

OCCURRENCE AND SEVERITY OF POWDERY MILDEW ON CUCURBITS KHANESH REGION, JALGAON DIST.

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Survey of cucurbit powdery mildew in the state of Maharashtra in Jalgaon district indicated that the disease was prevalent throughout the region of the 10 cultivated and Two wild cucurbits encountered during the survey. Ten cultivated and the entire Two wild ones were found to be infected. Two of them, viz., *Coccinia cordifolia* (L). Cong. and *Coccinia indica* Wt. and Arm. The disease was more severe during March to May and September to November, mild to moderate during December to February and altogether absent during June to August. Perithecia of *Erysiphe cichoracearum* DC., were observed during December to February only in *Coccinia cordifolia* (L). in *Citrullus lanatus* and *Citrullus fishtulosus*.

Cucurbits are of great economic importance plant and as excellent source of vitamins, minerals and carbohydrates. Many of them form the staple food, both in fresh and preserved form (Paxton 1981). Powdery mildew of cucurbits caused by *Erysiphe cichoracearum* DC, and *Sphaerotheca fuliginea* (Schalant). Poll, are the major limiting factor in cucurbits cultivation in India (Khan et. al, 1976). In the present studies, an attempt was made to survey various cucurbits growing areas in Jalgaon dist. To assess the occurrence and severity of cucurbit powdery mildew.

MATERIALS AND METHODS

Cucurbit growing farms in each locality of the area were visited round the year 2004, 2005, 2006 and the observation were divided into four periods, viz., June to August, September to November, December to February and March to May, based on contrasting weather conditions during these four periods. The survey was repeated three during the year 2004, 2005, 2006 and mean of three observations was taken for each period and locality, in each locality five different plots and each plots five different beds were selected. Diseased plants were randomly selected at five different places in each bed.

RESULT AND DISCUSSION

Result in Table 1, show that one of the main characteristics of cucurbit powdery mildew in Jalgaon dist. was the production of two flushes of the disease – one during March to May and other during Septem-

ber to November. When most of the cultivated and wild cucurbits were found infected. Severity of disease ranged moderate to severe on all the cucurbits except *Citrullus lanatus* (Thum.) Mans. Which showed mild infection. Some cultivated cucurbits, viz., *Momordica charantia* were free from the disease in all the localities during all the four periods. Luxuriant growth of powdery mildew during December to February and September to November is understandable as during these period the temperature range between 20 to 25°C and relative humidity between 50 to 70% which approximate with those highly favorable for its developments as reported by Schnathorst (1965) and Yarwood (1957).

Although the disease was recorded on a few species of cucurbit in certain localities during December to February, intensity was low which presumable was due to low temperature (10 to 12°C) prevailing during the period. These results are in accord with the finding of Yarwood (1957) and Walker (1952). Production of ascospores on some of the cucurbit clearly indicated that the low temperature and humidity during this period favored the development of perithecia and retarded the development of mycelium.

The disease had not been detected on any cucurbit in all the localities surveyed during late May to mid-September as during the first half of this period, the temperature had been fairly high (37-40°C) and in the later half, there had been torrential rains. High temperature, according to Yarwood (1957), and torrential rains as reported by Yarwood (1978) and Boughey (1949) inhibit the development of powdery mildew.

The present studies provide enough evidence that the main factor affecting the cucurbit powdery mildew are moderate temperature and relative humidity. In such areas, where the above conditions are prevalent, one should avoid cultivating cucurbit species of which knowledge regarding its genetic make up in relation to these pathogens is not known. One can however, safely cultivate cucurbit species such areas, such as *Citrullus lanatus* and *Momordica Charantia*.

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Table 1 :- Occurrence and severity of cucurbit powdery mildew on various cucurbit crops in different localities of Jalgaon dist.

