



Research Paper

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Evaluation of coriander (*Coriandrum sativum* L.) genotypes in hill zone of Karnataka

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ABSTRACT : Coriander (*Coriandrum sativum* L.) is the most important grain spice crop cultivated in considerable area in hill zone of Karnataka. The locally grown varieties are low in productivity thus giving poor returns to the farmers. Development of high yielding varieties suitable for hill zone especially in sandy loam soils is very important for improving the productivity of the crop. Varieties that are high yield potential under these climatic conditions will improve the productivity of the crop thereby increasing the net returns realized by the farmers without affecting cost of cultivation. Hence, the present study was undertaken at college of horticulture, Mudigere from January to March 2012 to know the performance and adaptability of promising genotypes. Among the seventy one genotypes evaluated with respect to growth and yield traits, the yield data emphasized the fact that the genotype DCC 37 (37.71 kg/ha), DCC 49 (31.64 kg/ha) and DCC 51(31.53 kg/ha) recorded maximum seed yield followed by DCC 8 (31.51 kg/ha), DCC 58 (29.44 kg/ha), DCC 59 (31.59 g / plant) and DCC 44 (31.20 g / plant) these genotypes can be used successfully for further breeding programmes.

KEY WORDS : Evaluation genotypes, *Coriandrum sativum*L., Coriander

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Coriander commonly known as “Dhania” (*Coriandrum sativum* L.) belongs to family Apiaceae. Coriander fruits are an important spice of many countries of Europe, Northern Africa, West, Central and South Asia. In the Mediterranean region, coriander cultivation dates back to ancient Egypt; in Europe, coriander is known since the middle ages. It is the most important grain spice crop cultivated in an area of 8124 hectares with the production of 6129 MT (Anonymous, 2012). The locally grown varieties are low in productivity thus giving poor returns to farmers. Development of high yielding varieties suitable for hill zone, especially in sandy loam soils is very important for improving the productivity of the crop. Hence, several promising coriander entries were evaluated for yield and other characters for identifying their suitability to the cultivation in hill zone.

RESEARCH METHODS

The trial was laid out at field, College of Horticulture, Mudigere (Chickmagalur), which located at 13^o- 25' N latitude, 75^o 45' E longitude and an altitude of 976 m above MSL. The present investigation was carried out during January 2012 –

March 2012. Seventy one genotypes were raised in Randomized Complete Block Design (RCBD) with two replications. Each genotype was raised in flat beds of 2.0 x 1.0 m in size and seeds were sown at the rate of 15 g per bed in row spaced 15 cm apart. Five randomly selected plants in each genotype in each replication were tagged for recording observations on plant characters and the mean values were subjected to statistical scrutiny. The following observations were recorded on plant height (cm), number of primary and secondary branches per plant, days to fifty per cent flowering, number of umbels per plant, number of umbellets per umbel, number of seeds per umbellet, days to maturity and seed yield kg per hectare.

RESEARCH FINDINGS AND DISCUSSION

The entries under evaluation varied significantly with respect to growth and yield traits are presented in Table 1. Regarding plant height, DCC 38 recorded maximum plant height followed by DCC 6 (45.60), DCC 21 (45.10), DCC 47 (43.90), DCC 51(43.80) and DCC 37 (42.09), minimum plant height was recorded in DCC 13 (31.39). Maximum number of primary

