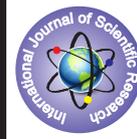


A preliminary report on phytophagus and predatory mites occurring on forest trees in the Dooars region of West Bengal



Zoology

KEYWORDS: Mites, Dooars areas, Forest trees, West Bengal

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ABSTRACT

The present paper reports for the first time the mites occurring on forest trees in the Dooars areas of West Bengal and records the occurrence of 30 species under 15 genera 7 families including many new host /habitat records.

Introduction:

Mites infesting agri-horticultural crops as well as those which are parasitic forms having medicinal, veterinary and public health importance have received attention of acarologists both in India and abroad since long, but, so far as mites infesting various forest trees are concerned, those have not received adequate attention. This is especially true for India as because only 53 species under 22 genera and 7 families have so far been reported occurring on forest trees in India (Gupta, 2012).

As far as West Bengal is concerned, practically very little has been explored regarding mite fauna of forest trees. On the contrary, West Bengal especially in the Dooars region is having a wide coverage of forest trees in some wild life sanctuaries viz. Mahananda Wildlife Sanctuary, Chapramari Wildlife Sanctuary, Boikunthapur Forest, Apalchand Forest, Naora Valley National Park have a very rich floral wealth. Out of those, only a few have been explored for occurrence of mites. In view of this paucity of knowledge, a humble attempt was made to explore the mite fauna from the forest trees in the Dooars region covering areas like Mahananda Wildlife Sanctuary and Lataguri Territorial Forest representing two districts of West Bengal, viz. Darjeeling and Jalpaiguri. The result of that survey is presented in this communication which reports 30 species under 15 genera and 7 families from a total of 31 forest trees.

Interestingly, most of the hosts/habitats reported in this communication were earlier unknown to harbor the mite species reported herein. It also includes two species, one each under *Scapulaseius* and *Amblyseius* both under the family Phytoseiidae which appear to be new to science and will be described elsewhere later after re-confirmation.

Material and Methods:

The present study covered a study period from October 2015 to October 2016 during which frequent surveys were conducted in some areas of the Dooars region namely Mahananda Wildlife Sanctuary, Lataguri Territorial Forest, and adjoining regions representing two northern districts of West Bengal, viz. Darjeeling and Jalpaiguri. The mites were collected partly by direct examination of leaves of the forest trees under a 20X lens and mites were picked up with a fine brush moistened, with 70% ethyl alcohol. Those were preserved in ethanol and mounted in modified Hoyer's medium. The slides were examined under a stereo research microscope for identification.

The current generic concept of the respective families treated herein was followed. The identified material were deposited in the Dept. of Zoology, A.P.C Roy Government College, Siliguri.

Results and Discussion:

The identification of the collected material from 31 forest tree species revealed the occurrence of 30 species of mites under 15 genera and 7 families and 2 orders which included 21 species for which new host/habitat records were made. Out of these, 7 species under 4 genera and 2 families belonged to phytophagus group and 23 species under 11 genera and 5 families belonged to predatory groups. It also includes 17 forest trees on which the respected mite species were earlier unrecorded and therefore form new habitat records.

The classified list of the species along with their localities, hosts/habitats, dates of collection and number of specimens collected have been given in Table -1 which also provided some information regarding their economic importance.

Table-1: List of mites with their localities, host/habitat records, collection dates, importance, if any.

Species	Locality	Host/habitat	Date of collection	No. of sp. collected	Remarks
A. PHYTOPHAGOUS MITES					
Order: Trombidiformes					
Suborder: Prostigmata					
Family 1: Tetranychidae					
1. <i>Eutetranychus orientalis</i> (Klein)	Mahananda Wildlife Sanctuary (MWLS)	<i>Butea monosperma</i>	25.10.2015	1(F), 1(M)	Occurrence on upper surface of leaves, their webbing covered with dust, infested leaves turned brown.
	Lataguri Territorial Forest (LTF)	<i>Tabernaemontana dichotoma</i>	27.10.2015	3(F), 3(M)	
2. <i>Eutetranychus Africana</i> (Tucker)	MWLS	<i>T. dichotoma</i>	25.10.2015	1(F)	No noticeable damage symptoms, casual occurrence

3.	LTF	<i>Tabernaemontana dichotoma</i>	27.10.2015	1(F)	These were collected without male, therefore, the specific identity could not be determined.
	MWLS	<i>Butea monosperma</i>	25.10.2015	1(F)	
4.	MWLS	<i>Amura wallichii</i>	16.10.2015	1(F)	This species somewhat uncommon and two hosts on which they were collected formed new host records
	LTF	<i>Alstonia scholaris</i>	27.10.2015	2(F),1(M)	
5.	Murti Forest	<i>Albizia chinensis</i>	19.10.2015	3(F)	occurrence on undersurface of leaves causing chlorosis on both the hosts formed new host records.
	MWLS	<i>Albizia lebbek</i>	16.10.2015	1(F)	
Family 2: Tenuipalpidae					
1.	MWLS	<i>Lagerstroemia parviflora</i>	16.10.2015	2(M)	Very common species colonized on lower leaf surface caused brown stippling
2.	Borodighi Forest	<i>Anacardium occidentale</i>	18.10.2015	1(F)	Very common species colonized on lower leaf surface caused brown stippling
B. PREDATORY MITES Order: Mesostigmata					
Family 1: Phytosiidae					
1.	Sibchu, Murti Forest	<i>Amura wallichii</i>	19.10.2015	2(M)	most common predatory mite, reported plants formed new habitat record
	Borodighi Forest	<i>Anacardium occidentale</i>	18.10.2015	1(F)	
2.	Kolokawa Forest	<i>Alstonia scholaris</i>	18.10.2015	1(F)	New habitat record

