

## DIVERSITY OF MITES OCCURRING ON FRUIT TREES IN SOUTH AND NORTH 24 PARGANAS DISTRICTS OF WEST BENGAL WITH THEIR ECONOMIC IMPORTANCE AND NEW RECORDS FROM INDIA



### Zoology

**Barshana Kundu** M.Sc student, PG Department of Zoology, Vidyasagar college, Calcutta University, Salt lake Sec-II, Kolkata- 700091

**Dr.N.Debnath** Associate Professor, PG Department of Zoology, Vidyasagar college, Calcutta University, Salt lake Sec-II, Kolkata-700091

**Dr.S.K.Gupta** Consultant Scientist, Medicinal Plants Research & Extension Centre, Ramakrishna Mission Ashrama, Narendrapur, Kolkata-700103

### ABSTRACT

This paper reports the occurrence of 29 species of mites under 12 families, 23 genera and 4 orders collected from 11 types of fruit trees from South and North 24 Parganas districts of West Bengal. This includes 11 species of phytophagous mites, 16 predatory mites and 2 fungal feeding mites. There are 2 species, one each under Tenupalpidae and Bdellidae, the occurrence of which was earlier unknown from India.

### KEYWORDS:

Phytophagous, predatory mite, fruit trees, West Bengal, new reports.

### INTRODUCTION:-

Mites are known to attack a good number of tropical fruit trees grown in South Bengal and in many a cases they cause reasonable damage to the host plants causing economic loss (Gupta, 2012). The districts South 24 Parganas and North 24 Parganas are famous for growing fruit trees and those are mainly Guava (*Psidium guajava*), Mango (*Mangifera indica*), Litchi (*Litchi chinensis*), Lemon (*Citrus limon*), Banana (*Musa paradisiaca*), Papaya (*Carica papaya*), Fig (*Ficus carica*), Sapota (*Achras sapota*), Pomelo (*Citrus maxima*), Jackfruit (*Artocarpus integrifolia*), Coconut (*Cocos nucifera*) and many more.

In the recent years, it was seen that those trees are often attacked by mites which so far have not been documented. Gupta (2012) in his book reported the occurrence of mites on agri-horticultural crops in India but mites of most of the areas covered in the present study were not included in that work. In view of this, it was thought desirable to conduct surveys for occurrence of mites on the tropical fruit trees of these two districts and the results thereof are presented in this paper. This also includes records of two species, one each of Tenupalpidae and Bdellidae, the occurrence of which was earlier unknown from India.

### MATERIAL AND METHODS:-

**Table 1: list of Phytophagous Mites collected from fruit trees of South and North 24 Parganas districts of West Bengal along with host, locality, relative abundance and economic importance during September 2016-March 2017**

Sl. No.	Order/Family	Name of the species	Host	Locality	Relative abundance	Economic importance
1.	Order-PROSTIGMATA Family-Tetranychidae	<i>Eotetranychus hirsti</i> Pritchard & Baker	Fig	Dumdum	3	Occurrence on under surface of leaves producing yellowish transparent patches.
2.		<i>Oligonychus mangiferus</i> (Rahman & Sapro)	Mango, litchi	Baruipur, Dumdum	1	Occurred on upper surface of leaves, occasionally on undersurface, produced brownish patches.
3.		<i>Panonychus citri</i> (McGregor)	Papaya	Saltlake	1	Serious infestation observed on both leaf surfaces producing yellowish patches
4.		<i>Tetranychus urticae</i> Koch	litchi	Baruipur	3	Occurrence unusual, it is not its normal host, no damage done.
5.	Order- PROSTIGMATA Family-Tenupalpidae	<i>Brevipalpus cercidium</i> (Baker, Tuttle & Abbatiello)	Litchi	Baruipur	3	Occurrence of this mite from India was earlier unknown, hence new report from India.
6.		<i>Brevipalpus phoenicis</i> (Geijskes)	Lemon	Canning	2	Irregularly encountered on under surface of leaves. No noticeable damage done.
7.	Order- PROSTIGMATA Family-Eriophyidae	<i>Aceria litchii</i> (Keifer)	Litchi	Baruipur, Saltlake, Bongaon	1	Serious infestation on under surface of leaves having over 100 mites more near the mid ribs. Later, chocolatey brown erineum produced.

8.		<i>Phyllocoptruta oleivora</i> (Ashmead)	Lemon	Dumdum	2	Occurred on outer surface of fruit and due to sucking from the fruits, those turned first yellowish, then brownish and ultimately dropped down.
9.	Order- PROSTIGMATA Family-Tarsonemidae	<i>Polyphagotarsonemus latus</i> (Banks)	Lemon	Baruipur	2	Attacked younger leaves, causing crinkling of leaves.
10.		<i>Tarsonemus</i> sp.	Lemon	Dum dum	3	Casually encountered, no importance known.
11.		<i>Xenotarsonemus</i> sp.	Papaya	Saltlake, Dumdum	3	Infested young apical leaves, no damage.

