.60 tonnes/ha, respectively). The higher

Table 3. Ascorbic acid content, capsaicin content and extractable colour content of different chilli genotypes.

Genotype	Ascorbic acid (mg per 100 g FW)			Capsaicin content in green fruit (%)			Extractable colour (ASTA)		
	1st Yr	2nd Yr	Pooled	1st Yr	2nd Yr	Pooled	1st Yr	2nd Yr	Pooled
CA-1	135.57	140.57	138.07	0.52	0.53	0.53	77.74	86.86	82.30
CA-2	102.96	104.39	103.68	0.84	0.83	0.83	81.51	78.57	80.04
CA-3	124.75	118.01	121.38	0.64	0.63	0.63	119.21	110.86	115.03
CA-4	111.53	114.15	112.84	0.23	0.24	0.24	126.42	129.26	127.84
CA-5	116.59	121.26	118.93	0.51	0.50	0.50	116.21	103.15	109.68
CA-6	121.01	124.25	122.63	0.37	0.39	0.38	91.12	102.24	96.68
CA-7	136.96	139.69	138.33	0.31	0.30	0.31	99.84	87.77	93.80
CA-8	74.78	75.94	75.36	0.48	0.48	0.48	75.43	82.90	79.17
CA-9	132.04	138.41	135.23	0.55	0.54	0.54	121.60	117.11	119.35
CA-10	140.27	132.86	136.57	0.74	0.75	0.75	119.39	123.05	121.22
CA-11	92.68	95.06	93.87	0.66	0.65	0.66	77.13	83.56	80.34
CA-12	128.02	120.70	124.36	0.78	0.78	0.78	106.19	111.73	108.96
CA-13	109.3	113.84	111.57	0.65	0.67	0.66	105.38	95.60	100.49
CA-14	158.24	154.34	156.29	0.57	0.59	0.58	101.89	97.92	99.91
CA-15	72.18	77.37	74.78	0.68	0.71	0.70	110.76	119.23	114.99
CA-16	137.93	135.67	136.80	0.30	0.30	0.30	76.88	71.27	74.07
CA-17	129.76	135.64	132.70	1.11	1.03	1.07	46.32	43.77	45.05
CA-18	102.94	98.54	100.74	0.60	0.63	0.62	107.93	111.89	109.91
CA-19	152.03	157.77	154.90	0.54	0.51	0.53	95.51	87.93	91.72
CA-20	168.69	161.33	165.01	0.26	0.27	0.26	56.66	50.57	53.62
CA-21	111.47	108.65	110.06	0.61	0.63	0.62	78.41	72.61	75.51
CA-22	119.90	124.33	122.12	0.52	0.50	0.51	70.75	68.04	69.40
CA-23	124.71	116.35	120.53	0.79	0.78	0.79	65.82	61.49	63.65
CA-24	131.46	125.57	128.52	0.49	0.48	0.48	92.82	97.44	95.13
CA-25	127.94	134.72	131.33	0.68	0.69	0.69	95.77	89.81	92.79
CA-26	104.53	111.77	108.15	0.41	0.42	0.42	81.87	77.52	79.70
CA-27	172.07	164.12	168.10	0.62	0.63	0.63	125.05	116.07	120.56
CA-28	113.27	109.12	111.20	0.65	0.66	0.65	115.75	109.17	112.46
CA-29	143.82	145.31	144.57	0.51	0.52	0.51	116.55	111.97	114.26
CA-30	131.19	131.97	131.58	0.36	0.36	0.36	79.44	84.18	81.81
CA-31	120.83	111.04	115.94	0.64	0.65	0.64	131.50	125.50	128.50
CA-32	109.40	107.12	108.26	0.55	0.55	0.55	98.16	93.41	95.79
CA-33	125.02	120.05	122.54	0.51	0.53	0.52	116.87	122.13	119.50
CA-34	112.31	115.62	113.97	0.34	0.32	0.33	92.17	88.17	90.17
CA-35	134.58	124.33	129.46	0.62	0.60	0.61	113.32	115.67	114.49
CA-36	139.78	130.80	135.29	0.36	0.35	0.36	104.27	111.99	108.13
CA-37	113.40	117.53	115.47	0.30	0.28	0.29	138.92	143.83	141.38

Contd...

Table 3 Contd...

