

A Note on Occurrence of Mites and Insects on Weeds of Medicinal Importance in South and North 24 Parganas and Nadia Districts of West Bengal

Abstract: The present note reports occurrence of 50 species of mites (Acari) under 3 orders, 13 families, 20 genera as well as insects under 4 orders, 12 families, 20 genera and 22 species. Among mites, 22 species belong to phytophagous group, 23 belong to predatory group and 5 species belong to fungal feeding group. Among insects, excepting one, all belong to predatory group. This paper also records 22 species of mites and 16 species of insects, the occurrence of which on weeds were not earlier known from West Bengal. For each species data pertaining to hosts, date of collection and localities are included. The biological importance of the species is also highlighted.

Keywords: Diversity, Medicinal Weeds, Mites, Insects, West Bengal.

The weeds in crop fields have dual importance as on one hand they deprive the crops from getting the required nutrients and on the other hand many weeds, act as alternate hosts of crop pests. The mites and insects occurring on weeds have importance as some of those feed on weeds and thus help in biocontrol of weeds. Considering the importance of weeds the mites/insects occurring on those have drawn attention of entomologists and acarologists. However, not much work has been done in this aspect in India and some relevant works have been done by few¹⁻⁸. The districts of South and North 24 Parganas and Nadia are agriculturally very rich and so also rich with many obnoxious weeds. In view of that, it was thought necessary to undertake an investigation of mites/insects of these three districts of West Bengal and document those highlighting their

economic importance, if any. The present note will add some knowledge in this aspect.

Materials and Methods: The present paper is based upon collection of mites and insects collected on different medicinal weeds from three agriculturally advanced districts of West Bengal, viz. North and South 24 parganas and Nadia (Figure 1). Collection of specimens was done directly in the field by examining the weeds under 20 x folding pocket lens and the mites/insects were collected by a fine brush moistened with alcohol. In many cases weed samples after collection from field were brought to laboratory and were examined under stereo binocular microscope and collecting the mites/ insects in the same manner as mentioned before. The specimens were preserved in 70% ethyl alcohol and mites were mounted in Hoyer's medium. Insects were kept in alcohol. Identification was done by examining the specimens under stereo research microscope and consulting the updated literature for mites⁹⁻¹⁷ and insects¹⁸⁻¹⁹. While collecting in the field, the nature of association of mites/insects with the weeds was also noted to focus their biological importance in respect of weeds. The present study was conducted during June 2021 up to July 2023. The GPS data in respect of different localities surveyed are given in Table 1.

Results: The examination of mites and insects collected from weeds revealed the occurrence of altogether, 50 species of mites under 3 orders, 13 families, 30 genera and 22 species of insects under 4 orders, 12 families and

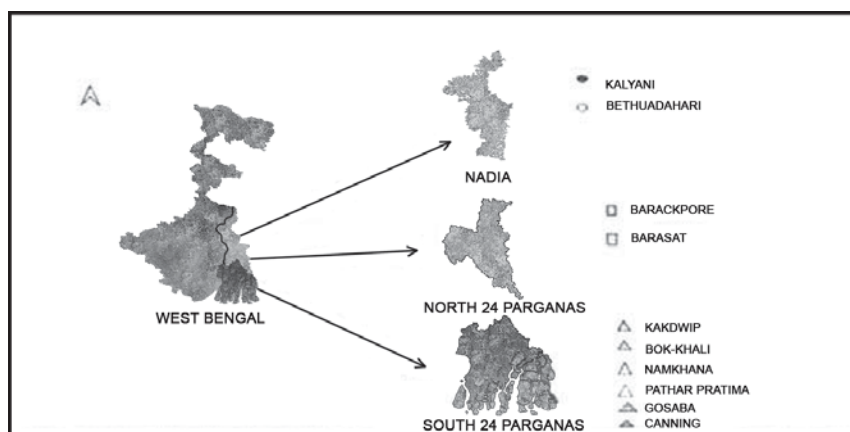


Fig. 1: Map showing the study areas (north and South 24 Parganas and Nadia Districts) in West Bengal, India.

Table 1. GPS Data in Respect of Collection Localities Surveyed.