Cucurbit species/ localities	Chalisgaon			Pachora			Parola			Amalner		
	1	2	3	1	2	3	1	2	3	1	2	3
<i>Citrullus fistulosus</i>	+	-	-	+	-	-	+	-	-	+	-	-
<i>Citrullus lanatus</i>	+	-	-	+	-	-	+	-	-	-	-	-
<i>Coccinia indica</i>	++	+	++	++	-	++	++	++	++	+	+	++
<i>Coccinia cordifolia</i>	-	-	++	+	-	++	+	+	++	+	+	++
<i>Cucumis sativus</i>	-	++	+++	++	+	++	+	-	++	+	-	++
<i>Cucumis melon</i>	+	++	+++	++	+	++	+	+	++	+	-	++
<i>Cucurbit pepo</i>	-	++	++	-	+	++	+	+	++	+	-	++
<i>Cucurbit maxima</i>	-	++	+++	-	+	+++	-	+	++	+	-	+++
<i>Lagenaria siceraria</i>	+	++	+++	+	+	++	-	+	+++	++	++	+++
<i>Luffa acutangula</i>	+	++	+++	+	+	+++	-	++	+++	++	++	+++
<i>Luffa cylindrical</i>	+	+	+++	+	+	+++	+	++	+++	++	++	+++
<i>Momordica charantia</i>	-	-	+	-	-	+	-	-	+	-	-	+
Cucurbit species/ localities	Chopada			Yawal			Raver			Muktanagar		
	1	2	3	1	2	3	1	2	3	1	2	3
<i>Citrullus fistulosus</i>	+	-	-	+	-	-	+	-	-	+	-	+
<i>Citrullus lanatus</i>	+	-	-	+	-	-	+	-	-	-	-	+
<i>Coccinia indica</i>	+++	++	+++	++	++	+++	++	++	++	-	++	+++
<i>Coccinia cordifolia</i>	++	++	++	+	+	++	+	++	++	++	-	++
<i>Cucumis sativus</i>	++	+	++	++	++	++	++	++	+++	++	+	++
<i>Cucumis melon</i>	+++	++	++	+	+	++	+	+	+++	+	++	+++
<i>Cucurbit pepo</i>	-	++	+++	+	+	++	+	+	++	++	+	++
<i>Cucurbit maxima</i>	+	++	+++	++	+	++	++	-	++	++	-	++
<i>Lagenaria siceraria</i>	+	++	+++	++	+	++	++	-	++	++	+	++
<i>Luffa acutangula</i>	+	++	+++	+	+	++	+	+	++	++	+	++
<i>Luffa cylindrical</i>	-	+	++	+	+	++	+	+	++	+	-	++
Cucurbit species/ localities	Bhusawal			Jamner			Erendol			Jalgaon		
	1	2	3	1	2	3	1	2	3	1	2	3
<i>Citrullus fistulosus</i>	+	-	+	+	-	++	+	-	+	-	-	+
<i>Citrullus lanatus</i>	+	-	-	+	-	++	+	-	++	-	-	+
<i>Coccinia indica</i>	+++	++	+++	++	++	+++	+	-	++	-	++	+++
<i>Coccinia cordifolia</i>	+	+	++	+	+	+	++	-	++	-	++	+
<i>Cucumis sativus</i>	+	+	++	++	+	+	++	-	++	+	+	+++
<i>Cucumis melon</i>	+	++	+++	++	+	+++	++	+	++	+	+	+++
<i>Cucurbit pepo</i>	+	++	+++	++	+	++	+	+	+++	++	+	+++
<i>Cucurbit maxima</i>	+	+	+++	+	+	++	++	+	+++	++	-	++
<i>Lagenaria siceraria</i>	+	++	+++	+	+	+++	++	+	+++	+	+	++
<i>Luffa acutangula</i>	+	++	++	++	+	+++	+	+	++	+	+	++
<i>Luffa cylindrical</i>	+	-	++	++	+	++	+	+	++	+	+	++
<i>Momordica charantia</i>	-	+	+	-	+	+	-	-	-	-	-	+

+++ = Serious infection, ++ = Moderate infection, + = Mild infection, - = No infection
 Blank spaces indicate the absence of the crop in that locality. 1 = March to May;
 2 = September to November; 3 = December to February.

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