

Diversity of Mites on Vegetables in South 24 Parganas District of West Bengal



Zoology

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ABSTRACT

The present paper reports the occurrence of mites on vegetable crops grown in South 24 Parganas District of West Bengal and reports 34 species of mites under 18 genera and 8 families representing 3 orders. The hosts, their abundance, damages, caused, if any, and their importance are highlighted in this communication.

1.Introduction

West Bengal is at the top among the vegetable growing states of the country producing all types of summer and winter vegetables throughout the year. It is seen that the vegetables are often attacked by a large number of mites throughout the year and often cause considerable economic loss to the growers. Since no documentation was made earlier regarding mites occurring vegetable crops in South 24 pargana district of West Bengal, which is in fact a rich vegetable growing area of the state, an attempt has been made here to survey and document the mites on these crops from this region along with their economic importance, if any, and relative abundance. The present paper reports the results thereof. Some of the important works on mite infesting vegetables are: Puttaswami and Channabasavanna (1981) on influence of fertilizer on incidence of *Tetranychus ludeni*. Sadana and Gupta (1982, 1983) reported several mites on vegetables like cauliflower, tomato, bottle gourd, cabbage, etc. Sharma (1984) who screened different varieties of brinjal against *Tetranychus neocaledonicus*. Karuppuchamy and Mohanasundaram (1987) studied biology of chilli mite, *Polyphonus latus*. Pande et al. (1996) studied seasonal occurrence of *Tetranychus urticae*. Rai et al. (1999) worked out effect of weather factors on *Tetranychus ludeni* and its natural enemies. Gupta (2012) brought out a comprehensive account on mites occurring on agri-horticultural crops in India wherein he dealt with 36 types of vegetable covering both summer and winter ones are reported 40(+) species of phytophagous and predatory mite so far known from India.

2.Material and Methods

The surveys for mites were conducted during April, 2015 to March 2016. The places in the district of South 24 Paraganas, which were surveyed were Narendrapur, Canning, Diamond Harbour, Gosaba, Sagar island, Baruiapur, Sonarpur, etc and from there 23 types of vegetables, both summer and winter vegetables, were exam-

ined for occurrence of mites. At least 1-2 field trips were carried out in each month and mites were collected with the help of brush, moistened with alcohol and preserved in 70% alcohol. The entire collection of mites was identified by the junior author (SKG). The host/habitat records, nature of damage/ predatory importance, if any, were also recorded.

3.Results and Discussion

The examination of the collected material revealed the occurrence of 34 species of mites under 18 genera belonging to 8 families and 3 orders and all those have been listed in Table -1 along with their hosts/ habitats, relative abundance and nature of damage, wherever observed.

Among the 34 species, the most dominating species were *Tetranychus ludeni*, *Tetranychus macfarlanei*, *Tetranychus neocaledonicus*, *Tetranychus urticae*, *Panonychus citri* among Tetranychidae and Polyphagotarsonemus latus among Tarsonemidae. All these were not only most abundantly available but also were seen causing serious damage to the vegetable crops like papaya by *Panonychus citri*, beans and bitter gourd by *Tetranychus ludeni*, brinjal and cucurbits by *Tetranychus macfarlanei*, brinjal, beans, gourd, etc by *Tetranychus macfarlanei*, *Tetranychus neocaledonicus* and *Tetranychus urticae* while *Polyphagotarsonemus latus* appeared to be causing enormous damage on chilli crop. The damage symptom produced by these species on the respective crops have been mentioned in Table-1. The species like *Eotetranychus histri* on spinach and fig, *Aceria lycopersicae* on brinjal and tomato were seen regularly occurring causing greyish leaf erineum.

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			Table-1			
SPECIES	Location	Host	Period of occurrence	Status	Remark	
PHYTOPHAGUS						
ORDER -PROSTIGMATA						
FAMILY -TETRANYCHIDAE						