3.	Kolokawa Forest	<i>Baccura sapida</i>	18.10.2015	1(F)	This species is close to <i>Scapulaseius suknaensis</i> but differs in relative length of dorsal idiosomal setae and spermathecal character
4.	Borodighi Forest	<i>Bauhinia scandens</i>	18.10.2015	2(F)	Specimen in damaged condition
5.	Murti Forest	<i>Bauhinia purpurea</i>	19.10.2015	1(F)	New habitat records
6.	MWLS	<i>Bridelia retusa</i>	16.10.2015	1(F)	Occurrence on this plant was earlier unknown, hence formed new records
7.	Murti Forest	<i>Butea monosperma</i>	19.10.2015	2(F)	earlier records of this mite on this plant was unknown
8.	LTF	<i>Bohemia purpurea</i>	17.10.2015	1(F)	earlier records of this mite on this plant was unknown
9.	Sibchu, Murti Forest	<i>Cassia fistula</i>	19.10.2015	1(F)	one of the commonest phytoseiid mites available in this area earlier unknown on all the four plants mentioned here, formed new habitat records
	LTF	<i>Cassia nodosa</i>	17.10.2015	1(F)	
	MWLS	<i>Cassia seamea</i>	16.10.2015	1(F)	
	Borodighi Forest	<i>Chikrassia tabularis</i>	18.10.2015	1(F)	
10.	LTF	<i>Castanopsis indica</i>	17.10.2015	1(F)	the occurrence on these plants was not reported earlier
	MWLS	<i>Cinnamomum tamala</i>	16.10.2015	1(F)	

11. <i>Amblyseius</i> sp.	Sibchu, Murti Forest	<i>Cassia fistula</i>	19.10.2015	1(F), 3(nymph)	Close to <i>Amblyseius herbicolus</i> , differing in shape of spermatheca which is fundibulate in former but tabular in the present species
	MWLS	<i>Cinnamomum tamala</i>	16.10.2015	1(F)	
	Borodigh Forest	<i>Chikrassia tabularis</i>	18.10.2015	1(nymph)	
	Kolokawa Forest	<i>Cinnamomum bejolghota</i>	18.10.2015	1(F), 1(M)	
15. <i>Euseius ovalis</i> (Evans)	Murti Forest	<i>Croton roxburghii</i>	19.10.2015	1(F)	Most common species, plant formed new habitat records
16. <i>Euseius alstoniae</i> (Gupta)	Sibchu, Murti Forest	<i>Croton roxburghii</i>	19.10.2015	1(F)	Most common species, plant formed new habitat records
17. <i>Neoseiulus longispinus</i> (Evans)	LTF	<i>Callicarpa arborea</i>	18.10.2015	1(F)	Most common species, plant formed new habitat records
18. <i>Paraphytoseius orientalis</i> (Ghai & Menon)	MWLS	<i>Canarium sikkimensis</i>	16.10.2015	1(F)	one of the most common phytoseiid mites, plant formed new habitat record
19. <i>Typhlodromus syzygii</i> (Gupta)	Sibchu, Murti Forest	<i>Ficus hispida</i>	19.10.2015	1(F), 1(M)	The plant formed new habitat record
21. <i>Typhlodromus bambusicolus</i> Gupta	Borodigh Forest	<i>Firmiana colorata</i>	18.10.2015	1(F)	Plants formed new habitat record
Family 2 : Ascidae 1. <i>Lasioseius terrestris</i> Chant	Sibchu, Murti Forest	<i>Lagerstroemia resiniae</i>	19.10.2015	3(M)	Known to be a good predator though not such behavior was observed in the present case. The recorded plant formed new habitat records
2. <i>Lasioseius</i> sp.	MWLS	<i>Lagerstroemia parviflora</i>	16.10.2015	1(F)	The collected specimens are male, hence identification could not be done
	Kolokawa Forest	<i>Litsea glutinosa</i>	18.10.2015	1(F)	
Family 3 : Cunaxidae 1. <i>Cunaxa setirostris</i> (Hermann)	Sibchu, Murti Forest	<i>Litsea monopelata</i>	19.10.2015	2(F)	Common cunaxid species, recorded plant formed new habitat record
	MWLS	<i>Macaranga denticulata</i>	16.10.2015	1(F)	
2. <i>Cunaxa</i> sp.	MWLS	<i>Schima wallichii</i>	16.10.2015	1(F)	Closed to <i>Cunaxa mangiferae</i> Gupta, but dorsal chaetotaxy of both the species differ
Family 4 : Stigmaeidae 1. <i>Agistemus heterophylla</i> Gupta	LTF	<i>Macaranga denticulata</i>	17.10.2015	1(F)	This species was described from Arunachal Pradesh, therefore occurrence of the species in this region is interesting, the plant formed new habitat record
Family 5 : Erythraeidae 1. <i>Leptus</i> sp.	Murti Forest	<i>Michelia champaca</i>	19.10.2015	1(F), 1(M)	The recorded plant formed new habitat record. The damaged condition of the specimen prevented its specific identification

MWLS=Mahananda Wildlife Sanctuary

LTF=Litaguri Territorial Forest Since very little information was available on mites occurring on forest trees in India in general and Terai and Dooars areas of West Bengal in particular, the present communication is the first of its kind giving detailed information about mites on forest trees in Terai and Dooars areas of West Bengal.

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