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Performance evaluation of coriander genotypes for seed yield in Kymore Plateau and Satpura hills region of Madhya Pradesh

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Abstract
Madhya Pradesh is the leading state in area and production of seed coriander especially in the vertisols of Kymore Plateau and Satpura Hill agroclimatic zone. A study was undertaken to evaluate the performance of twenty eight ellite coriander genotypes for seed yield at JNKVV, Jabalpur from 2015-16 to 2017-18. Results revealed that significant difference among the genotypes indicating adequate variability in the material and response to selection may be accepted in the breeding programme for seed yield or any of its supporting characters under study. The seed yield in coriander genotype JD(Sl)-1 was found to be significantly superior to both the check varieties Hissar Anand and RCr-728. Maximum seed yield 6.28g/plant was reported in JD (Sl)-1 which was at par with WFPS 48.2 and ICS-4 with 5.97 and 5.60g seeds/plant respectively. However, the highest per cent increase in seed yield (24.71%) over the check variety of was noticed with coriander genotype JD(Sl)-1 from Jabalpur.

Keywords: Coriander, performance evaluation, vertisols and Kymore Plateau and Satpura Hill agroclimatic zone

Introduction
Coriander commonly known as "*Dhania*" (*Coriandrum sativum* L.) is an important seed spice crop of Apiaceae family having chromosome number 2n=22. It is an annual herb also known as the Chinese parsley, Cilantro, Dizzy corn and Japanese parsley. It is assumed to be originated in Western Europe and Asia. In India, it is mainly cultivated for both leaf and seed purpose. India is the largest producer, consumer and exporter of coriander in the world. India accounts for approximately 80 percent of the total world Coriander production. It is cultivated for seed purpose is cultivated mainly in the States of Madhya Pradesh, Rajasthan, Gujarat, Assam, West Bengal, Odisha, Uttar Pradesh and Andhra Pradesh, (Spices Board, 2019) [7]. The total area under coriander is 665190 ha. With the production of 866800 tonnes. As per the estimate of 2017-18, Madhya Pradesh is the leading state in area and production of seed coriander with 277410 ha. and 391460 tonnes production respectively (Spice Board, 2019) [7]. The crop is protandrous and often cross pollinated. Natural open pollination (cross pollination) ranged from 25-70% depending on the genotype and presence of pollinators. Hybridization by artificial crossing is rather laborious due to small size of flower buds and mechanical selfing or bagging of the buds, which invariably results in flower shedding. Hence, systematic germplasm collection and selection of promising types from the gene pool is the most useful method of crop improvement in coriander. Seed yield is a complex character governed by several other yield attributing characters, therefore an observation with respect to the extent of genetic variability for the major agromorphological traits reflects the status of variation available in hand for its effective utilization to breed improved varieties (Ameta *et al*., 2016) [1]. Therefore, in the present study, twenty six genotypes along with two National Check (Hisar Anand and RCr-728) received from various parts of the country under AICRPS were evaluated for growth and yield parameters to select the best suited variety for Kymore Plateau and Satpura hill Agro-climatic zone of Madhya Pradesh.

Materials and Methods
The present investigation was conducted at the field of the "All India Coordinated Research Project on Spices (AICRPS)", Horticultural Complex, Department of Horticulture, Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur. The experiment was conducted during *Rabi* 2015-16 to 2017-18 (3 years). The experimental site was located at an altitude of 411m from the mean sea level on 23˚10' North latitude and 79˚59' East longitude. Twenty six genotypes from different locations along with two checks (Hissar Anand and RCR-728) were tested for growth

