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## Survey powdery mildew disease (*Erysiphe polygoni* DC) of coriander (*Coriandrum sativum* L.) in Gwalior division (M.P.)

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**Abstract**

Coriander (*Coriandrum sativum* L.) is one of the most important spice crop in India. The powdery mildew disease caused by *Erysiphe polygoni* DC is one of the most destructive diseases of coriander causing severe losses in yield. Farmers have to spray fungicides regularly for management of disease. A field trial was conducted at the Department of Plant Pathology, Jawaharlal Nehru Krishi Vishwavidyalaya, and Jabalpur to study Survey to powdery mildew disease (*Erysiphe polygoni* DC) of coriander (*Coriandrum sativum* L.) in Gwalior division in year 2003. In the present investigation five blocks of Guna district were surveyed for powdery mildew which is an important disease of coriander of the district, during the survey, none of the field was found free from this disease. Among the surveyed villages, the minimum intensity of powdery mildew (14.73%) was recorded in Magroda village of Bamori block, while the diseases intensity was maximum (44.14%) in Bhadodi village of Raghogarh block.

**Keywords:** Coriander, *Erysiphe polygoni*, powdery mildew, fungicides

**Introduction**

The coriander (*Coriandrum sativum* L.) is an important spice crop of India and its seeds (Fruits) and leaves are extensively used. Incidence of pests and diseases are the major limiting factor in the cultivation of coriander. Since very old time. Coriander is being used as natural additives in cooking added to food in order to improve its appearance, flavour, 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 flavouring 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 tons. The major coriander growing states are Rajasthan, Madhya Pradesh, Andhra Pradesh, Gujarat 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 accounts an area of 37147 hectares with the average production of 9374 metric tons in 2002-2003. In M.P., coriander is grown in Gwalior, Guna, Indore and Mandson districts. The coriander crop suffers from different diseases which is one of the limiting factors in its production. Mukherji and basin (1986) listed twenty fungal pathogens and bacterium causing different diseases. Out of these some common fungal diseases are stem 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 itself in the field it takes quite a heavy toll from year to year.

**Methodology**

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

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was through necessary to have an estimate of the prevalence of the disease on farmer field. 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. Cultivator's 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 block and five fields from each village were randomly selected under the study. The observations for powdery mildew incidence were recorded by throwing quadrat (one square metre) at four places to count number of diseases and healthy plant. In this way percentages of powdery mildew incidence was calculated.

**Table 1:** Plants showing symptoms of powdery mildew were given score as follows

Grade	Per cent disease severity with description
0	No Symptoms
1	Trace to 10% Plants Infected
3	Above 11 to 25% Plants Infected
5	Above 26 to 50% Plants Infected
7	Above 51 to 75% Plants Infected
9	More than 75% Plants Infected

Per cent disease intensity (PDI) was calculated by using the following formula:

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

## Results and Discussion

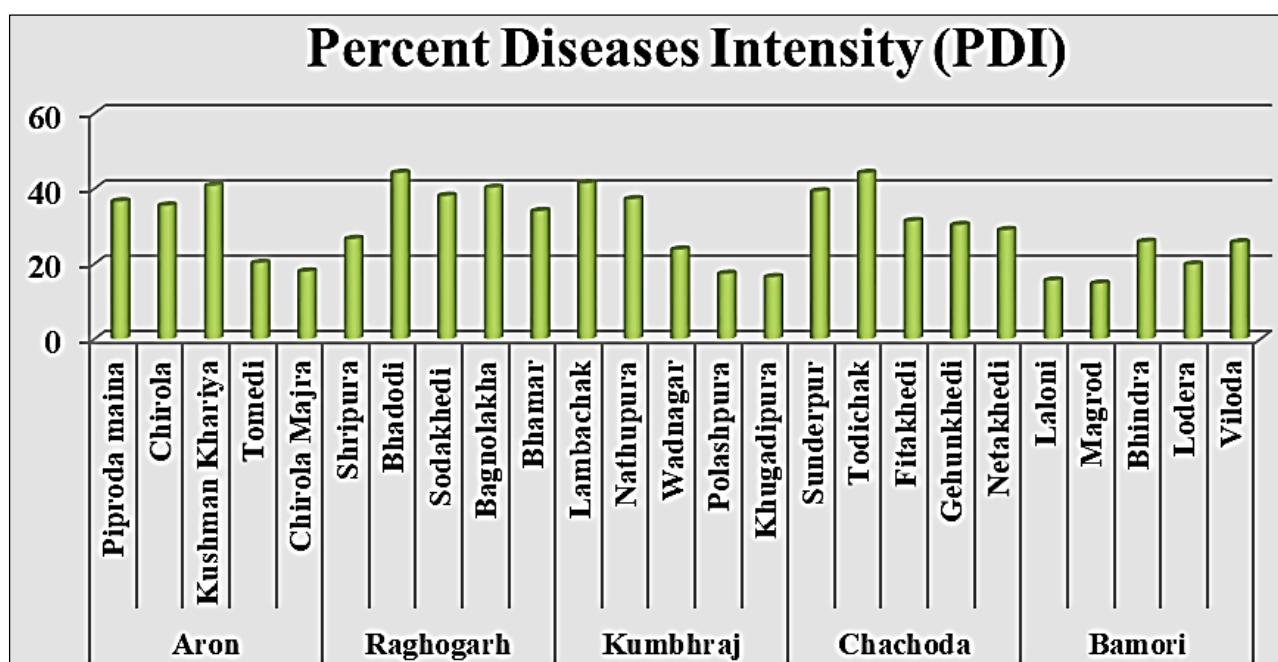
### Survey of the powdery mildew disease in Gwalior Division