Eotetranychus histri	Narendropur	Spinach, Fig	January	2	Appears to be accidental occurrence as
Pritchard & Baker					raddish is not its normal host.
Oligonychus mangiferus	Saltlake, Narendropur	Tomato	March	3	Accidental occurrence
(Rahman & Sapra)					
Panonychus citri	Saltlake	Papaya	January	1	very serious infestation of both surfaces
(McGregor)					of leaves was attack causing chlorosis.
Schizotetranychus baltazari	Narendropur	Gourd	September	3	infestation caused yellowish green
Rimando					patches on upper surface of leaves
Tetranychus ludeni	Narendropur	Beans	September	1	The infested leaves turned yellow, gradu
Zacher		Bottle gourd			ally dried up, affected growth of plant.
Tetranychus macfarlanei	Narendropur	Cucurbita	October	1	The infested leaves turned yellow gradu
Baker & Prichard		Brinjal			ally dried up, affected growth of plant.
		Sponge gourd			
Tetranychus neocaledonicus	Narendropur	Beans	September	1	The infested leaves turned yellow gradu
Andre					ally dried up, affected growth of plant.
Tetranychus urticae	Narendropur	Brinjal		1	Most notorious pest, serious infestation
Koch		Moringa oleifera			caused chlorosis followed by browning
		Spinach			and drying of leaves, retarted growth
FAMILY- TENUPALPIDAE					
Brevipalpus creber	Narendropur	Sweet gourd	January	3	New report from India, no damage.
Brevipalpus essigi	Saltlake	Beans	March	3	Rare occurrence , no damage
Baker					
Brevipalpus obovatus	Howrah	Brinjal	March	3	Rare occurrence , no damage
Donnadieu					
Brevipalpus phoenicis	Narendropur	Cucurbita	September	3	Browning patches on infested leaf
Geijskes		Spinach	February		

Brevipalpus pulchur (Canestrini & Fanzagro)	Narendropur	Cucurbita	October	3	Accidental occurrence, no damage	
FAMILY -TARSON-EMIDAE						
Polyphagotarsonemus latus (Banks)	Narendropur, Howrah, Saltlake	Brijal Chilli Potato	December September	1	often very serious infestation especially on Chilli and Potato occurred caused crinkling of apical leaves finally dried and defoliated.	
FAMILY-ERIOPHY-IDAE						
Aceria lycopersicae	Narendropur	Spinach Moringa oleifera Tomato, Brinjal	January February	2	This mite caused production of excessive growth of hairs on under surface of leaves.[Erineum]	
PREDATORY						
ORDER-PROSTIGMATA						
FAMILY-STIGMAEIDAE						
Agistemus industani Gonzalez-Rodriguez	Saltlake	Chilli	December	2	occasionally recorded, no damage	
ORDER-MESOSTIGMATA						
FAMILY- ASCIDAE						
Lasioseius mcgregori Chant	Saltlake ,Narendropur	Tomato	January	3	Good predator of eriophid mite on Tomato	
FAMILY-PHYTOSEIDAE						
Amblyseius largoensis (Muma)	Narendropur, Saltlake	Better goat Chilli Papaya	January February September	1	Abundantly available during entire period of study and voracious feeder of spider mite	
Amblyseius orientalis Ehara	Narendropur	Papaya	September	3	Occur occasionally , no economic important available	
Euseius alstoniae (Gupta)	Narendropur	Papaya	September	1	Abundantly available good predator of P. latus	
Euseius delhiensis Ghai & Menon	Narendropur,Howrah	Papaya Kochu Brinjal	September October November	3	Occur occasionally , no economic important available	

Euseius finlandicus (Oudemans)	Saltlake ,Howrah	Papaya Kochu	September October	2	Median abundance ,occasionally feed on spider mite egg
Euseius sacchari Ghai & Menon	Howrah	Chilli	November	3	Casual occurrence
Neoseiulus longispinosus (Evans)	Narendropur	Cucurbita Beans	February January	1	Very efficient predator of all stages of Tettanichids
Neoseiulus paspalivorus (DeLeon)	Howrah	Better goat	September	3	Casual occurrence
Scapulaseius suknaensis (Gupta)	Saltlake	Citrules	October	2	Casual occurrence
Paraphytoseius bhadrakaliensis (Gupta)	Narendropur	Gourd	September	1	Casual occurrence
Paraphytoseius orientalis Ghai &Menon	Narendropur	Better goat Fig	September October	1	Abundantly available , mostly egg feeder
Phytoseius minutus Ghai &Menon	Narendropur	Fig	September	2	Abundantly available , mostly egg feeder
Phytoseius mizoramensis (Gupta)	Narendropur	Papaya	February	3	Casual occurrence
Typhlodromips syzygii (Gupta)	Narendropur	Beans	January	2	Moderate abundance,found feeding on all stages of Tetranychus urticae
FUNGIVOROUS					
ORDER-ASTIGMATA					
FAMILY- ACARIDAE					
Tyrophagus putrescentiae (Schrank)	Howrah	Brinjal	September	2	Fungal associated mite
Rhizoglyphus echinopus (Fumouze & Robin)	Narendropur	Gourd	September	3	Fungal associated mite

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