Districts	Localities	GPS Data
South 24 parganas	1. Jharkhali	1. 22°1'50.14"N and 88°42'4.55"E
	2. Bakkhali	2. 21°33'47.27"N and 88°15'34.21"E
	3. Gosaba	3. 22°9'54.8208"N and 88°48'28.4364"E
	4. Canning	4. 22°18'37.34"N and 88°39'28.43"E
	5. Kakdwip	5. 21°52'33.7"N and 88°11'6.99"E
	6. Narendrapur	6. 22°26'37.64"N and 88°23'40.72"E
North 24 Parghanas	1. Naihati	1. 22°53'34.34"N and 88°25'19.32"E
	2. Barasat	2. 22°43'22.14"N and 88°28'49.99"E
	3. Barrackpur	3. 22°46'2.74"N and 88°23'18.04"E
Nadia	1. Bethuadahari	1. 23° 36' 41.1660" N and 88°23'0.1032" E
	2. Kalyani	2. 22°58'30.31"N and 88°26'4.23"E

20 genera and all those have been listed in Table 2 (for mites) and Table 3 (for insects) along with giving the names of hosts, collection data and relevant biological importance and hence the respective Tables are self-explanatory. Most of the weed species on which both phytophagous and predatory species were encountered formed new host/habitat records.

Discussion: The present paper reports the occurrence of 50 species of mites which included 22 species as phytophagous, 23 species as

Table 2. List of Phytophagous and Predatory Mites Collected from North and South 24 parganas and Nadia Districts of West Bengal During June 2021 –July 2023.

Name of Mite Species	Name of Weed Species	Date of Collection	Locality	Remarks
A Phytophagous Group				
Order Trombidiformes				
Suborder Prostigmata				
Family I Tetranychidae				
#1. <i>Petrobia harti</i> (Ewing)	<i>Oxalis corniculata</i> L.	17.10.2021 30.10.2022 12.02.2023	Canning Jharkhali Gosaba	Severe infestation on both surfaces of leaves, causing chlorosis of leaves.
#2. <i>Eutetranychus orientalis</i> (Klein)	<i>Marsilea quadrifolia</i> L.	24.09.2022 15.02.2023	Barasat Jharkhali	Occurrence of this mite was noticed on upper surface of leaves, feeding caused browning of leaves which ultimately withered.
*3. <i>Oligonychus coniferarum</i> (L.)	<i>Alternanthera sessilis</i> (L.) R.Br. ex DC.	12.06.2022 28.12.2022	Kalyani Jharkhali	Poor population, no damage on the host was noticed.
4. <i>Oligonychus mangiferus</i> (Rahman & Sapra)	<i>Argemone mexicana</i> L.	14.05.2022	Kalyani	Its population was poor on upper surface of leaves, producing no damage symptoms.
	<i>Tridax procumbens</i> L.	25.11.2022	Bakkhali	
5. <i>Oligonychus oryzae</i> (Hirst)	<i>Cynodon dactylon</i> (L.) Pers.	06.06.2021	Gosaba	This mite colonized the undersurface of leaves but produced no damage symptoms. A cunaxid mite and <i>Amblyseius largoensis</i> were found associated.
	<i>Cymbopogon winterianus</i> Jowitt ex Bor	29.04.2022.	Naihati	
#6. <i>Panonychus citri</i> (Mc Gregor)	<i>Salvinia</i> sp.	10.06.2021	Bethuadahari	This mite occurred on upper surface of leaves and the infested leaves turned brown.
	<i>Coccinia grandis</i> (L.) Voigt.	07.04.2022	Bakkhali	
#7. <i>Schizotetranychus andropogoni</i> (Hirst)	<i>Cymbopogon flexuosus</i> (Nees ex Steud.) W. Watson	12.12.2021	Gosaba	Its occurrence was noticed on lower surface of leaves. The colony was covered with thin webs where several members of this mite were noticed. The feeding produced yellow speckles arranged
	<i>Digitaria sanguinalis</i> (L.) Scop.	26.06.2022	Barasat	

