

INFLUENCE OF SOWING DATES AND VARIETIES ON DEVELOPMENT OF POWDERY MILDEW OF SESAMUM IN ASSAM

D.K. HAZARIKA*

Deptt. of Plant Pathology, B.N. College of Agriculture, Sonitpur - 784176, Assam
*Department of Plant Pathology, Assam Agricultural University, Jorhat - 785013, India.

Influence of sowing dates (August 8, 18, 28 and September 7 and 17) and varieties (Gauri, Pb-Til-No-1 and Madhavi) on the development of powdery mildew of sesamum was studied. Per cent disease index in early sowing (August 8 and 18) was significantly higher (76.86 and 84.85) as against least (47.0) in late sowing (September, 17). There was significant difference among different varieties, and also interaction of sowing dates x varieties. Highest disease index was obtained in variety Gauri (73.96) as against least in Pb-Til-No. 1 (60.00). Grain yield was also significantly influenced by sowing dates and varieties. The maximum yield was obtained (573.66 and 638.33 kg/ha) in early sowing crop (August 8 and 18) as against minimum (427.66 kg/ha) in late sowing (September 17). Significantly highest mean yield was obtained in variety Pb-Til-No. 1 (562.8 kg/ha) as against lowest in variety Gauri (478 kg/ha).

Keywords : Powdery mildew; Sesamum; Sowing dates; Varieties.

Introduction

Sesamum (*Sesamum indicum* L.) is an important oil seed crop grown extensively both in summer and kharif season in Assam. Among many damaging diseases known to attack sesamum, powdery mildew caused by *Oidium acanthaspermi*, chiddawar has been reported as an important disease in many parts of India^{1,2} and cause 25-30% loss in yield³. In Assam, the disease occur regularly in kharif season during later stages of its growth and causes considerable damage to the crop. Though chemical sprays have been found to be effective for controlling the disease^{2,4} but they are not economically feasible. The time of sowing is known to influence incidence of powdery mildew in different crops like green gram and pea^{5,6}. However, such kind of information is not available for powdery mildew of sesamum. In India, so far no effort has been made to elucidate information on effect of sowing dates on incidence of powdery mildew in sesamum. The present investigations were therefore, undertaken to findout influence of sowing dates and varieties on incidence of powdery mildew of sesamum in Assam.

Materials and Methods

A field experiment was conducted at B. N. College of Agriculture, Sonitpur, Assam during kharif season, where powdery mildew is known to occur in epiphytotic form under natural field condition. The experiment was laid out in split plot design with five dates of sowing (August 8, 18, 28 and September 7 and 17) in main plots and three promising sesamum varieties (Gauri, Pb-Til-No. 1 and Madhavi) in the sub plots. The size of the plot was 2m x 1.5m at a spacing 35cm and 15cm between row to row and plant to plant with three replications. All package and practices was done to raised the sesamum crop. The observation on development of disease was recorded at three days interval from fifty leaves randomly selected from each plot for powdery mildew reaction using 0 to 5 scales wherein,

0 = No infection

1 = 1-10% of the leaf area infected

2 = 11-25% of the leaf area infected

3 = 26-50% of the leaf area infected

4 = 51-75% of the leaf area infected

5 = < 75% of the leaf area infected.

Per cent disease index (PDI) was calculated with the help of formula -

Table 1. Effect of sowing dates and varieties on per cent disease index of powdery mildew in sesamum

Date of sowing	% Disease index			
	Gauri	Pb-Til-No. 1	Madhavi	Mean
8.08.96	84.58(66.89)	69.5(56.48) ^a	76.5(61.03)	76.86(61.46)
18.08.96	93.56(75.47)	75.5(61.01)	84.5(68.85)	84.85(68.44)
28.08.96	75.57(60.40)	61.5(51.65)	68.5(55.86)	68.52(55.97)
7.09.96	63.60(52.93)	51.5(45.86)	57.4(49.26)	57.5(49.35)
17.09.96	52.50(46.43)	42.0(40.39)	46.5(42.99)	47.0(43.27)
Mean	73.96(60.42)	60.00(51.08)	66.68(55.59)	
	<i>Date of sowing</i>	<i>Varieties</i>	<i>Interaction</i>	
S.Ed.	0.7883	0.6106	1.3654	
CD at (0.05)	3.31	2.56	5.73	

^aFigures in parenthesis are Arc Sine transformed value

Table 2. Effect of powdery mildew on yield of sesamum varieties at different dates of sowing.

Date of sowing	Yield (kg/ha)			
	Gauri	Pb-Til-No. 1	Madhavi	Mean
8.08.96	528	624	569	573.66
18.08.96	575	705	635	638.33
28.08.96	453	536	485	491.33
7.09.96	427	495	447	456.33
17.09.96	407	453	423	427.66
Mean	478	562.6	511.8	
	<i>Date of sowing</i>	<i>Varieties</i>	<i>Interaction</i>	
S.Ed.	8.578	6.644	N.S.	
CD at (0.05)	36.0276	27.908		

$PDI = \frac{\text{Sum of numerical ratings}}{\text{Total number of leaves examined}} \times \frac{\text{Maximum disease grade}}{100}$

The seed yield (kg/ha) was recorded on plot basis and statistically analysed.

Results and Discussion

The results clearly show that the incidence of powdery mildew can be much affected by sowing time (Table 1). In early planted crop (August 8 and 18) the per cent disease index was significantly higher (76.86 and 84.85) compared to the remaining sowing dates. The minimum disease index (47.0) was recorded in the late sown crop (17th September) which was also significantly least compared to other sowing dates. Moghe and Utikar⁵ reported that there was significantly higher disease in early sowing crop than the late sowing crop of mungbean. A significant difference in disease index was also obtained with different varieties. The highest disease index was recorded (78-96) in variety Gauri as against least (60.0) in variety Ph-Til-No. 1. The interaction effect between dates of sowing x varieties in respect of disease index was also found to be significant.

The different sowing time had also significant effect on yield of different varieties (Table 2). Highest yield (573.66 and 638.33 kg/ha) were recorded in early planting (August 8 and 18) as against lowest yield (427.66 and 456.33 kg/ha) in late planting (September 7 and 17). This indicates that the maximum disease index in early planting have no effect on grain yield. However, the grain yield was significantly influenced with late sowing crop. Similar types of observation were also obtained in anthracnose of mungbean by Thakur and Khare⁷. They reported that maximum disease in early planting has no effect on grain yield

in mungbean. A significantly different grain yield was also obtained with different varieties in different sowing time. Maximum grain yield was obtained in variety Pb-Til-No. 1 (562.8 kg/ha) as lowest in variety Gauri (478 kg/ha). However, interaction of sowing time and varieties have no significant effect on grain yield.

When the disease progress curves were drawn for different dates of sowing it was seen that, the early planted crop (August 8 and 18) had five peaks of increase as against the two peaks on the late planted crops. This might be due to the prevailing favourable environmental conditions during early part of the season. From the present studies, it was observed that powdery mildew of sesamum was though occur severely in the early planted crop, but has little impact on grain yield of sesamum. Therefore, it is advisable to grow sesamum in between August 10 to 30 to get highest yield in low disease prone areas of Assam.

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