Table 1 : Growth and yield parameters of coriander genotypes										
Sr. No.	Genotypes	Plant height (cm)	No. of primary branches	No. of secondary branches	Days 50 % flowering	No. of umbels /plant	No. of umbellets /umbel	No. of seeds/ umbellet	Days to maturity (Days)	Seed yield kg/ha
1.	RCr-435	35.10	4.15	8.94	49.39	14.76	8.32	7.36	93.59	18.89
2.	RCr-436	36.60	4.08	8.38	47.19	15.16	8.26	7.29	93.84	21.56
3.	RCr-446	39.95	4.12	8.34	49.53	15.58	8.19	7.31	93.50	20.69
4.	Sadhana	35.43	4.21	7.11	48.77	17.10	7.95	6.43	91.65	21.60
5.	Sindhu	35.01	4.30	6.99	49.18	15.78	7.67	6.66	94.87	19.04
6.	Sudha	43.95	5.19	9.31	47.27	18.05	8.33	7.10	83.89	27.58
7.	Co-1	33.23	4.37	7.28	49.02	16.11	7.86	5.68	94.03	21.07
8.	Co-2	33.45	4.17	6.61	47.14	16.29	7.98	6.25	91.98	21.82
9.	Co-4	38.29	4.23	8.33	47.79	17.97	8.49	6.44	88.81	23.07
10.	Dharwad Local 3	32.89	3.99	5.80	51.52	13.73	5.03	4.82	92.91	17.56
11.	DWD 3	35.35	4.11	5.09	52.55	14.79	5.30	4.11	94.94	17.20
12.	Tarikere Local	32.06	3.93	5.04	52.04	14.72	6.06	4.49	95.97	13.80
13.	DCC 1	37.10	4.21	7.16	50.01	15.21	7.41	5.69	93.71	24.13
14.	DCC 2	32.89	4.33	6.13	52.15	14.79	6.24	5.37	92.06	15.98
15.	DCC 3	41.60	5.45	9.57	42.13	19.13	9.69	7.86	82.51	29.27
16.	DCC 4	42.60	4.16	6.68	49.98	14.98	7.28	5.93	82.70	25.76
17.	DCC 5	40.40	5.40	9.90	45.69	18.85	9.80	7.59	83.03	30.04
18.	DCC 6	45.60	5.37	9.57	47.14	18.42	7.95	6.21	83.01	29.00
19.	DCC 7	41.90	4.49	8.44	47.08	16.26	6.90	5.97	93.70	21.11
20.	DCC 8	38.70	5.42	9.68	41.10	21.61	9.94	8.30	82.87	31.51
21.	DCC 9	39.90	4.46	8.44	44.45	18.76	9.84	8.24	82.14	29.40
22.	DCC 10	40.00	5.12	8.69	46.57	18.46	9.33	7.78	82.85	29.31
23.	DCC 11	43.30	5.48	8.70	46.75	19.21	9.35	7.79	82.63	29.22
24.	DCC 12	40.50	5.38	9.08	42.65	19.24	9.90	7.81	82.64	29.13
25.	DCC 13	31.39	4.13	8.73	50.54	17.17	7.67	6.08	92.54	25.27
26.	DCC 14	42.20	4.54	8.21	44.72	18.00	8.61	6.60	93.54	24.91
27.	DCC 15	45.60	5.40	8.08	42.98	18.57	9.70	7.12	85.12	27.78
28.	DCC 16	38.90	4.01	6.20	46.91	16.59	5.74	4.68	94.44	21.31
29.	DCC 17	39.40	5.56	10.22	42.84	19.15	9.72	7.64	83.03	30.31
30.	DCC 18	37.50	4.07	6.19	49.50	15.45	5.67	4.74	93.86	20.29
31.	DCC 19	36.10	5.13	9.48	45.40	19.12	9.68	7.49	83.61	30.64
32.	DCC 20	34.80	4.27	8.60	43.26	18.25	8.05	6.20	94.55	27.69
33.	DCC 21	45.10	4.01	7.76	49.48	14.97	7.17	5.89	93.80	22.47
34.	DCC 22	38.80	4.28	7.12	51.94	16.98	6.06	4.40	94.31	22.78
35.	DCC 23	39.90	4.87	9.01	45.58	18.56	9.04	7.38	83.56	29.22
36.	DCC 24	34.80	4.19	7.01	49.02	16.18	6.84	4.84	95.13	20.07
37.	DCC 25	45.10	4.13	7.10	48.78	16.17	6.18	5.76	94.08	24.09
38.	DCC 26	37.34	4.24	8.09	49.02	16.28	7.72	6.18	94.59	20.27
39.	DCC 27	45.60	4.12	8.89	50.88	17.44	5.93	5.35	93.63	23.24
40.	DCC 28	43.60	4.00	6.79	51.00	16.72	6.17	5.71	94.07	28.20
41.	DCC 29	42.70	4.31	7.17	49.82	15.78	6.02	5.21	95.06	20.40
42.	DCC 30	36.50	4.82	9.30	45.50	17.85	9.33	7.28	84.11	29.89
43.	DCC 31	41.80	4.27	7.05	49.07	17.11	6.24	5.31	93.96	24.36
44.	DCC 32	43.50	4.83	7.03	50.58	13.94	5.96	4.72	94.97	23.56