8. <i>Tetranychus hypogaeae</i> Gupta	<i>Amaranthus viridis</i> L. <i>Canabis sativa</i> L.	06.06.2021 07.08.2022	Barasat Jharkhali	longitudinally on either side of the mid-rib. <i>Amblyseius aerialis</i> also found associated. Only a few specimens were noticed on undersurface of leaves. Population was too poor to cause any damage. A bdellid mite found associated.
9. <i>Tetranychus macfarlanei</i> Baker & Pritchard	<i>Euphorbia hirta</i> L. <i>Physalis minima</i> L. <i>Saccharum spontaneum</i> L.	17.10.2021 21.08.2022 15.10.2022	Bakkhali Bethuadahari Barrackpur	This mite produced similar damage symptoms as in case of <i>Tetranychus neocaledonicus</i> , 1 thrip species as well as <i>Euseius alstoniae</i> and <i>Amblyseius adhatodae</i> were found associated with it.
10. <i>Tetranychus neocaledonicus</i> Andre	<i>Eclypta prostrata</i> (L.) <i>Abutilon indicum</i> (L.) Sweet. <i>Scoparia dulcis</i> L.	12.03.2023 26.06.2022 30.10.2022	Canning Canning Barasat	Occurred on undersurface of leaves and its colony was covered with thin web. Infested leaves turned brownish.
#11. <i>Tetranychus urticae</i> Koch	<i>Chenopodium album</i> L. <i>Leucus aspera</i> (Willd.) <i>Clerodendrum viscosum</i> L. <i>Amaranthus spinosus</i> L.	12.02.2023 26.06.2022 20.07.2022 12.03.2023	Gosaba Canning Canning Jharkhali	Huge population was noticed on the undersurface of leaves where it colonized and was covered with web. The infested leaf turned yellowish, dried and defoliated.
Family II Tenuipalpidae				
12. <i>Brevipalpus californicus</i> (Banks)	<i>Barleria cristata</i> L. <i>Marsilea quadrifolia</i> L.	16.08.2022 25.10.2022	Jharkhali Bethuadahari	This mite was seen scatteredly on lower surface of leaves and brown spots appeared at the points of feeding.
13. <i>Brevipalpus essigi</i> Baker	<i>Achyranthes aspera</i> L. <i>Cyperus rotundus</i> L.	03.02.2023 14.05.2022	Bakkhali Jharkhali	A couple of individuals were encountered on undersurface of leaves but no damage was observed.
14. <i>Brevipalpus euphorbiae</i> Mohanasundaram	<i>Acalypha compressus</i> L. <i>Amaranthus spinosus</i> L.	07.08.2022 11.01.2023.	Kalyani Bakkhali	Its infestation was noticed on undersurface of leaves, mostly around mid-rib and brown spots were produced due to feeding.
15. <i>Brevipalpus lewisi</i> Mc Gregor	<i>Chenopodium album</i> L.	14.12.2022	Gosaba	Its infestation was noticed on under surface of leaves, mostly around mid-rib and brown spots were produced due to feeding.
16. <i>Brevipalpus obovatus</i> Donnadieu	<i>Chloris barbata</i> Sw.	24.09.2022	Barasat	Its infestation was noticed on undersurface of leaves, mostly around mid-rib and brown spots were produced due to feeding.
Family III Tenuipalpidae				
17. <i>Daidalotarsonemus</i> sp.	<i>Chenopodium album</i> L. <i>Clerodendrum indicum</i> (L.) Kuntze	24.03.2021 28.12.2022	Barrackpur Jharkhali	This mite was encountered on undersurface of leaves carrying some extraneous material on its body.
#18. <i>Polyphagotarsonemus latus</i> (Banks)	<i>Eleusine indica</i> (L.) Gaertn. <i>Boerhavia diffusa</i> L.	7.04.2022 16.02.2023	Canning Narendrapur	This mite infested the young apical leaves which turned crinkled and curved downwards. All such leaves withered, growth was checked.
19. <i>Tarsonemus</i> sp.	<i>Amaranthus viridis</i> L. <i>Barleria cristata</i> L.	18.11.2021 26.06.2022	Naihati Canning	Occasionally encountered, no damage was noticed.

