

SCREENING OF CORIANDER GENOTYPES FOR POWDERY MILDEW DISEASE RESISTANCE

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ABSTRACT: Twenty five genotypes of coriander were evaluated at Post Graduate Centre, UHS Campus, GKVK, Bangalore to screen the powdery mildew disease resistance, caused by *Erysiphe spp* is a serious disease. Among the genotypes, seventeen genotypes were highly susceptible, eight genotypes were susceptible and none of them showed resistance reaction.

Key words: Coriander, Powdery mildew, genotypes

INTRODUCTION

Coriander (*Coriandrum sativum* L.) belongs to family Umbelliferae (Apiaceae) and is believed to be native of the Eastern Mediterranean region and Southern Europe. Rajasthan contribute a large coriander growing as well as production areas. The seeds of coriander are used as a condiment or spice in curries, pickles and in cooking. Coriander seeds have many medicinal properties also. In view of the great economic importance of coriander, 0a powdery mildew disease is major problem of coriander cultivation in our country. Powdery mildew affected plants leading to production of small shrivelled seeds, thereby reducing the yield and quality. In the present investigation, screened the genotypes to assess the reaction type against powdery mildew incidence.

MATERIALS AND METHODS

The experiment was conducted at Post Graduate Centre, UHS Campus, GKVK, Bangalore in *rabi* season of 2012-2013 in a completely randomized design with three replications. The plants were raised in shade net conditions and coriander seeds were sown in earthen pots of 12 inches size filled with soil, sand and FYM in 1:1:1 proportion. Powdery mildew infected leaf samples were collected from the field. Spores were collected by tapping the leaf in sterile water. Powdery mildew spores collected in water was sprayed on to the coriander genotypes of 53 days old with the help of an atomizer. The reaction of each genotype for powdery mildew was scored, second, third and fourth week after inoculation. Disease intensity was scored on 0-4 scale as given by Kalra *et al.* (1995). Further these genotypes were grouped into 5 categories viz., immune, resistant, moderately resistant, susceptible and highly susceptible based on their reaction type.

Scale	Disease severity	Reaction type
0	No infection	Immune
1	Only lower leaves infected and stem free of infection	Resistant
2	More than 50% of leaves infected and stem infection slight	Moderately resistant
3	Nearly all leaves infected and stem also infected	Susceptible
4	All leaves stem and floral parts coated with a thick powdery mass.	Highly susceptible

RESULTS AND DISCUSSION

Twenty five genotypes were screened for resistance against powdery mildew disease. Reaction of the genotypes for powdery mildew incidence was recorded at second, third and fourth week of inoculation and are presented in Table 1. Further the genotypes were grouped into 5 categories by considering the disease intensity score at fourth week after inoculation (Table 2). The *rabi* season was favourable for powdery mildew disease incidence. Out of the twenty five genotypes screened at present 8 genotypes were susceptible and seventeen were highly susceptible and none of them showed immune, resistant or moderately resistant reaction. However, susceptible genotypes (DCC 4, DCC 20, DCC 26, DCC 32, DCC 38, DCC 68 and DCC 92) which were of early type except DCC 92 showed slow progress of disease when compared to highly susceptible genotypes. Variation in degree of resistance among different varieties or genotypes of coriander against powdery mildew has also been reported by Kalra *et al.*, (1995), Keshwal and Khatri, (1998), Kalra *et al.*, (2003). This slow mildewing character could be studied in detailed and further utilized in breeding programme.

Table 1. Disease scoring of coriander genotypes against powdery mildew.

S. No	Genotypes	Disease intensity score		
		Second week after inoculation	Third week after inoculation	Fourth week after inoculation
1.	DCC4	1	2	3
2.	DCC9	1	3	4
3	DCC17	2	3	4
4	DCC20	1	2	3
5	DCC25	2	3	4
6	DCC26	1	2	3
7	DCC31	2	3	4
8	DCC32	1	2	3
9	DCC34	1	1	3
10	DCC38	1	2	3
11	DCC40	2	3	4
12	DCC52	2	3	4
13	DCC59	2	3	4
14	DCC62	2	3	4
15	DCC63	1	3	4
16	DCC68	1	2	3
17	DCC74	1	3	4
18	DCC75	2	3	4
19	DCC78	2	3	4
20	DCC88	2	3	4
21	DCC89	2	3	4
22	DCC91	2	3	4
23	DCC92	1	2	3
24	Dharwad1	2	3	4
25	Ajmerlocal	2	3	4

Table 2. Reaction of Coriander genotypes against powdery mildew under shade net condition

Scale	Reaction type	Genotypes
0	Immune	Nil
1	Resistant	Nil
2	Moderately resistant	Nil
3	Susceptible	DCC 4, DCC 20, DCC 26, DCC 32, DCC38, DCC 34, DCC 68, DCC 92
4	Highly susceptible	DCC9, DCC17, DCC25, DCC31, DCC40, DCC52, DCC59, DCC62, DCC63, DCC74, DCC75, DCC78, DCC88, DCC89, DCC91, Dharwad1, Ajmer local

REFERENCES

- Kalra, A. Gupta, A. K. Katiyar, N. Srivastava, R. K. and Kumar, S. (2003). Screening of *Coriandrum sativum* accessions for seed and essential oil yield and early maturity. Plant Genetic Resources Newsletter, 133: 19-21.
- Kalra, A. Parameswaran, T. N. Ravindra, N. S. and Dimri, B.P. (1995). Effect of number of timing of application of dinocap on control of powdery mildew and yield of coriander cultivars. J. Agric. Sci., 79 (1): 7-11.
- Keshwal, R. L. and Khatri, R. K. (1998). Reaction of some high yielding varieties of coriander to powdery mildew. J. Mycology & Plant Path. 28 (1): 58-59.