and yield parameters for three consecutive years 2015-16 to 2017-18. The experiment was laid out in Randomized Block Design with three replication. Plot size was 3×2.4 m with a spacing of 30×10 cm accommodating 240 plants/plot. The seed were sown @ 15 kg/ha. The crop was sown during 2nd fortnight of November and harvested during 2nd fortnight of February up to First week of March in all the years. Soil was prepared to a fine tilth and the seed sown in rows. At 20 days after sowing (DAS), the plants were thinned 10 cm apart to maintain a uniform plant population. All the recommended agronomic practices were adopted for raising a good crop. Plants were uprooted at harvest. Threshing was done with wooden sticks and seeds winnowed to remove any impurities. The data on days to first flowering was recorded on plot basis, while ten randomly selected plants from each of the entry in each replication were tagged for recording the observations on plant height (cm), number of branches per plant, number of umbels/ plant, seed yield (g)/plant and Seed yield q/ha. Analysis of variance was carried out as per the procedure suggested by Panse and Sukhatme, 1963 [5].

Results and Discussion

The data on pooled analysis (Table-1) for three years (2015-16, 2016-17 and 2018-19) suggests that the material had adequate variability and response to selection may be accepted in the breeding programme for seed yield or any of its supporting characters under study. Similar results was reported by Kurubetta *et al.* (2017) [4] and Singh *et al*., 2018 [6] in coriander. The genotype RKC 17.1 was the earliest taking minimum days to first flowering (47.78) as against 56.78 and 59.78 in two national check Hisar Anand and RCr-728 respectively. Genotypes LCC 275 and LCC 200 were at par and took 48.55 and 48.89 days respectively for first flowering. The advantage to a genotype derived from early flowering is to be coupled with the conversion of source to sink during subsequent period, which solely depends on the genotype architecture and inherent genetic potential. Giridhar *et al*. (2014) [2], Datta reported similar significant variation in flowering in diverse coriander genotypes.

Plant height varied from 89.13 in WFPS 48.1 to 129.83 in NDCOR-100 which was significantly higher than both the check varieties. Number of branches was reported to be maximum (6.46) in genotypes JCR-401 followed by ACr-4 (6.28) and UD-857 (6.23) which was at par with each other and significantly superior to both the check. With regards to number of umbels per plant maximum values was observed in genotype NDCOR-86 (24.25) which was at par with UD-856 (23.78), DH-281 (22.96) and JD (Sl)-1 (22.43).

Considering the seed yield in coriander genotype JD(Sl)-1 was found to be significantly superior to both the check varieties. Maximum seed yield 6.28g/plant was reported in JD (Sl)-1 which was at par with WFPS 48.2 and ICS-4 with 5.97 and 5.60g seeds/plant respectively. Whereas, seed yield q/ha was highest in JD(Sl)-1 (20.74q/ha) followed by JD-2 (20.17) which was at par with each other. Lowest yield 13.11q/ha was reported in LCC- 276 genotype. The poor performance of this genotype may be attributed to their inability to cope up with low temperature during December ad January prevailing in this region. Kurubetta *et al*. (2017) [4] observed similar results in coriander genotypes. The highest per cent increase in seed yield (24.71%) over the check variety of was noticed with coriander genotype JD(Sl)-1 from Jabalpur followed by JD-2 (21.29%), RD-416 (19.36%), CS-245 (17.98%) and DH-281 (16.96%). Similar findings were also reported by Jain *et al*., (2002).

The genotype JD(Sl)-1 was superior in yield over other genotypes. The superiority of this genotype may be attributed to its wide adaptability, precocity and robust growth under Kymore Plateau and Satpura Hills region of Madhya Pradesh.

Table 1: Pooled data of CVT Trial on Coriander (2015-16 to 2017-18)