Coriander field of five blocks of Guna districts were surveyed during March 2003 to assess the intensity of powdery mildew on the farmer's field and the results are summarized in table 1.1. It is clear from the above that powdery mildew is an important disease of coriander in Guna district as none of the surveyed fields were free from the district. Among the

surveyed villages the minimum intensity of powdery mildew (14.73%) was recorded in Magroda village of Raghogarh block. Out of the 5 surveyed blocks, the minimum diseases intensity was recorded in Bamori (20.32%) followed by Kumbhraj (27.22%). Aron (30.18%) and Chachoda (34.79%), while maximum intensity (36.79%) was recorded in Raghogarh block.

**Table 2:** Survey of the powdery mildew disease in Gwalior Division

S. no.	Block	Village	Percent diseases intensity (PDI)
1.	Aron	Piproda maina	36.58
		Chirola	35.47
		Kushman Khariya	40.73
		Tomedi	20.21
		Chirola Majra	17.92
<b>Mean</b>			30.18
2.	Raghogarh	Shripura	26.59
		Bhadodi	44.14
		Sodakhedi	38.05
		Bagnolakha	40.21
		Bhamar	34.00
<b>Mean</b>			36.65
3.	Kumbhraj	Lambachak	41.40
		Nathupura	37.18
		Wadnagar	23.77
		Polashpura	17.32
		Khugadipura	16.44
<b>Mean</b>			27.22
4.	Chachoda	Sunderpur	39.27
		Todichak	44.12
		Fatakadi	31.34
		Gehunkhedi	30.31
		Netakhedi	28.95
<b>Mean</b>			34.79
5.	Bamori	Laloni	15.55
		Magrod	14.73
		Bhindra	25.84
		Lodera	19.81
		Viloda	25.69
<b>Mean</b>			20.32



**Fig 1:** Survey of the powdery mildew disease in Gwalior Division Percent Diseases Intensity

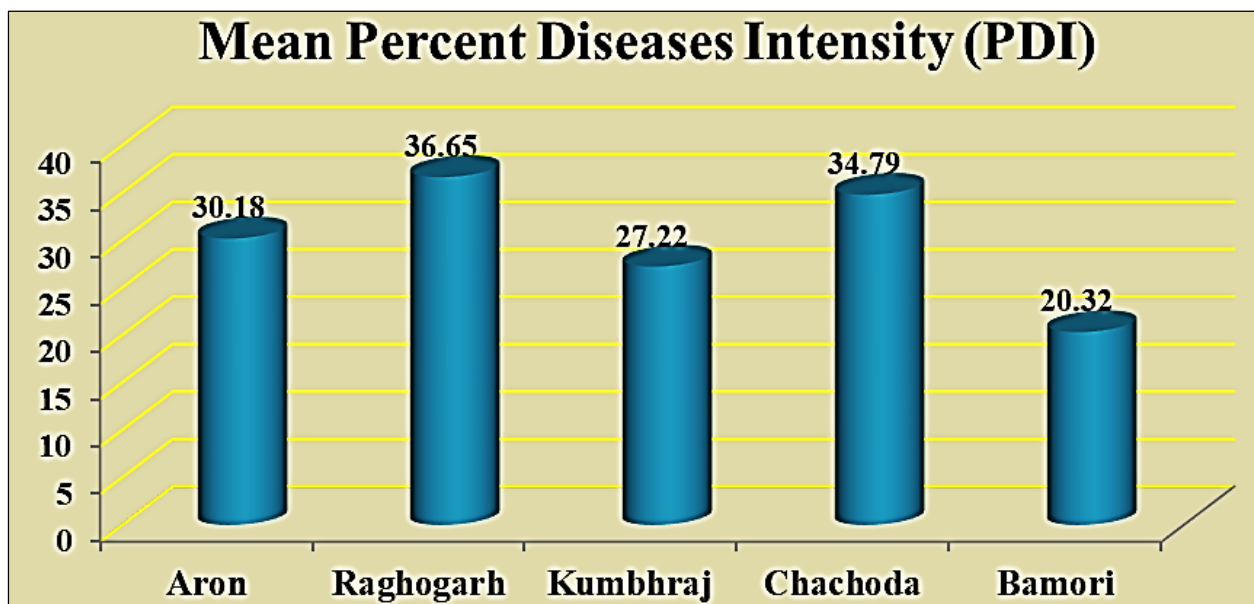


Fig 2: Survey of the powdery mildew disease in Gwalior Division Mean Percent Diseases Intensity

### Conclusion

Out of the 5 surveyed blocks, the minimum diseases intensity was recorded in Bamori (20.32%) followed by Kumbhraj (27.22%). Aron (30.18%) and Chachoda (34.79%), while maximum intensity (36.79%) was recorded in Raghogarh block. The above variation in the disease intensity of the disease may be mainly due to the environmental parameters, sowing time and varieties. Usually higher intensity of the diseases was observed in the field under late sown condition in which host genotypes were exposed to favourable condition for longer duration than the earlier planted genotypes

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