

Original Research Article

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Survey on Powdery Mildew of Cucumber in Aurangabad and Jalna Districts, India

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ABSTRACT

Cucumber (*Cucumis sativus* L.) is one of the most popular and favorite vegetable crops in different parts of the world. Most species are climbing perennial herbs. Cucumber contains 0.4 per cent protein, 2.5 per cent carbohydrates, 1.5 mg iron, and 2 mg of vitamin C in 100 mg of fresh weight. Powdery mildew caused by *Erysiphe cichoracearum* (D.C.) is an important disease of cucurbits, particularly, cucumber is highly susceptible to this disease and suffers heavy losses in all localities of Maharashtra State, wherever it is grown. Survey of Cucumber powdery mildew incidence and severity exercised in the Jalna and Aurangabad districts revealed that in Jalna district, the highest disease incidence was found on saini cultivar (47.28 %) in Chomanwadi village of Jalna tahsil and lowest incidence was found in swati cultivar (20.10 %) in Ramnagar village of Jalna tahsil. The highest disease severity was found on gypsy (34.65 %) in Garadkheda village of Partur tahsil and lowest severity was found in Swati cultivar (10.24 %) in Ramnagar village of Jalna tahsil. The highest mean disease incidence was found in Partur tahsil (36.92 %) and the highest mean disease severity was found in Partur tahsil (24.75 %). In case of Aurangabad district, the highest disease incidence was found in saini cultivar (46.38 %) in Harnabadwadi village of Sillod tahsil and lowest incidence was found in Saini (20.53%) in Shendra village of Aurangabad tahsil. The highest disease severity was found in Gypsy (29.76%) in Wahegaon village of Gangapur tahsil and lowest severity was found in saini cultivar (13.26%) in Harsul village of Aurangabad tahsil. The highest mean disease incidence was found in Silod tahsil (35.21%) and the highest mean disease severity was found in Vajapur tahsil (22.52%).

Keywords

Cucumber,
Erysiphe
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Survey

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Introduction

Vegetables form an essential component of human diet for maintenance of good health. They supply carbohydrates, proteins, fats, vitamins, and mineral elements which are the most essential requirements of our body. Cucumber (*Cucumis sativus* L.) is belongs to

family cucurbitaceous is one of the most popular and favorite vegetable crops in different parts of the world. The family has two subfamilies and includes 118 genera and 825 species (Judd *et al.*, 2008). Most species are climbing perennial herbs. The family is important for edible fruits (Heywood *et al.*, 2007; Judd *et al.*, 2008). It is used either as

fresh fruits or in pickling industry. Cucumber contains 0.4 per cent protein, 2.5 per cent carbohydrates, 1.5 mg iron, and 2 mg of vitamin C in 100 mg of fresh weight. Fruits are good for people suffering from constipation, jaundice and indigestion (Anonymous, 2014). Powdery mildew caused by *Erysiphe cichoracearum* (D.C.) is an important disease of cucurbits, particularly; cucumber is highly susceptible to this disease and suffers heavy losses in all localities of Maharashtra State, wherever it is grown. Cucumber is found wild in Himalaya and in northern India (Molen, 2007/2008). Cucumbers have been grown in India for more than 3000 years and around 2000 B.C. was brought to the area around the Mediterranean Sea and Egypt (Bjelland, 1988).

Materials and Methods

A field survey of powdery mildew of cucumber was conducted in two district of Marathawada region during the month of December and February, 2014-16 to record occurrence and distribution of powdery mildew of cucumber. On an average 10 farmer's field of cucumber in each tehsil of each district were visited and the percent powdery mildew disease incidence was recorded by counting total cucumber plant in 1x1m² area and total dry root rot infected plants in that area. Cucumber plants showing typical symptoms were collected in separate paper bags and brought to the laboratory for investigations. The intensity of disease was noted by counting at least 200 plants in each field. Observation on powdery mildew intensity was recorded as, the symptoms expressed as the symptoms of the disease were first noticed on upper surface of lower leaves.

The white lesions increase in number; until they cover both leaf surfaces and stems, leaves that are seriously affected will become brown and shrunken. When young leaves are infected

it can result in chlorosis. When conditions are ideal the powdery mildew can cover the whole leaf, cause leaves to die, which results in premature defoliation. Powdery mildew may also cause reduced yields with failed maturity and small and deformed. Powdery mildew can appear in most parts of the cucumber plant, but is most common in young tissues on the upper side of the leaves. Similar results are given by Sitterly (1978) and Agrios (2005).

Results and Discussion

Prevalence of Cucumber Powdery Mildew and Their Severity

Survey of powdery mildew of Jalna District.

The disease incidence ranged from 20.10 to 47.28 % and the disease severity ranged from 10.24 to 34.65%. The highest disease incidence was found in Saini Cultivar (47.28%) in Chomanwadi village of Jalna tahsil and lowest incidence was found in Swati Cultivar (20.10%) in Ramnagar village of Jalna tahsil. The highest disease severity was found in Gypsy Cultivar (34.65%) in Garadkheda village of Partur tahsil and lowest severity was found in Swati Cultivar (10.24%) in Ramnager village of Jalna tehsil. (Table: 1, Fig. 1).