S. No	Varieties	Days to first flowering	Plant height	No. of branches/plant	No. of umbels/plant	Seed Yield/ plant (g)	Seed yield (q/ha)	Per cent increase in yield over check
1	JCR-389	57.00	115.08	6.19	16.29	5.19	16.95	1.92
2	JCR-401	54.33	121.19	6.46	20.61	4.75	16.90	1.62
3	UD-856	55.22	109.18	4.93	23.78	4.02	13.81	-16.96
4	UD-857	57.00	116.01	6.23	22.18	4.48	15.93	-4.21
5	WFPS 48.1	49.33	89.89	5.87	20.38	4.96	16.02	-3.67
6	WFPS 48.2	50.67	89.13	5.21	22.00	5.97	16.39	-1.44
7	RKC 17.1	47.78	91.01	5.59	17.32	3.67	14.17	-14.79
8	RKC-155	54.33	99.74	5.28	14.19	4.61	13.97	-16.00
9	CS 211	49.55	95.49	5.24	18.58	5.37	16.64	0.06
10	CS 228	52.44	96.44	5.25	17.04	4.87	18.74	12.69
11	CS 245	50.33	94.63	5.31	19.82	5.44	19.62	17.98
12	LCC 200	48.89	102.39	6.10	21.83	5.24	16.94	1.86
13	LCC 275	48.55	98.06	6.04	16.93	4.13	15.18	-8.72
14	LCC 276	49.11	94.65	6.10	16.32	5.39	13.11	-21.17
15	ACr-4	53.89	99.72	6.28	20.11	5.15	15.16	-8.84
16	ACr-5	54.89	103.42	5.74	21.12	5.01	16.42	-1.26
17	NDCOR-86	60.11	111.24	6.37	24.25	5.41	17.59	5.77
18	NDCOR-100	59.44	129.83	6.31	19.87	5.07	17.26	3.79
19	DH-318	61.55	117.73	5.62	19.35	4.73	19.10	14.85
20	DH-281	59.44	101.55	6.06	22.96	6.26	19.45	16.96
21	RD-416	58.67	111.40	5.60	18.99	4.65	19.85	19.36
22	RD-417	56.56	116.62	6.10	18.92	4.94	18.06	8.60
23	ICS-4	56.11	120.35	5.86	18.00	5.60	18.78	12.93
24	PD-1	53.00	105.99	6.00	21.67	5.12	15.66	-5.83
25	JD(Sl)1	56.00	113.15	5.72	22.43	6.28	20.74	24.71
26	JD-2	51.11	95.13	5.27	18.20	4.99	20.17	21.29
27	Hissar Anand	59.78	101.57	4.98	19.75	4.17	14.91	-10.34
28	RCR-728 (NC)	56.78	100.27	5.34	18.87	4.12	16.63	
	CD 5%	4.88	21.38	0.85	5.15	1.31	3.92	

	S.Em±	1.72	7.52	0.30	1.81	0.46	1.38	
	SEd	2.43	10.64	0.42	2.56	0.65	1.95	
	CV %	5.47	12.40	9.00	16.29	16.03	14.09	

Reference

1. Ameta HK, Ranjan JK, Kakani R, Mehta KR, Solanki S, Panwar RK *et al.* Genetic variability studies in Coriander (*Coriandrum sativum* L.) Inter. Journal of Seed Spices. 2016; 6(2):103-105.
2. Giridhar KS, Surya K, Rajani A, Sarada C, Naidu LM. Identification of potential genotypes of coriander (*Coriandrum sativum* L.) suitable for rainfed vertisols. Applied Biological Research. 2014; 16(2):1-6.
3. Jain UK, Singh D, Jain SK. Assessment of genetic variability in coriander. Annals of Plant and Soil Research. 2002; 4:329-330.
4. Kurubetta KD, Venkatesh J, Mesta RK, Tatagar MH, Kareem AM. Performance Evaluation of Coriander Genotypes for Seed Yield in Northern Transitional Zone of Karnataka. Research Journal of Chemistry and Environmental Sciences. 2017; 5(6):13-15.
5. Panse VG, Sukhatme PV. Statistical methods for agriculture workers. ICAR New Delhi, 1963, 281-286.
6. Singh A, Singh D, Agrawal, VP, Dayanand. Study of variability and heritability in coriander (*Coriandrum sativum* L.) genotypes under normal and limited moisture stress condition. Journal of Agriculture and Ecology. 2018; 5:50-55.
7. Spice Board Statistics, 2019. Spice Board of India, Ministry of Commerce and Industry, GoI. http://www.indianspices.com/