Table 1 contd...

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45.	DCC 33	38.30	5.34	8.00	45.99	16.68	8.06	6.19	82.40	26.62
46.	DCC 34	41.10	4.27	7.34	47.02	16.94	7.75	6.15	93.63	19.62
47.	DCC 35	34.20	4.85	8.35	46.00	18.37	9.60	7.74	92.59	28.40
48.	DCC 36	37.90	4.22	8.97	43.72	18.28	9.71	7.72	86.02	29.38
49.	DCC 37	42.09	5.89	10.41	40.09	22.74	9.98	9.06	81.95	31.71
50.	DCC 38	45.70	4.19	8.49	43.62	18.97	8.89	7.84	84.14	29.47
51.	DCC 39	43.10	5.44	9.56	45.62	17.30	8.38	6.35	92.22	26.04
52.	DCC 40	43.80	5.36	8.87	43.11	17.32	9.27	7.79	83.59	28.60
53.	DCC 41	43.70	4.65	9.71	47.80	21.39	9.05	7.41	92.56	28.80
54.	DCC 42	32.51	3.96	7.35	50.89	13.66	6.92	5.46	92.70	15.84
55.	DCC 43	35.20	4.20	7.05	51.00	16.15	6.61	5.40	95.18	19.82
56.	DCC 44	39.00	5.53	10.05	41.15	19.78	9.93	7.96	82.94	31.20
57.	DCC 45	38.44	4.18	7.46	49.02	15.85	7.64	5.62	94.04	19.40
58.	DCC 46	45.10	5.73	9.68	44.01	17.45	9.25	7.69	83.22	29.44
59.	DCC 47	43.90	5.81	10.09	43.47	18.80	9.64	7.78	83.17	29.42
60.	DCC 48	37.90	4.24	8.39	43.35	18.12	8.77	7.33	94.98	25.53
61.	DCC 49	39.84	5.87	10.45	41.95	21.78	9.77	8.27	82.99	31.64
62.	DCC 51	43.80	5.58	10.21	41.96	21.40	9.72	8.34	82.68	31.53
63.	DCC 52	41.20	4.17	6.34	49.59	12.89	6.00	5.25	92.12	23.73
64.	DCC 53	38.30	5.54	8.41	41.50	17.53	8.11	6.21	92.74	27.91
65.	DCC 54	41.80	4.10	6.62	50.80	14.25	5.58	5.18	93.22	20.80
66.	DCC 55	39.30	4.09	6.97	50.02	14.84	5.10	4.44	92.77	24.87
67.	DCC 56	37.88	4.07	8.82	49.71	15.91	8.01	6.32	94.21	19.09
68.	DCC 57	36.73	4.26	7.04	48.87	15.19	6.74	5.40	93.60	19.51
69.	DCC 58	40.10	5.38	9.52	41.76	18.20	9.21	7.07	83.27	31.42
70.	DCC 59	41.10	5.58	9.96	41.78	18.24	9.24	7.38	85.48	31.29
71.	DCC 60	38.30	4.26	6.89	49.68	15.29	5.51	5.36	94.79	27.82
	Mean	39.44	4.65	8.14	47.00	17.16	7.93	6.47	89.70	24.98
	S.E.±	2.77	0.21	0.41	1.99	0.97	0.55	0.43	2.17	0.25
	C.D. (P=0.05)	7.81	0.59	1.17	5.63	2.72	1.55	1.21	6.13	0.70
	C.V. %	9.93	6.38	7.18	6.00	7.96	9.82	9.38	2.88	6.67