From the survey of different Cucumber field it revealed that powdery mildew disease was predominant in region but severity was varied. From the data collected, it was observed that in spite of regular fungicidal spray powdery mildew disease occurred in Jalna district and yield also obtained therefore are subjected to fluctuation of rainfall and humidity.

The data revealed that Table 2 and Figure 2, in 2015 mean Powdery Mildew incidence and mean disease severity were observed in five Tahsils of Jalna district ranged from 27.71 to 37.83% and 16.87 to 24.75% respectively.

Table.1 Survey of Cucumber Powdery mildew for Incidence and severity of Jalna district

Sr. No	Tahsil	Villages	Area (ha.)	Cultivar	Disease incidence (%)	Disease severity (%)
1	Jalna	Kadvanchi	0.20	Saini	45.20	32.34
		Viregawan	0.25	Hanni	42.30	31.60
		Ramnager	0.25	Swati	20.10	10.24
		Savargawan	0.30	Saini	40.10	22.35
2	Partur	Amba	0.20	Hanni	36.45	25.33
		Garadkheda	0.30	Gypsy	46.40	34.65
		Amba	0.25	Swati	28.30	18.80
		Watoor	0.15	Gypsy	40.20	20.23
3	Ghansavangi	Shevgal	0.10	Gypsy	38.33	18.54
		Jogladevi	0.20	Saini	20.16	14.12
		Eklahra	0.25	Hanni	25.31	20.21
		Hivara	0.35	No-800	27.33	14.63
4	Bhokardan	Kedarkheda	0.20	Gypsy	22.18	12.31
		Rajur	0.35	Hanni	33.12	13.60
		Chormanwadi	0.25	Saini	47.28	28.66
		Gokulwadi	0.10	Gypsy	34.42	21.22
5	Ambad	Antarwali	0.20	Saini	32.20	23.10
		Bangaon	0.15	No-800	28.60	20.36
		Ambad	0.25	Hanni	26.45	15.30
		Ramnagar	0.20	Saini	23.61	11.66

Table.2 Mean of disease incidence and severity in Tahsils of Jalna

Sr. no.	Tahsil	Mean Disease Incidence (%)	Mean Disease severity (%)
1	Jalna	36.92	24.13
2	Partur	37.83	24.75
3	Ghansavangi	27.78	16.87
4	Bokardan	34.25	18.94
5	Ambad	27.71	17.60

Table.3 Survey of cucumber powdery mildew for incidence and severity 2015 of Aurangabad district

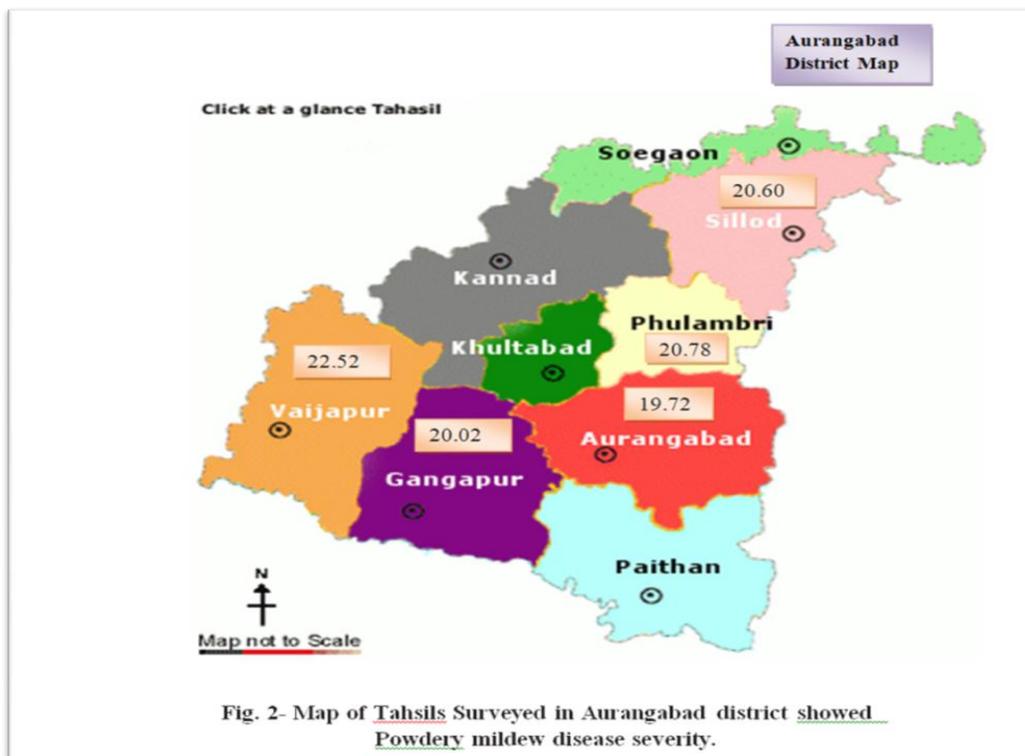
Sr. No	Tahsil	Village	Area (ha.)	Cultivar	Disease incidence (%)	Disease severity (%)
1	Aurangabad	Harsul	0.25	Saini	30.23	13.26
		Karmad	0.20	Gypsy	36.20	23.12
		Sendra	0.15	Saini	20.12	14.30
		Malegaon	0.30	Hanni	44.20	28.23
2	Silod	Golegaon	0.20	Saini	23.20	15.56
		Lehakedi	0.20	Gypsy	36.12	22.30
		Palodha	0.15	Swati	35.16	18.42
		Harnabadwadi	0.20	Saini	46.38	26.15
3	Vaijapur	Dahegaon	0.25	Gypsy	43.20	34.21
		Pimpalgaon	0.10	Gypsy	26.31	18.20
		Golwadi	0.15	Hanni	35.46	21.40
		Bendwadi	0.20	Saini	28.30	16.30
4	Gangapur	Sirasgaon	0.25	Saini	34.30	22.61
		Lasurstation	0.20	Gypsy	37.12	24.21
		Gangapur	0.15	N0-800	39.12	27.53
		Wahegaon	0.10	Gypsy	41.22	29.76
5	Phulambari	Takali	0.25	Saini	22.75	19.66
		Pathri	0.10	Gypsy	33.61	28.13
		Khamgaon	0.20	Hanni	31.20	18.20
		Wadodbazar	0.15	Sainis	28.46	17.15

