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SURVEY ON POWDERY MILDEW (*ERYSIPHE POLYGONI* DC) DISEASE IN CORIANDER (*CORIANDRUM SATIVUM* L.) AT GWALIOR DIVISION

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Abstract: A survey on powdery mildew disease in coriander at Gwalior Division of Madhya Pradesh to assess the intensity of powdery mildew on the farmer's fields. It is an important disease of coriander in Guna district. Among the surveyed villages the minimum intensity of powdery mildew 14.73 per cent was recorded in Magroda village of Raghogarh block. However it was maximum 44.14 per cent in Bhadodi village of Raghogarh block. Out of the five Surveyed blocks the minimum disease intensity was recorded in bamori 20.79 per cent followed by Kumbhraj 27.22 per cent, Aron 30.18 per cent and Chachoda 34.79 per cent, while maximum intensity 36.65 per cent was recorded in Raghogarh block.

Keywords: *Coriandrum sativum*, Disease, Powdery mildew

INTRODUCTION

The coriander (*Coriandrum sativum* L.) is an important spice crop of India and its seeds (Fruits) and leaves are extensively used. Since very old time, Coriander is being used as a natural additives in cooking added to food in order to improve its appearance, flavor, texture as well as appetite.

It is an aromatic annual herb of 1-2 ft. height having diploid chromosome (2n=22) belonging to the family umbelliferae. The coriander crop is grown for its aromatic and fragrant leaves and fruits. The pleasant aroma is due to an essential element called at d- Linalol or coriandral . The essential oil content ranges from 0.1 to 1.3 percent in dry seeds. Besides essential oil, the seeds of coriander contain 18-21 percent fatty oils which are used in the cosmetic industries. The dried ground fruits used as condiment and are invariably a major constituent of curry powder employed for flavoring curries, soups, and sauces and in confectionery .

The coriander is a native of the Mediterranean region and is extensively grown in different countries such as India, USSR. Mexico, Poland, Hungary, U.S.A. India is the largest producer in the world. It alone accounts an area of 11, 3382 hectares with an annual production of about 37571 metric tones. The major coriander growing states are Rajasthan, Madhya Pradesh, Andhra Pradesh, Gujrat and Tamil Nadu, In Madhya Pradesh Several coriander cultivars are grown but the common ones are UD-1, CS-2, UD-2, UD-373 UD-436, CS-4, CS-208, G-5365 and R C R-41. Madhya Pradesh alone account an area of 37147 hectares with the average production of 9374 metric tones in 2002-2003. In M.P., coriander is grown in Gwalior, Guna, Indore and Mandsor districts.

The coriander crop suffers from different diseases which is one of the limiting factor in its production. Mukherji and basin (1986) listed twenty fungal pathogens and bacterium causing different diseases. Out of these some common fungal diseases are tem gal (*Protomyces macrosporus*), powdery mildew (*Erysiphe polygoni* DC), wilt (*Fusarium oxysporum f.sp. coriandrii*), stem rot (*Rhizoctonia* spp.) and blight (*Alternaria* spp.). Out of these powdery mildew is a very destructive disease and cause losses by deteriorating the quality of the seed and reducing the yield . It is observed that once the parasite establishes it self in the field it takes quits a heavy toll from year to year.

MATERIAL AND METHOD

The present investigations were undertaken at the research farm, College of Agriculture, Gwalior (M.P.) during 2003-04 on survey of powdery mildew of coriander. Fifteen varieties of coriander were used for screening against powdery mildew disease.

The fungicides were used in present investigation are given below :

Table 1.

SNo.	Trade Name	Common Name	Manufacturer
1.	Sulfex	Wettable sulphur**75%** WP	Indian Allied& Industrial Chemicals, Muzaffarnagar, U.P
2.	Bavistin	Carbendazim 50% WP	BASF India Ltd.
3.	Score	Difenoconazole	Syngenta India Ltd. Mumbai

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4.	Dithane M-45	75% WP	Agromore Ltd., Bangalore
5.	Saff	Carbendazim, 12%+ Mancozeb 63 %	UPL, Mumbai

Survey of the disease in Gwalior division

In Coriander (*Coriandrum sativum* L.) powdery mildew disease generally appears at flowering stage of the crop during the month of February to March. Prior to dealing with this disease it was thought necessary to have an estimate of the prevalence of the disease on farmers fields. Therefore, in the present study a well planned survey was also carried out in the coriander growing areas of the Guna district of Gwalior division. Farmers fields were periodically surveyed for recording the incidence of powdery mildew in Guna district of Gwalior division for one season.

Five blocks were randomly selected in Guna district. Five villages from each book and five fields from each village were randomly selected under the study. The observation for powdery mildew incidence were recorded by throwing quadrate method (one square meter) at four places to count number of disease and healthy plants. In this way percentage of powdery mildew incidence was calculated.

Plants showing symptoms of powdery mildew were given score as follows:

0- No symptoms
1- 1 trace 10% plants infected
2- Above 11 to 25% plants infected

Table 2.

Block	**Village**	**Percent disease intensity**
(1) Aron	Piproda maina	36.58
	Chirola	35.47
	Kushman Kharia	40.73
	Tomedi	20.21
	Chirola majra	17.92
Mean	-	**30.18**
(2) Raghogarh	Shripura	26.59
	Bhadodi	44.14
	Sodakhedi	38.05
	Bagnolakha	40.21
	Bhamar	34.00
Mean	-	**36.65**
(3) Kumbhraj	Lambachak	41.40
	Nathupura	37.18
	Wadnagar	23.77
	Polashpura	17.32
	Khudadipura	16.44
Mean	-	**27.22**
(4) Chachoda	Sunderpura	39.27
	Todichak	44.12
	Fitakhedi	31.34
	Gehunkhedi	30.31
	Netakhedi	28.95
Mean	-	**34.79**
(5) Bamori	Laloni	15.55
	Magroda	14.73
	Bhindra	25.84
	Lodera	19.81
	Viloda	25.69
Mean	-	**20.32**

5-Above 26 to 50% plants infected
7-Above 51 to 75% plants infected
9-More than 75% plants infected

The data on the disease incidence was recorded and the percent disease intensity (PDI) was calculated as follows:

$$PDI = \frac{\text{Sum of Numerical rating}}{\text{Total number of observations}} \times \frac{100}{9}$$

RESULT AND DISCUSSION

Survey of the powdery mildew disease in Gwalior division:

Coriander fields of five block of Guna District were surveyed during March 2003 to assess the intensity of powdery mildew on the farmer's fields and the results are summarized in Table . It is clear from the above table that powdery mildew is an important disease of coriander in Guna district as none as none of the surveyed villages fields were free from the disease. Among the surveyed villages the minimum intensity of powdery mildew 14.73 per cent was recorded in Magroda village of Raghogarh block. While it was maximum 44.14 per cent in Bhadodi village of Raghogarh block. Out of the 5 Surveyed block. The minimum disease intensity was recorded in bamori 20.79 per cent followed by Kumbhraj 27.22 per cent , Aron 30.18 per cent and Chachoda 34.79 per cent, while maximum intensity 36.65 per cent was recorded in Raghogarh block. The findings are closely related to the results of Das and Narain (1990) who reported the powdery mildew disease on mung. El-Meleigi and Al-Rokibah (1996) on wheat disease and Lo, and Wang (2000) had also recorded the fungal disease on wasabi (horseradish).

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