branches was recorded in DCC 37 (5.89) followed by DCC 49 (5.87), DCC 47 (5.81), DCC 46 (5.73) and DCC 51 (5.44), minimum number of primary branches was recorded in Tarikere local (3.93). Maximum number of secondary branches was recorded in DCC 49 (10.45) followed by DCC 37 (10.41), DCC 17 (10.22), DCC 51 (10.21), DCC 44 (10.05) and DCC 59 (9.96), minimum number of secondary branches was recorded in Tarikere local (5.04) these results are in agreement with the earlier findings of Hariprasadrao and Srinivasrao (2001), Patil (2003), Vashishtha and Malhotra (2005) and Selvarajan *et al.* (2002).

Among the seventy one genotypes DCC 37 (40.09) took minimum days to 50 per cent flowering followed by DCC 8 (41.10), DCC 44 (41.15), DCC 53 (41.50), DCC 58 (41.76) and DCC 59 (41.78) while the DWD-3 recorded maximum days to 50 per cent flowering. Maximum number of umbels per plant was recorded in DCC 37 (22.74) followed by DCC 49 (21.78),

DCC 8 (21.61), DCC 51 (21.40), DCC and 41 (21.39) while the genotype DCC 52 (12.89) recorded minimum number of umbels per plant. Maximum number of umbellets per umbel was recorded in DCC 37 (9.98) followed by DCC 8 (9.94), DCC 44 (9.93), DCC 12 (9.90), DCC 9 (9.84), DCC 49 (9.77) and DCC 51 (9.72) while the minimum number of umbellets per umbel was recorded in Dharwad local-3 (5.03). Maximum number of seeds per umbellet was recorded in DCC 37 (9.06) followed by DCC 51 (8.34), DCC 8 (8.30), DCC 49 (8.27), DCC 9 (8.27) and DCC 44 (7.96) while the minimum number of seeds per umbellet was recorded in DWD-3 (4.11). Variation in various yield attributing characters was reported by Agrawal *et al.* (2003), Prabhu and Balakrishnamurthy (2006).

Regarding the maturity of the genotypes under evaluation, Tarikere local (95.97), DCC 43 (95.18), DCC 24 (95.13) and DCC 29 (95.06) recorded maximum number of days

to maturity while DCC 37 recorded the minimum (81.95), followed by DCC 49 (82.99), DCC 44 (82.97), DCC 8 (82.87) and DCC 51 (82.68), the remaining entries were above ninety days duration hence, suffered heavily from terminal moisture stress and failed to set seed leading to poor yields. These results are in accordance with findings of Vashishtha and Malhotra (2005), Selvarajan *et al.* (2002).

The result indicated that DCC 37 recorded significantly maximum yield (31.71 kg/ha), followed by DCC 49 (31.64 kg/ha), DCC 51 (31.53 kg/ha), DCC 8 (31.51 kg/ha), DCC 58 (31.42 kg/ha) and DCC 44 (31.20 kg/ha) which were significantly superior to all other entries. The check Tarikere local recorded a yield of 13.80 kg/ha. The present findings are in conformity with the earlier results of Velayudham (2004) and Agrawal *et al.* (2003).

Conclusion:

The present investigation concluded that, the genotypes *viz.*, DCC 37, DCC 49, DCC 51, DCC 8 and DCC 44 performed best with respect to growth as well yield traits, these genotypes came to maturity within 85 days indicating their capability to thrive well in sandy loamy soils under hill zone of Karnataka.

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