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Survey for disease severity of anthracnose of chilli cause by *Colletotrichum capsici* in Sehore district of Madhya Pradesh

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Abstract
The presented experiment was conducted at Dr. B. R. Ambedkar Samajik Vigyan Kendra Bordhi, Rehti, BRAUSS, Dr. Ambedkar Nagar in the *rabi* season 2019-20 and 2020-21. The field experiment was laid down in randomized block design with eight treatment and three replication. The eight treatment *viz.* Treatment T_1 (Sulphur 80% WP), T_2 (Azxystrobin 11 + Tebuconazole 18.3% WP), T_3 (Azxystrobin 18.2 + Difenoconazole 11.4% SC), T_4 (Tebuconazole 25% WG), T_5 (Trichoderma Viride 1% WP) T_6 (Eucalyptus oil) T_7 (Neem oil) and T_8 (control) were evaluated. The evaluation of average effect of Survey on percent disease intensity of both of the year the, the PDI was ranges from 45.26% to 50.69%. The maximum percent disease intensity was recorded in the Ashta block (50.69%) while the minimum percent disease intensity was found in Sehore (45.26%) block of Madhya Pradesh. The mean percent disease intensity was calculated (47.54%).

Keywords: Survey, PDI, Botanicals bio control and fungicide

Introduction
Chilli (*Capisicum annuum* L.) is a popular commercially cultivated hot tasting berry crop and it is the fourth major crop cultivated globally and belongs to Solanaceous family. Anthracnose disease is one of the major constraints to chilli producers resulting in huge yield loss. In severe cases, pre and post-harvest yield losses accounts up to 50 per cent in India (Sahitya *et al.*, 2014) [10]. The disease has been reported to cause 30-76 per cent yield loss in Tamil Nadu (Datar, 1995).

The chilli crop is subjected to various diseases caused by fungi, bacteria, viruses, nematodes and physiological disorders at different stages of development. These are mainly fruit rot: *Colletotrichum capsici* (Syd.) Butler and Bisby, damping off: *Pythium aphanidermatum* (Edson) Fitz, powdery mildew: *Levillula taurica* (Lev.) Arn., bacterial leaf spot: *Xanthomonas compestris pv. vesicatoria* (Doidge) Dye, Cercospora leaf spot: *Cercospora capsici* Cooke and Dry root rot: *Rhizoctonia solani* kuhn. Among the major diseases of chilli, Die-back of chilli caused by *Colletotrichum capsici* (Sydow) Butler and Bisby is one of the most destructive disease of chilli in India. Due to this disease more than 50% crop losses have been reported from different parts of India (Ramchandran *et al.*, 2007) [9]. The disease causes severe damage on red chilli fruits. Fruit rot mainly becomes problematic when it attacks mature fruits, causing both pre and post-harvest fruit decay, causing severe economic losses (Hadden and Black, 1988; Bosland and Votava, 2003) [6, 3].

The disease is seed & soil borne as well as air borne and affects seed germination and vigour to a greater extent (Ahmed, 1982 and Asalmol *et al.* (2001) [1, 2]. The pathogen *C. capsici* is seed transmitted in chilli in the form of acervuli and micro sclerotia (Perenzny *et al.*, 2003) and can also survive on other solanaceous or leguminious crops, plant debris and rotten chilli fruits in the field. The disease starting in the field may continue even after the fruits have been picked and put for drying and storage. The market value and nutritive value is degraded in the infected fruits resulting in poor quality seed. The disease was reported first time in India by Sydow in 1913 [12] from coimbatore of madras presidency (Sydow, 1913) [12]. Correct and accurate identification of the pathogen is crucial for effective disease management (Whitelaw-Weckert *et al.*, 2007) [13].

Material and Methods
Survey for the severity of chilli anthracnose disease, a rowing survey was conducted to know

the per cent disease intensity of chilli anthracnose in Sehore districts of Madhya Pradesh during Rabi 2019-20 when the crop was three to four months old. The four blocks like Asta, Rehti, Sehore and Nasrullagang were selected for conducting survey and each block the five villages were again selected, under the each village the five farmers or chilli field selected to evaluate accuracy of the disease seveority. A total of 100 fields spread over 20 villages were surveyed in sehore district then the sample were send to the laboratory and examine the symptoms of the psthogen.