Genotype	Ascorbic acid (mg per 100 g FW)			Capsaicin content in green fruit (%)			Extractable colour (ASTA)		
	1st Yr	2nd Yr	Pooled	1st Yr	2nd Yr	Pooled	1st Yr	2nd Yr	Pooled
CA-38	140.68	136.58	138.63	0.98	0.97	0.98	134.81	140.75	137.78
CA-39	140.93	134.66	137.80	0.45	0.47	0.46	101.95	96.62	99.29
CA-40	98.15	102.84	100.50	0.35	0.34	0.35	145.80	143.22	144.51
CA-41	117.54	111.96	114.75	0.31	0.31	0.31	77.05	81.89	79.47
CA-42	145.64	147.74	146.69	0.47	0.69	0.58	123.81	114.18	119.00
CA-43	107.1	111.95	109.53	0.44	0.67	0.55	83.74	89.69	86.71
CA-44	103.05	107.97	105.51	0.29	0.43	0.36	106.56	98.75	102.66
CA-45	120.6	123.71	122.16	0.66	0.67	0.66	43.43	36.15	39.79
CA-46	115.53	122.21	118.87	0.64	0.65	0.64	121.14	126.65	123.89
CA-47	126.36	123.11	124.74	0.37	0.36	0.36	60.81	65.78	63.29
CA-48	119.15	114.61	116.88	0.54	0.56	0.55	88.28	92.89	90.58
CA-49	113.23	113.23	113.23	0.64	0.63	0.64	149.91	154.72	152.32
CA-50	123.92	122.70	123.31	0.40	0.60	0.50	106.24	110.70	108.47
CA-51	135.77	128.02	131.90	0.44	0.42	0.43	97.42	93.45	95.44
CA-52	103.03	104.22	103.63	0.96	0.98	0.97	103.88	98.77	101.33
CA-53	124.56	125.93	125.25	0.46	0.69	0.58	129.48	123.22	126.35
CA-54	126.29	128.17	127.23	0.52	0.55	0.54	107.50	107.09	107.30
CA-55	152.48	156.88	154.68	0.19	0.19	0.19	190.95	179.73	185.34
DKC-8	128.15	123.79	125.97	0.36	0.36	0.36	152.36	133.57	142.97
Pusa Sadabahar	147.88	140.42	144.15	0.49	0.48	0.49	107.71	101.95	104.83
Chilli Philhal	122.35	127.04	124.70	0.56	0.56	0.56	138.56	145.24	141.90
Pusa Jwala	134.43	139.50	136.97	0.51	0.54	0.52	127.11	120.74	123.93
Utkal Abha	146.56	141.13	143.85	0.84	0.83	0.83	151.79	160.84	156.31
G-4	142.8	147.49	145.15	0.79	0.82	0.81	112.30	125.49	118.90
PC-1	107.60	104.16	105.88	1.16	1.21	1.19	144.36	140.62	142.49
CA-58	114.11	110.55	112.33	1.51	1.52	1.52	124.87	128.18	126.53
CA-59	102.95	106.59	104.77	1.68	1.69	1.69	76.54	74.66	75.60
CA-60	87.30	81.70	84.50	2.10	2.06	2.08	93.53	86.21	89.87
Range	72.18-172.07	75.94-164.12	74.78-168.10	0.19-210	0.19-2.06	0.19-2.08	46.32-190.95	43.77-179.73	45.05-185.34
CD (P = 0.05)	7.54	5.74	7.52	0.03	0.03	0.03	7.35	6.54	6.92

fresh fruit yield per hectare was also recorded in CA-34 (233.38 g/ plant, 14.00 tonnes/ha, respectively), which was also statistically *at par* with CA-48 (232.62 g/plant, 13.89 tonnes/ha, respectively), CA-30 (230.27 g/plant, 13.74 tonnes/ha, respectively), CA-40 (219.89 g/plant, 13.41 tonnes/ha, respectively). The lowest yield was recorded in CA-43 (75.53 g/ plant, 4.84 tonnes/ha, respectively), which was also statistically *at par* with CA-15 (83.86 g/plant, 5.69 tonnes/ha, respectively). The higher yield CA-29, CA-47, CA-34 and other genotypes might be due higher number of fruits per plant and moderate individual fruit weight. The genotypes CA-60 produced the highest number of fruits and CA-59 produced the second highest number of fruits but produced lower yield than the high yield genotypes could be due to

very low individual fruit weight. Hundal and Khurana (8) reported that fruit yield in chilli varied from 0.23 to 33.52 tonnes per ha. This finding support the observation on fresh yield of the present experiment.

Maximum ascorbic acid content (168.10 mg/100 g fresh) was recorded by CA-27, which was statistically *at par* with CA-20 (165. mg/100 g fresh). Significantly lowest ascorbic acid content (74.78 mg/100 g fresh) was observed in CA-15, which was also statistically *at par* with CA-8 (75.36 mg/100 g fresh). In an experiment Chaudhary and Samadia (2) reported ascorbic acid content of chilli was ranged from 70.83 to 237.30 mg/100 g fresh with mean value 151.38 mg/100 g fresh. Besides Deshpande and Anand (3) estimated ascorbic acid content ranged from 58.7 to 192.1 mg/100 g fresh. The significantly highest capsaicin in green fruit was recorded in CA-60 (2.08%) followed by CA-59 (1.69%) and CA-58 (1.52%). More than 1% capsaicin content was recorded in PC-1 (1.19%), CA-17 (1.07%). The significantly lowest capsaicin content in green fruit was recorded in CA-55 (0.19). Mathur *et al.* (9) reported that Tezpur variety of Indian chilli contains maximum capsaicin (4.27%) and it seems to be the hottest chilli in the world. Whereas, Govinda Reddy *et al.* (5) recorded the maximum capsaicin upto 0.52% in Variety LCA-235. Hence, the finding indicated that variation in capsaicin content might be due to different genotypes used for different experiment.

The significantly maximum extractable fruit colour was recorded in CA-55 (185.34 ASTA). The higher extractable fruit colour was also recorded in Utkal Abha (156.31 ASTA) and CA-49 (152.32 ASTA). The significantly lowest fruit colour was observed in CA-45 (39.79 ASTA), which was statistically *at par* with CA-17 (45.05 ASTA). From the above discussion it may be concluded that the genotype CA-29, CA-47 and CA-48 may be selected in further crop improvement programme under *terai* zone of West Bengal for their higher yield and good quality characters.

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