



E-ISSN: 2278-4136

P-ISSN: 2349-8234

[www.phytojournal.com](http://www.phytojournal.com)

JPP 2021; 10(1): 261-263

Received: 16-11-2020

Accepted: 18-12-2020

**Chindam Swathi**

Department of Plant Pathology,  
College of Agriculture, Professor  
Jayashankar Telangana State  
Agricultural University,  
Rajendranagar, Hyderabad,  
Telangana, India

**Dr. Bharati N Bhat**

Department of Plant Pathology,  
College of Agriculture, Professor  
Jayashankar Telangana State  
Agricultural University,  
Rajendranagar, Hyderabad,  
Telangana, India

**Dr. G Uma Devi**

Department of Plant Pathology,  
College of Agriculture, Professor  
Jayashankar Telangana State  
Agricultural University,  
Rajendranagar, Hyderabad,  
Telangana, India

**Dr. G Sridevi**

Department of Plant Pathology,  
College of Agriculture, Professor  
Jayashankar Telangana State  
Agricultural University,  
Rajendranagar, Hyderabad,  
Telangana, India

**Corresponding Author:****Chindam Swathi**

Department of Plant Pathology,  
College of Agriculture, Professor  
Jayashankar Telangana State  
Agricultural University,  
Rajendranagar, Hyderabad,  
Telangana, India

## Survey on turcicum leaf blight in major maize growing areas of Telangana

**Chindam Swathi, Dr. Bharati N Bhat, Dr. G Uma Devi and Dr. G Sridevi**

**Abstract**

Maize (*Zea mays* L.) is one of the important cereal crops of the world. It is the world's third leading cereal crop, after wheat and rice. Maize crop was prone to several foliar and stalk rot diseases. Among the foliar diseases, the fungus *Exserohilum turcicum* (Pass.) Leonard and Suggs was a major foliar fungal pathogen affecting photosynthesis with severe reduction in grain yield to an extent of 28 to 91%. Hence, to know its damage and the extent of severity a survey was carried out in three major maize growing districts of Telangana. The highest mean maximum turcicum blight incidence was recorded in Karimnagar district (31.5%) followed by Mahaboobnagar (28.6%) and least disease incidence of 9.00 per cent was recorded in Dandumailaram village of Ranga Reddy district.

**Keywords:** Survey, maize, Turcicum leaf blight, *Exserohilum turcicum*, disease severity

**Introduction**

In Indian agriculture, maize occupies an important place after wheat and rice. It is grown throughout the year due to its photo-thermo insensitiveness and high grain yield potential among the cereals. Globally, maize is known as queen of cereals because it has the highest genetic yield potential among the cereals. With the introduction of high yielding hybrids both indigenous and exotic and use of chemical fertilizers, there has been a phenomenal increase in the area and production, but at the same time, it is prone to the attack of several foliar and stalk rot diseases. Among the foliar diseases affecting maize, turcicum leaf blight caused by *Exserohilum turcicum* (Pass.) Leonard and Suggs is of worldwide importance causing severe reduction in grain yield by 28 to 91 per cent Pant *et al.* (2001) [4]. Hence survey was undertaken to know the present status of this disease in major maize growing areas of Telangana.

**Materials and Methods**

To assess the extent of turcicum leaf blight disease severity, intensive roving survey was conducted in major maize growing areas of Telangana during *Kharif 2019*. Survey was conducted when the crop was at flowering stage to grain filling stage. In each district two mandals were selected, in each mandal two villages were identified and in each village two fields were surveyed. During survey, in each field 20 plants were randomly selected and the severity of the disease was recorded by following 1 to 5 scale given by Payak and Sharma, 1983 [5] and later the per cent disease index was calculated by the formula

$$PDI = \frac{\text{Sum of numerical rating}}{\text{Total number of plants observed} \times \text{Maximum rating}} \times 100$$

**Disease scoring scale for turcicum leaf blight disease of maize**

- 1.0 - Very slight to slight infection. One or two to few scattered lesions on lower leaves
- 2.0 - Light infection, moderate number of lesions on lower leaves only
- 3.0 - Moderate infection, abundant lesions on lower leaves, few on middle leaves
- 4.0 - Heavy infection, lesions abundant on lower and middle leaves, extending to upper leaves
- 5.0 - Very heavy infection, lesions abundant on almost all leaves, plants prematurely dry or killed by the disease.

**Results and Discussion**

A roving survey was conducted to assess the severity of turcicum leaf blight of maize in major in major maize growing areas of Telangana *viz.*, Karimnagar, Mahaboobnagar and Ranga Reddy districts during *Kharif 2019*.

Among the different villages surveyed, the mean maximum turcicum blight incidence was recorded in Karimnagar district (31.5%) followed by Mahaboobnagar (28.6%) presented in the Table 2. and Ranga Reddy (20.1%). The highest disease incidence of 45.0 per cent was recorded in Chinthakuntla village of Karimnagar district and least disease incidence of 9.00 per cent was recorded in Dandumailaram village of Ranga Reddy district and the data pertaining to survey were given in Table 3. Disease incidence of 35 per cent was recorded in munnanur village of Mahaboobnagar district.

Most of the maize varieties grown in Karimnagar district were hybrids KNMH- 141 and DHM- 117 whereas, in Mahaboobnagar district hybrid DHM-117 and Local varieties were grown. In Ranga Reddy district, local varieties followed by DHM- 117 and Kaveri Hybrid were common.