Table.4 Mean of disease incidence and severity in Tahsils of Aurangabad

Sr. No.	Tahsil	Mean Disease Incidence (%)	Mean Disease severity (%)
1	Aurangabad	32.68	19.72
2	Silod	35.21	20.60
3	Vaijapur	33.31	22.52
4	Gangapur	37.94	20.02
5	Phulambari	29.00	20.78



Fig. 1 -Map of Tahsils Surveyed in Jalna district showed Powdery mildew disease severity



The highest mean disease incidence was found in Partur tahsil (36.92%) and lowest mean incidence was found in Ghansavangi tahsil (17.60%). The highest mean disease severity was found in Partur tahsil (24.75%) and lowest severity was found in Ghansavangi tahsil (16.87%).

Survey of powdery mildew of Aurangabad District

The disease incidence ranged from 20.12 to 46.38% and the disease severity ranged from 13.26 to 29.76%. The highest disease incidence was found in Saini Cultivar (46.38%) in Harnabadwadi village of Sillod tahsil and lowest incidence was found in Saini cultivar (20.53%) in Shendra village of Aurangabad tahsil. The highest disease severity was found in Gypsy (29.76%) in Wahegaon village Gangapur tahsil and lowest severity was found in Saini (13.26%) Harsul village of Auragabad tahsil (Table 3 and Fig. 2).

The data revealed that (Table 4) in this year mean disease incidence and mean disease severity were observed in five tahsils of Aurangabad district were ranged from 29 to 35.21% and 19.72 to 22.52 % respectively. The highest mean disease incidence was found in Silod tahsil (35.21%) and lowest mean incidence was found in Phulambari tahsil (29%). The highest mean disease severity was found in Vaijapur tahsil (22.52%) and lowest severity was found in Auragabad tahsil (19.72%).

Results of the present investigation correlates with the results of earlier worker of, Uppal *et al.*, (1939), Tarr (1987), Shidhar and Sinha (1989) and Rana *et al.*, (2006), Anonymous (2007-8) and Gore (2008).

Survey of Cucumber powdery mildew incidence and severity exercised in the Jalna and Aurangabad districts revealed that in Jalna district, the highest disease incidence was found on saini cultivar (47.28 %) in Chomanwadi village of Jalna tahsil and

lowest incidence was found in swati cultivar (20.10 %) in Ramnagar village of Jalna tahsil.

The highest disease severity was found on gypsy (34.65 %) in Garadkheda village of Partur tahsil and lowest severity was found in Swati cultivar (10.24 %) in Ramnager village of Jalna tahsil.

The highest mean disease incidence was found in Partur tahsil (36.92 %) and the highest mean disease severity was found in Partur tahsil (24.75 %). In case of Aurangabad district, the highest disease incidence was found in saini cultivar (46.38 %) in Harnabadwadi village of Sillod tahsil and lowest incidence was found in Saini (20.53%) in Shendra village of Aurangabad tahsil. The highest disease severity was found in Gypsy (29.76%) in Wahegaon village of Gangapur tahsil and lowest severity was found in saini cultivar (13.26%) in Harsul village of Aurangabad tahsil. The highest mean disease incidence was found in Silod tahsil (35.21%) and the highest mean disease severity was found in Vajapur tahsil (22.52%).

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