J. Farm Sci., 35(4): (523-524) 2022

RESEARCH NOTE

Survey of powdery mildew in major chilli growing areas of northern Karnataka, India

SABEENA I. BADEMIYYA AND S. A. ASHTAPUTRE

Department of Plant Pathology, College of Agriculture, Dharwad University of Agricultural Sciences, Dharwad - 580 005 Karnataka, India
E-mail: sabeehasabeena@gmail.com

(Received: November, 2018 ; Accepted: November, 2022)

Abstract: An intensive roving survey was conducted during *kharif* 2017-18 in four districts of chilli growing areas of northern Karnataka, *viz.*, Belagavi, Dharwad, Gadag and Haveri. The results of survey revealed that the disease severity varied from locality to locality in all the districts.The maximum per cent disease index was observed in Dharwad district (62.03 PDI) followed by Haveri (50.97 PDI) followed by Gadag (37.55 PDI) and least per cent disease index was noticed in Belagavi district (22.01 PDI). Kundgol taluk of Dharwad district had maximum disease severity (70.61 PDI). Least severity was noticed in Ramadurg taluk of Belagavi district (19.04 PDI)

Key words: Chilli, North interior Karnataka, Powdery mildew, Per cent disease index (PDI), Roving survey

Chilli (*Capsicum annuum* L.) is an important vegetable cum spice crop grown in both tropical and subtropical regions of the world.Chilli is a rich source of vitamin A, vitamin C and E, potassium and folic acid too. Chilli is valued for its pungency (imparted by an alkaloid, capsaicin) and the red pigments (capsanthin, capsorubin and capxanthin) (Sharankumar *et al.*, 2011). India is the major producer, consumer and exporter of chilli in the world. In India, the area under chilli cultivation during 2015 was 1.81 lakh ha and the production was 1.9 mt and productivity of 10.1Mt/ha. It is the second most important spice in the Indian export market (Anon., 2017). Among the diseses of chilli, powdery mildew caused by *Leveillula taurica* is a major constraint in chilli production causing yield loss of 42.82 per cent due to severe defoliation and reduction in size and number of fruits per plant (Ashtaputre, 2014).

Looking at the importance of chilli as a commercial/spice crop in Karnataka and India, present study was conducted to know the severity of powdery mildew of chilli in the major chilli growing areas of northern Karnataka.

An intensive roving survey was carried out during *kharif* 2017-18. Chilli fields of three taluks each of Dharwad (Dharwad, Kundgol and Navalgund), Belagavi (Bailhongal, Ramadurga and Savadatti), Gadag (Gadag, Mundaragi and Shirahatti) and Haveri (Byadgi, Haveri and Savanur) districts were surveyed.

In each taluk, three villages were selected for survey and in each village five fields were selected randomly on both sides of the road and in each field five spots of one square meter area were selected randomly. Powdery mildew severity was recorded by following 0-9 scale developed by Mayee and Datar (1986).

Score	Description
0	No symptom of powdery mildew.
1	Small scattered powdery mildew specks covering 1 % or less leaf area.
3	Small powdery lesions covering 1-10 % of leaf area.
5	Powdery lesions enlarged covering 11-25 % of leaf area.
7	Powdery lesions coalesce to form big patches covering 26-50 % of leaf area.
9	Big powdery patches covering 51 % or more of leaf area and defoliation occurs.