**Table 2: List of Predatory Mites collected from fruit trees of South and North 24 Parganas districts of West Bengal along with habitat, locality, relative abundance and economic importance during September 2016-March 2017**

Sl. No.	Order/Family	Name of the species	Habitat	Locality	Relative abundance	Economic importance
12.	Order- PROSTIGMATA Family-Stigmaeidae	<i>Agistemus edulis</i> Gupta	Papaya	Saltlake	2	Encountered in association with mealy bug on which it was found feeding.
13.	Order- PROSTIGMATA Family-Cunaxidae	<i>Cunaxa</i> spp.	Litchi, Fig, Papaya	Baruipur	3	Casually encountered in association with Litchi erineum mite colony.
14.		<i>Neocunaxoides andrei</i> (Baker&Hoffmann)	Litchi	Baruipur	2	Casually encountered in Litchi erineum mite colony.
15.	Order- PROSTIGMATA Family-Bdellidae	<i>Bdellodes camellae</i> Atyeo	Pomelo	Bongaon	2	Occurrence of this species was unknown previously from India. So, forms a new record.
16.		<i>Octobdellodes guajavae</i> Chatterjee&Gupta	Guava	Dumdum, Saltlake	1	Rare occurrence, Importance unknown.
17.	Order- PROSTIGMATA Family-Tydeidae	<i>Parapronematus</i> spp.	Mango, Guava, Coconut, Banana	Saltlake, Dumdum	2	Known to be an egg feeder, but such behavior was not seen.
18.		<i>Pronematus fleschneri</i> Summers	Guava	Saltlake, Dumdum	1	Regularly encountered on undersurface of leaves, predatory behavior was not seen.
19.	Order- MESOSTIGMATA Family-Phytoseiidae	<i>Amblyseius channabasavannai</i> Gupta & Danid	Lemon	Bongaon	3	Casually encountered, importance unknown.
20.		<i>Amblyseius herbicolus</i> (Chant)	Mango, Guava, Jackfruit, lemon	Saltlake, Dumdum	1	Regularly encountered, good predator of <i>Oligonychus mangiferus</i> on mango and <i>Aceria litchii</i> on litchi.
21.		<i>Amblyseius largoensis</i> (Muma)	Mango, Pomelo	Saltlake, Bongaon	1	Abundantly available throughout study period, good predator of spider mites.
22.		<i>Amblyseius mcmurtryi</i> Muma	Mango	Dumdum, Canning	3	Casually encountered, importance unknown.
23.		<i>Amblyseius orientalis</i> (Narayanan et al.)	Banana	Salt lake	2	Casually encountered, importance unknown.
24.		<i>Amblyseius raoiellus</i> Denmark&Muma	Lemon	Baruipur	3	Casually encountered, importance unknown.
25.		<i>Euseius alstoniae</i> (Gupta)	Guava	Saltlake, Dumdum	1	Occurrence Casual

26.		<i>Phytoseius minutus</i> Narayanan <i>et al.</i>	Guava, Jackfruit	Saltlake	2	Regularly encountered on guava, importance unknown.
27.	Order- MESOSTIGMATA Family-Ascidae	<i>Lasioseius terrestris</i> Menon&Ghai	Mango	Bongaon	2	Casual occurrence, may be a good predator of mango spider mite.

**Table 3: List of Fungivorous mite collected from fruit trees of South and North 24 Parganas districts of West Bengal along with habitat, locality, relative abundance and economic importance during February 2016 -March 2017**

Sl. No.	Order/Family	Name of the species	Habitat	Locality	Relative abundance	Economic importance
28.	Order-ASTIGMATA Family-Acaridae	<i>Tyrophagus longior</i> (Gervais)	Sapota	Bongaon	2	Occurrence on sapota leaf unusual as it is more common in storage.
29.	Order-CRYPTOSTIGMATA Family-Schelorbitidae	<i>Schelorbita</i> <i>es sp.</i>	Guava, Lemon	Saltlake	2	Fungal feeder and occurrence on leaf is unusual.

\* 1= Very much abundant , 2=Moderately abundant , 3=Least abundant.

#### ACKNOWLEDGEMENTS:-

The authors are thankful to the Principal and Head of P.G Dept. of Zoology, Vidyasagar college as well as to the Secretary, Ramakrishna Mission Ashrama, Nrendrapur for providing laboratory facilities.

#### REFERENCES

1. Gupta, S.K. 2012 Handbook. Injurious and beneficial mites infesting agri-horticultural crops in India and their management. Nature Books India, New Delhi ,362 pp.