Family IV Eriophyidae				
**20. <i>Aceria abutilonae</i> Mohanasundaram	<i>Abutilon indicum</i> (L.) Sweet.	05.05.2023	Narendrapur	Noticed as vagrants, population too poor.
**21. <i>Calepitrimerus cordiae</i> Chakrabarti & Das	<i>Cordia myxa</i> L.	05.05.2023	Narendrapur	Noticed as vagrants, population too poor.
**22. <i>Cosella ichnocarpasia</i> Mondal & Chakraborty	<i>Ichnocarpus frutescens</i> (L.) W.T. Aiton	12.12.2022	Narendrapur	Noticed as vagrants.
B Predatory Group				
Order Trombidiformes				
Suborder Prostigmata				
Family V Bdellidae				
23. <i>Odontoscirus quadrisetosa</i> Atyeo	<i>Dactyloctenium aegyptium</i> (L.) Willd. <i>Amaranthus spinosus</i> L.	10.08.2022 11.03.2023	Canning Narendrapur	Predatory mite, encountered poor in number in association with <i>Tetranychus hypogaeae</i> .
Family VI Cunaxidae				
**24. <i>Cunaxa cynodona</i> Gupta	<i>Acmella oleracea</i> (L.) R.K. Jansen <i>Cynodon dactylon</i> (L.) Pers.	28.12.2022 22.03.2023	Canning Jharkhali	Stray occurrence in association with <i>Oligonychus oryzae</i> .
**25. <i>Neocunaxoides andrei</i> (Baker & Hoffmann)	<i>Coccinia grandis</i> (L.) Voigt. <i>Coccinia grandis</i> (L.) Voigt.	19.05.2022 05.09.2022	Kalyani Canning	
**26. <i>Neocunaxoides pradhani</i> Gupta	<i>Clerodendrum viscosum</i> L. <i>Mikania micrantha</i> Kunth	13.10.2021 12.06.2022 10.03.2023	Bethuadahari Bethuadahari	This is a predatory mite occurred on undersurface of leaves, feeding on prey not observed.
Family VII Iolinidae				
27. <i>Pronematus elongatus</i> Baker	<i>Cyperus microiria</i> Steud. <i>Desmodium gangeticum</i> (L.) DC.	11.01.2022 05.05.2022	Kalyani Narendrapur	The present plant on which it was recorded formed a new habitat record, it moved very fast on under surface of leaves.
Family VIII Stigmaeidae				
**28. <i>Agistemus macrommatus</i> Gonzalez –Rodríguez	<i>Clerodendrum viscosum</i> L.	07.08.2022	Jharkhali	Predatory mite, encountered once only.
Order Mesostigmata				
Family IX Phytosehdae				
29. <i>Amblyseius adhatodae</i> Muma	<i>Panicum repens</i> L. <i>Prosopis juliflora</i> (Sw.) DC.	13.10.2021 09.01.2023	Bethuadahari Narendrapur	Occasional occurrence. It was found in colony of <i>Tetranychus macfarlanei</i> . Found associated with.
**30. <i>Amblyseius aerialis</i> Muma	<i>Medicago sativa</i> L.	05.06.2022	Barasat	
**31. <i>Amblyseius herbicoloides</i> Mc Murty & Moraes	<i>Alternanthera philoxeroides</i> (Mart.) Griseb.	12.03.2023	Barrackpur	Occasionally encountered in association with <i>Schizotetranychus andropogoni</i>
32. <i>Amblyseius herbicolus</i> (Chant)	<i>Cynodon dactylon</i> (L.) Voigt.	23.10.2022	Naihati	Encountered once only. Occasionally encountered.