Scoring of the disease severity by 0-5 point scale as given by Sharma (1986) [11] was adopted. The details of scales are as shown below.

1. No disease symptoms
2. A few spots towards tip covering 10 per cent leaf area.
3. Several dark purplish brown patch covering up to 20 per cent leaf area.
4. Several patches with paler outer zone covering up to 40 per cent leaf area.
5. Leaf streaks covering up to 75 per cent leaf area or breaking of the leaves from centre.
6. Complete drying of the leaves or breaking of the leaves from centre.

Per cent disease intensity (PDI) was calculated by using the following formula (Wheeler, 1969),

$$\text{Per cent Disease Intensity} = \frac{\text{Sum of numerical ratings}}{\text{Number of observations}} \times \frac{100}{5}$$

Result and Discussion

A random survey was carried out during the investigation, for evaluating the severity of chilli anthracnose disease during *Rabi* 2019-20 in sehore districts of Madhya Pradesh.

Table 1: Survey for Anthracnose of chilli in Sehore district of Madhya Pradesh during *Rabi* 2019-20

District	Blocks	Village	PDI %	Mean PDI %
Sehore	Ashta	Amkhedi	57.25	47.74
		Baman khedi	46.10	
		Bhagwanpur	57.21	
		Hatehpur	40.24	
		Hirapur	44.31	
		Average	49.02	
	Rehti	Salkanpur	69.72	
		Narela	30.65	
		Kheri	57.21	
		Phulado	57.19	
		Ratanpur	46.10	
		Average	52.17	
	Sehore	Amrol	65.74	
		Bamuliya	30.65	
		Bijlon	30.55	
		Rawali	40.24	
		Sangrampur	44.31	
		Average	42.29	
	Nasrullaganj	Charsa khedi	49.58	
		Dholpur	40.24	
		Tejpur	44.31	
		Kishanpur	67.77	
		Khanpur	35.60	
District mean			47.50	

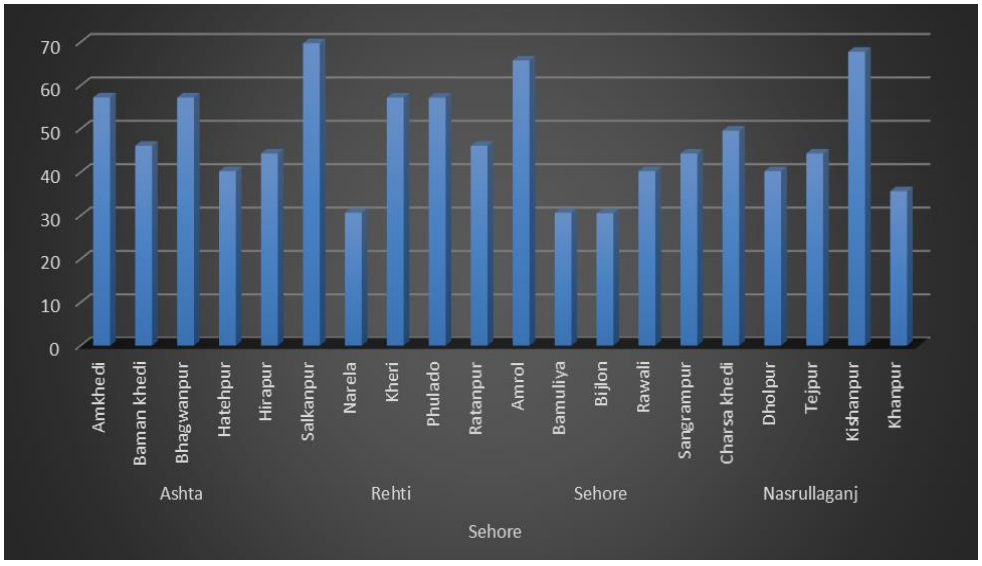

Fig 1: Survey for Anthracnose of chilli in Sehore district of Madhya Pradesh during *Rabi* 2019-20

The data presented in table1 and figure 1 indicated that the variation in per cent disease intensity. During the evaluation of percent disease intensity (PDI) in Ashta block of Sehore district, the PDI was ranges from 40.24% to 57.25%. The highest percent disease intensity was recorded in the Amkhedi (57.25%) village while the lowest percent disease intensity was recored in the Hatehpur (40.24%) village. The average percent disease intensity was calculated (49.02%).

