

A new invasive chilli thrips (*Thrips parvispinus*) in Telangana State

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Chilli is the major spice crop grown in Warangal, Jayashankar Bhoopalpally, Mahabubabad, Khammam, Suryapet, Gadwal, Nagarkurnool, Mahabubnagar and Adilabad districts (18⁰ N and 79⁰ E) of Telangana State. During *kharif*, 2020 chilli was grown in 1,17,765 acres and during *kharif* 2021 the area drastically increased to 3,58,557 acres. Usually chilli crop is attacked by Thrips, (*Scirtothrips dorsalis*) mites, pod borers, viruses etc. But, during November 2021, a new invasive thrips (*Thrips parvispinus*) was observed in all the chilli growing areas of Telangana State.

Survey

The scientists of Sri Konda Laxman Telangana State Horticultural University, Mulugu, Siddipet (dist), Telangana State conducted a survey during last the 3rd and 4th weeks of November on the new invasive thrips in the major chilli growing districts of Telangana State. The collected samples were sent to the ICAR-National Bureau of Agricultural Insect Resources (NBAIR), Bengaluru where the following species were identified.

S. No.	Places surveyed	Samples	Species Identified	Remarks
Sample-1	Villages: Chandrayapalle Mandal : Narsampet District : Warangal	Flower	<i>Thrips parvispinus</i> (Karny)	
			<i>Thrips hawaiiensis</i> (Morgan)	
Sample-2	Villages: Chandrayapalle Mandal : Narsampet District : Warangal	Flower	<i>Thrips parvispinus</i> (Karny)	
			<i>Thrips hawaiiensis</i> (Morgan)	
			<i>Thrips florum</i> Schumutz	
Sample-3	Villages: Chandrayapalle Mandal : Narsampet District : Warangal	Flower	<i>Thrips parvispinus</i> (Karny)	
		Leaves	<i>Thrips parvispinus</i> (Karny)	Mainly Larvae and Males
		Mixture	<i>Thrips parvispinus</i> (Karny)	
Sample-4	Village :Bodhigonda Mandal : Pedda Guduru District : Mahabubabad	Flower	<i>Thrips parvispinus</i> (Karny)	
		Leaves	<i>Thrips parvispinus</i> (Karny)	Leaf infestation was severe as compared to flower
		Mixture	<i>Thrips parvispinus</i> (Karny)	
Sample-5	Village :Kambalapalli Mandal : Mahabubabad District : Mahabubabad	Flower	<i>Thrips parvispinus</i> (Karny) <i>Thrips hawaiiensis</i> (Morgan)	95% was <i>T. parvispinus</i> a few females of <i>T. hawaiiensis</i> were there.
		Leaves	<i>Thrips parvispinus</i> (Karny)	Leaf infestation was not there, males dominated the population.
		Mixture	<i>Thrips parvispinus</i> (Karny)	
Sample-6	Village : Mudigonda Mandal : Mudigonda District : Khammam	Flower	<i>Thrips parvispinus</i> (Karny)	
		Leaves	<i>Thrips parvispinus</i> (Karny)	
		Mixture	<i>Thrips parvispinus</i> (Karny)	
Sample-7	Village : Dondapadu Mandal : Chintalapalem District : Suryapet	Flower	<i>Thrips parvispinus</i> (Karny)	
		Leaves	<i>Thrips parvispinus</i> (Karny)	
		Mixture	<i>Thrips parvispinus</i> (Karny) <i>Thrips florum</i> Schumutz	95% was <i>T. parvispinus</i> a few females of <i>T. florum</i> was also noticed.

Varietal Susceptibility

The farmers of Telangana state cultivate wide range of cultivars *i.e.*, local land races, varieties and high yielding hybrids. The local land race (Warangal Chapata) belongs to paprika which is growing in pockets of Warangal, Mulugu, Bhoopalapally and Khammam districts. Warangal chapata variety has big size flowers and bold pods with negligible pungency. The varieties developed by hybridization and selection (open pollinated) are also cultivated which are having thin and long pods. Under the category of F1 hybrids (Single cross hybrids) developed through hybridization, both the Tejaswini Segment (Thin pods with high pungency and small flower size) and Byadagi segments *i.e.*, paprika (Bold pods with negligible pungency) are cultivated. During the survey we observed that Warangal Chapata is more susceptible than Tejaswini segment and Byadagi segment. Of all the three varieties, Warangal Chapata flowers and fruits were severely affected as the flowers are big in size and fruits are succulent. It was observed that, varieties with big flower size had severe infestation compared to smaller flowers.

Nature of damage

Females of *Thrips parvispinus* were observed mostly on petals and below the stamens near the ovary. Whereas, males were congregating underside of leaves in large numbers and sucking the sap from the leaves as well as pods. Females are black in colour and bigger in size than the males. Males are in yellow colour and smaller than females. *Scirtothrips dorsalis* causes damage by sucking sap on the leaves and upward leaf curl is

observed. In case of *T. parvispinus*, they suck the sap from flowers, leaves and fruits. The infested flowers wither and there is no fruit set. Thrips suck sap from the lower surface and leaf is deformed. The fruits attain abnormal shape. If unchecked, it may lead to serious loss to chilli farmers.

Life cycle of *Thrips parvispinus*






Thrips parvispinus belongs to order Thysanoptera, sub-order: Terabratia and family Thripidae. It is observed that, these thrips are damaging flowers, leaves and fruits of chilli crop. Thrips lay eggs on the lower side of the leaves. From the eggs, larvae emerge. They pupate in soil or dried leaves and from the pupa, adults emerge. Adults lay around 20-30 eggs (Hutasoit *et al.*, 2017). It was observed that none of the samples sent for identification were having *Scirtothrips dorsalis* which was the major thrips species observed in chilli till last year. Further, research has to be conducted for ecology, life cycle and management of new thrips species. Research has to be done on whether any species replacement is observed in future studies.

The following management practices were effective to some extent:

1. Installation of sticky traps (Blue & Yellow) @ 50/ acre.
2. Application of neem oil (10000 ppm) @ 3ml/lit or Azadirachtin @ 3ml/l
3. Spraying of Fipronil 80% WG @ 0.2 g/lit or Cyantraniliprole @ 1.25 ml/lit or Acetamaprid @ 0.2 g /lit or Spinosad @ 0.3 ml/lit water as sequential sprays at weekly interval.

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<p><i>Thrips parvispinous</i> on chilli flower</p>	<p><i>T. parvispinous</i> damage on chilli plant</p>
	
<p>Damage on leaves</p>	<p>Damage on fruits</p>
	
<p>Adults of <i>Thrips parvispinous</i></p>	

Reference

Hutasoit, R.T., Triwidodo, H., and Anwar, R. 2017. Biology and demographic statistic of *Thrips parvispinus* Karny (Thysanoptera: Thripidae) in chili

pepper (*Capsicum annuum* Linnaeus). *Indonesian Journal of Entomology*, **14**: 107–116.

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