33. <i>Amblyseius largoensis</i> (Muma)	<i>Alternanthera philoxeroides</i> (Mart.) Griseb.	06.06.2021	Barasat	This was abundantly found on undersurface of leaves, fast moving, appears to be a good predator on
	<i>Ichinocarpus frutescens</i> (L.) W.T. Aiton	21.12.2021	Jharkhali	immatures of <i>Oligonychus oryzae</i> , infesting <i>Cymbopogon winterianus</i> .
	<i>Cymbopogon winterianus</i> Jowitt ex Bor	07.04.2022	Canning	
	<i>Cyperus rotundus</i> L. associated with <i>Aphis gossypii</i> .			
34. <i>Amblyseius orientalis</i> Ehara	<i>Lantana camara</i> L.	28.12.2022	Jharkhali	Occasionally encountered, importance unknown.
	<i>Ruellia tuberosa</i> L.	12.02.2023	Gosaba	
	<i>Clerodendrum inerme</i> (L.) Gaertn.	12.02.2023		
35. <i>Euseius alstoniae</i> (Gupta)	<i>Physalis minima</i> L.	28.12.2021	Bakkhali	This species occurred frequently on the weed. It is known to be a good predator. It was found feeding on <i>T. macfarlanei</i> , also was associated with <i>Scolothrips</i> sp.
	<i>Eragrostis amabilis</i> (L.) Wright & Arn. Ex Nees	09.11.2022 16.02.2022		
**36. <i>Euseius neoalstoniae</i> Manoj Kumar et al.	<i>Tridax procumbens</i> L.	13.10.2021	Bethuadahari	Encountered once only, predatory behaviour was not noticed.
37. <i>Euseius ovalis</i> (Evans)	<i>Lantana camara</i> L.	21.12.2021	Canning	This is known to be a good predator, in the present study it was found in colony of <i>Ferrisia virgata</i> .
	<i>Cyperus compressus</i> L.	26.01.2022	Barasat	
**38. <i>Euseius sacchari</i> (Ghai & Menon)	<i>Urena sinuate</i> L.	30.12.2022	Barasat	Encountered only once.
**39. <i>Neoseiulus indicus</i> (Narayan & Kaur)	<i>Ocimum basilicum</i> L.	06.01.2023	Barrackpur	This is a predatory mite and was available abundantly.
**40. <i>Paraphytoseius orientalis</i> (Narayanan, Kaur & Ghai)	<i>Solanum nigrum</i> L.	20.06.2022	Bakkhali	It is commonly occurring predatory mite found feeding on immature insects.
	<i>Lantana camara</i> L.	03.02.2023	Jharkhali	
**41. <i>Scapulaseius daturae</i> (Gupta)	<i>Sida cordifolia</i> L.	12.02.2023	Gosaba	Casual occurrence.
42. <i>Scapulaseius potentillae</i> (Garman)	<i>Eclipta prostrate</i> (L.)	14.12.2022	Jharkhali	Casual occurrence.
	<i>Inula</i> sp.	28.12.2022	Gosaba	
43. <i>Scapulaseius suknaensis</i> (Gupta)	<i>Euphorbia hirta</i> L.	17.10.2021	Canning	Often encountered on undersurface of leaves, predatory behaviour was seen on <i>Brevipalpus</i> in colony of <i>Ferrisia virgata</i> .
	<i>Polygonum hydropiper</i> (L.)	10.11.2022	Kalyani	
**44. <i>Phytoseius swirskii</i> Gupta	<i>Solanum torvum</i> Sw.	28.07.2022	Naihati	Casual occurrence.
**45. <i>Typhlodromus homalii</i> Gupta	<i>Cyperus microiria</i> Steud.	17.10.2021	Canning	Casual occurrence.
C Fungal Feeding Group				
Order Oribatida				
Suborder Astigmata				
Family X Acaridae				
**46. <i>Acarus siro</i> Linn.	<i>Uraria picta</i> (Jacq.) Desv. ex DC.	12.02.2023	Gosaba	Appears to be accidental occurrence.
47. <i>Tyrophagus putrescentiae</i> (Schränk)	<i>Achyranthes aspera</i> L.	17.10.2021	Jharkhali	This mite is encountered on stored products and therefore its occurrence on plants is interesting.
	<i>Scoparia dulcis</i> L.	07.08.2022	Canning	
Suborder Oribatid				
Family XI Scheloribatidae				