During the evaluation of percent disease intensity (PDI) in Rehti block of Sehore district, the PDI was ranges from 30.65% to 69.72%. The highest percent disease intensity was recorded in the Salkanpur (69.72%) village while the lowest percent disease intensity was recored in the Narela (30.65%) village. The average percent disease intensity was calculated (52.17%).

During the evaluation of percent disease intensity (PDI) in Sehore block of Sehore district, the PDI was ranges from 30.55% to 65.74%. The highest percent disease intensity was recorded in the Amrol (65.74%) village while the lowest percent disease intensity was recored in the Bijlon (30.55%) village. The average percent disease intensity was calculated (42.29%).

During the evaluation of percent disease intensity (PDI) in Nasrullaganj block of Sehore district, the PDI was ranges from 35.60% to 67.77%. The highest percent disease intensity was recorded in the Kishanpur (67.77%) village while the lowest percent disease intensity was recored in the Khanpur (35.60%) village. The average percent disease intensity was calculated (47.50%). The variation in the disease severity in the farmers field might be due the changes in weather and climatic fluctuation or It might also be depends on microclimate of the chilli and the closely finding are Ekbote (2002) [5], Mayee and Datar, (1986) [7].

Conclusion

It is concluded that the highest disease severity was recorded in the salsanpur village of Rehti block that is 69.72% in the blocks of the Sehore district.

References

1. Ahmed SS. Studies on seed borne aspects of anthracnose of chillies caused by *Colletotrichum capsici* (Sydow) Butler and Bisby. *Ph.D.(Agri.) Thesis*, Univ. Agric. Sci., Bangalore, 1982, 73pp.
2. Asalmol MN, Kale VP, Ingle ST. Seed borne fungi of chilli, incidence and effect on seed germination. Seed Res. 2001;29(1):76-79.
3. Bosland PW, Votava EJ. Vegetable and Spice Capsicums. England: CAB International, 2003, P.233.
4. Datar VV. Pathogenicity and effect of temperature on six fungi causing fruit rot of chilli. Indian J. of Mycol. and Pl. Pathol. 1995;25:195-197.
5. Ekbote SD. Survey of chilli diseases in Haveri district. Karnataka Agricultural Sciences. 2002;15(4):726-728.
6. Hadden JF, Black LL. Anthracnose of Pepper Caused by *Colletotrichum* spp. Proceeding of the International Symposium on Integrated Management Practices: Tomato and Pepper Production in the Tropics; Taiwan; Asian Vegetable Research and Development Centre. 1988, Pp. 189-199.
7. Mayee CD, Datar VV. Phytopathometry. Technical Bull–1. Marathwada Agricultural University, Parbhani. 1986, 144 P
8. Pernezny K, Roberts PD, Murphy JF, Goldberg NP. Compendium of pepper diseases. The American phytopathological Society, 2003, 73.
9. Ramchandran N, Madhavi RK, Rathnamma K. Current status of chilli anthracnose in India. The first International Symposium on chilli Anthracnose. 25, Covention centre, Seoul National University, Korea, 2007, pp. 26.
10. Sahitya U, Lakshmi R, Sri Deepthi, Krishna M. Anthracnose, a Prevalent Disease in Capsicum. Research Journal of Pharmaceutical, Biological and Chemical Sciences. 2014;5(3):1583-604.
11. Sharma SR. Effect of fungicidal sprays on purple blotch and Bulb yield of onion. Indian phytopath. 1986;39(1):72-82.
12. Sydow H. Beritrage Zur Kenntisder Dilzflorade Sudlie Kenostindiens, 1913.
13. Whitelaw-Weckert MA, Curtin SJ, Huang R, Steel CC, Blanchard CL, Roffey PE. Phylogenetic relationships and pathogenicity of *Colletotrichum acutatum* isolates from grape in subtropical Australia. Plant Pathology. 2007;56:448–463.