During survey, maize turcicum blight disease was more prevalent in black soil areas followed by sandy loam and minimum in red soil areas. In general, disease incidence was

higher in areas under irrigated conditions which indicated that *E. turcicum* flourishes well and causes more damage to plants when there is high humidity.

This variation in the occurrence of turcicum leaf blight of maize is attributed to varying climatic conditions at different locations surveyed, different hybrids cultivated etc. The findings of the present study are in agreement with earlier workers (Harlapur. 2005 and Khedekar *et al.* 2010) [2, 3] who stated that environmental conditions, intensive cultivation of maize crop season after season, year after year, narrow genetic makeup of the commercial hybrids and non-adoption of disease management practices by the farmers could be a reason for higher incidence of disease in these areas. Studies on turcicum leaf blight of maize in Uganda by Adipala *et al.* (1993) [1] revealed that the disease occurred in all areas sampled and was more severe in wet areas with relative humidity of more than 80 per cent in comparison to dry areas.

**Table 1:** Survey for the incidence of turcicum leaf blight disease of maize in karminagar district of Telangana

District	Mandal	Village	GPS		Irrigated/Rainfed	Variety	Crop stage	PDI
			Latitude	Longitude				
Karimnagar	Peddapalli	Gowreddipetta	18°37'1"	79°23'	Rainfed	KNMH- 141	Silking stage	31
			18°34'	79°22'	Rainfed	KNMH- 141	Tasseling and Silking	32
		Narayanapuram	18°36'1"	79°23'	Irrigated	DHM- 117	Tasseling	19
			18°33'	79°21'	Irrigated	DHM- 117	Tasseling	20
	Karimnagar	Chinthakuntla	18°26'	79°51'	Irrigated	DHM-117, KNMH-131, 141	Grain filling & Harvest stage	45
			18°26'	79°51'	Irrigated	KNMH-141	Grain filling	30
	Choppadandi	Kolimikunta	18°27'	79°81'	Rainfed	Local variety	Harvest stage	39
			18°27'	79°81'	Rainfed	Syngenta	Grain filling	36
							Mean	31.5

**Table 2:** Survey for the incidence of turcicum leaf blight disease of maize in Mahaboobnagar district of Telangana

District	Mandal	Village	GPS		Irrigated/Rainfed	Variety	Crop stage	PDI
			Latitude	Longitude				
Mahaboobnagar	Gopalpet	Thadiparthi	16°23'	78°06'	Irrigated	Madhuri	Silking stage	28
			16°22'	78°06'	Rainfed	DHM- 111	Soft dough	30
		Munнанur	16°25'	78°80'	Rainfed	DHM- 117	Grain filling	31
			16°25'	78°80'	Rainfed	Local	Grain filling	35
	Revally	Chennaram	16°24'	78°81'	Rainfed	DHM- 117	Grain filling	32
			16°24'	78°10'	Rainfed	Local	Tasseling & Silking	19
		Keshampet	16°21'	78°11'	Irrigated	Kaveri	vegetative	20
			16°21'	78°11'	Irrigated	Local	Harvest	34
							Mean	28.6

**Table 3:** Survey for the incidence of turcicum leaf blight disease of maize in Ranga reddy district of Telangana

District	Mandal	Village	GPS		Irrigated/Rainfed	Variety	Crop stage	PDI
			Latitude	Longitude				
Ranga reddy	Ibrahimpatan	Raipole	17°12'	78°44'	Irrigated	Local	Harvest stage	12
			17°11'	78°44'	Rainfed	Local	Vegetative	17
		Dandumailaram	17°14'	78°45'	Irrigated	Syngenta	Grain filling	9
			17°14'	78°45'	Rainfed	Kaveri	Grain filling	14
	Manchal	Arutla	17°08'	78°43'	Rainfed	DHM- 117	Milk stage	27
			17°08'	78°44'	Rainfed	DHM- 117	Tasseling initiation	30
		Manchal	17°06'	78°47'	Rainfed	Kaveri	Tasseling & Silking	16
			17°61'	78°47'	Rainfed	Local	Harvest	15
			17°19'	78°24'	Irrigation/Rainfed	DHM- 117, 111, 113.	Vegetative	41
						Mean	20.1	

## References

- Adipala E, Lipps PE, Madden LV. Occurrence of *Exserohilum turcicum* on maize in Uganda. Plant Disease 1993;77:202-205.
- Harlapur SI. Epidemiology and management of turcicum leaf blight of maize caused by *E. turcicum* (Pass.) Leonard and Suggs. Ph.D. (Plant Pathology). Thesis, University of Agricultural Sciences, Dharward 2005.
- Khedekar SA, Haralpur SI, Kulakarni S, Benagi VI, Desphande VK. Survey of turcicum leaf blight of maize in Northern Karnataka. Journal of Plant Disease Sciences 2010;5(1):24250.

4. Pant SK, Kumar P, Chauhan VS. Effect of turcicum leaf blight on photosynthesis in maize. *Indian Phytopathology* 2001;54(2):251-252.
5. Payak MM, Sharma RC. Disease rating scales in maize in India. In *Techniques of Scoring for Resistance to Important Diseases of Maize*. All India Coordinated Maize Improvement Project. Indian Agricultural Research Institute 2001, 1-4.