Powdery mildew of chilli disease rating scale (0-9)

Per cent disease index was calculated by using the formula given by Wheeler (1969).

$$PDI = \frac{\text{Sum of individual disease ratings}}{\text{Total No. of plants observed X Maximum disease rating}} \times 100$$

Among the different districts surveyed, Dharwad district had maximum severity of powdery mildew (62.03 PDI) followed by Haveri district (50.97 PDI) followed by Gadag district (37.55 PDI). Least severity of disease was observed in Belagavi district (22.01 PDI). Kundgol taluk of Dharwad district had maximum

Table 1. District-wise severity of chilli powdery mildew in major chilli growing areas of northern Karnataka during *kharif* 2017-18

Districts	Taluk	Mean per cent disease index	Mean per cent disease index of district
Belagavi	Bailhongal	20.08	22.01
	Savadatti	26.91	
	Ramdurga	19.04	
Dharwad	Dharwad	59.92	62.03
	Kundgol	70.61	
	Navalgund	55.66	
Haveri	Haveri	48.84	50.97
	Byadgi	52.86	
	Shiggavi	51.23	
Gadag	Gadag	46.97	37.55
	Mundaragi	30.31	
	Shirahatti	35.37	

disease severity (70.61 PDI). Least severity was noticed in Ramadurg taluk of Belagavi district (19.04 PDI) (Table1).

The maximum disease severity was recorded in Dharwad district (62.03 PDI) followed by Haveri (50.97 PDI) followed by Gadag (37.55 PDI) and least disease severity recorded in Belagavi (22.01 %). The data were collected during peak period of disease development in October and November months. Prior to September, even in experimental fields, there was no incidence of powdery mildew. The results are in agreement with the findings of several workers (Raghavendra, 2005, Solanki *et al.*, 1999; Saharan and Saharan, 1994; Raguchander and Rajappan, 1995; Moens and Welvaert, 1981 and Rotem and Cohen, 1966).

The highest severity of powdery mildew was attributed to the temperature and relative humidity prevailed during crop period, which was favourable for the chilli powdery mildew development and spread. Similar type of finding was made in chilli powdery mildew by Ashtaputre *et al.* (2007).

From the survey report it concluded that,among the four districts of northern Karnataka, Dharwad district to be considered as hot spot of powdery mildew disease of chilli.

References

Anonymous, 2017, *Horticultural Statistics at a Glance*, 2017, National Horticulture Board, Gurgaon, p.198.

Ashtaputre S A, 2014, Assessment of yield loss due to powdery mildew of chilli. *Trend Biosciences,* 7 (11): 1138- 1141.

Ashtaputre S, Kulkarni S, Rao M S L and Shivaprasad M, 2007, Management of powdery mildew of chilli using triazoles. *Journal of Plant Diseases and Protection*, 2 (2): 132-134.

Mayee C D and Datar V V, 1986, *Phytopathometry*. *Techical Bulletin No. 1* (*Special Bull. -3*), Marathwada Agricultural University, Prabhani, Maharashtra, India, p. 29.

Moens M and Welvart W, 1981, Varietal susceptibility of *Capsicum annum* to *Leveillulataurica* (Lev.) Arn. Exp. Sta. Nebhana, Omivan, Monastir, Tunisia. *Plant Diseases*, 83: 781.

Raghavendra, 2005, Epidemiology and management of chilli powdery mildew caused by *Leveillulataurica* (Lev.) Arn. *M. Sc. (Agri*.) *Thesis,* University of Agricultural Sciences, Dharwad, Karnataka (India).

RaguchanderT and Rajappan K, 1995, Relationship between powdery mildew and meteorological factors in urd bean. *Plant Disease Research*, 10: 5-9.

Rotem J and Cohen Y, 1966, The relationship between mode of irrigation and severity of tomato foliage diseases. *Plant Disease Reporter*, 50: 635-639.

Saharan G S and Saharan M S, 1994, Studies on powdery mildew of linseed caused by *Leveillulataurica* (Lev.) Arn. *Indian Journal of Mycology and Plant. Pathology*, 24: 107-110.

Sharankumar H, Roopa B and Mallappa M, 2011, Effect of milling methods on quality parameters of Byadgi chilli,

Solanki V A, Patel B K and Shekh A M, 1999, Meteorological variables in relation to an epiphytotic of powdery mildew disease of mustard. *Indian Phytopathology,* 52: 138 -141.