**48. <i>Scheloribates zealandicus</i> Hammer	<i>Sida cordifolia</i> L.	15.10.2022	Bethuadahari	This mite is known to be a fungal associated one, present occurrence is interesting.
	<i>Clerodendrum viscosum</i> L.	03.02.2023	Jharkhali	
Family XII Xylobatidae				
**49. <i>Xylobates</i> sp.	<i>Urena lobata</i> L.	14.05.2022	Kalyani	This mite is known to be a fungal associated one, its occurrence is accidental.
Family XIII Galumnidae				
50. <i>Galumna flabellifera</i> (Hammer)	<i>Scoparia dulcis</i> L.	17.10.2021	Canning	This mite is known to be a fungal associated one.
	Undetermined species	14.12.2022	Gosaba	

*= New record from India

**= Mite species earlier not recorded on weeds in West Bengal

#= Indicate potentially important for bio-control of weeds

Table 3. List of Insect Species Collected on Weeds from North and South Parganas and Nadia District of West Bengal During June 2021-July 2023.

Name of Insect Species	Name of Insect Species	Date of Collection	Locality	Remarks
Order Hemiptera				
Family I Aphididae				
1. <i>Aphis gossypii</i> (Glover)	<i>Cyperus rotundus</i> L.	29.04.2022	Barasat	This species colonized on undersurface of leaves and the infested leaves showed chlorosis. Later, dried up, ants always found associated with this aphid colony.
	<i>Echinochloa colona</i> (L.) link	06.06.2022	Naihati	
	<i>Physalis minima</i> L.	24.09.2022	Gosaba	
	<i>Clerodendrum serratum</i> L.	14.12.2022	Narendrapur	
2. <i>Aphis craccivora</i> (Koch)	<i>Tridax procumbens</i> L.	13.10.2021	Naihati	The population of this aphid was good on undersurface of leaves, mostly the juvenile stages were observed. The infested leaves turned pale yellow initially, subsequently turned brown and defoliated.
	<i>Euphorbia hirta</i> L.	07.06.2022	Barasat	
3. <i>Aphis malvae</i> (Koch)	<i>Coccinia grandis</i> (L.) Voigt.	13.10.2021	Naihati	The population of this aphid was good on undersurface of leaves, mostly the juvenile stages were encountered. The infested leaves turned pale yellow, initially, subsequently turned brown and defoliated.
4. <i>Myzus persicae</i> (Sulzer)	<i>Panicum repens</i> L.	14.12.2022	Gosaba	Damaged symptoms like any other aphid attack.
5. <i>Toxoptera aurantia</i> (B.D.F.)	<i>Piper nigrum</i> L.	15.10.2022	Bakkhali	Stray occurrence.
Family II Diaspidae				
6. <i>Diaspis</i> sp.	<i>Desmodium gangeticum</i> (L.) DC.	22.09.2021	Narendrapur	It colonized undersurface of leaves and white spots appeared at points of feeding.
	<i>Eleusine indica</i> (L.) Gaertn.	12.12.2021	Narendrapur	
	<i>Cuscuta chinensis</i> Lam.	14.04.2022	Gosaba	
7. <i>Aspidiotus destructor</i> (Signoret)	<i>Ageratum</i> sp.	03.02.2023	Jharkhali	This circular hard scale found on undersurface of leaves. Attacked leaves dried up.

8. <i>Coccus hesperidum</i> (L.)	<i>Amaranthus spinosus</i> L.	21.08.2022	Bethuadahari	Its attack developed sooty mould on under surface of leaves. Such leaves fell off, ants were found associated.
Family III Pseudococcidae				
9. <i>Pseudococcus</i> sp.	<i>Cymbopogon martinii</i> (Roxb.) Wats.	13.10.2021	Bethuadahari	It colonized the under surface of leaves and white spots appeared at the points of feeding.
	<i>Panicum repens</i> L.	19.05.2022	Naihati	
	<i>Amaranthus viridis</i> L.	12.06.2022	Narendrapur	
10. <i>Ferrisia virgata</i> (Cockrell)	<i>Coccinia grandis</i> (L.) Voigt.	12.12.2021	Barasat	
	<i>Coleus</i> sp. Lour.	05.06.2022		This highly polyphagous species. Severely attacked <i>C. grandis</i> and <i>Cyperus compressus</i> and <i>Polygonum hydropiper</i> associated with <i>Euseius ovalis</i> . Nymphs feed very voraciously. Its long waxy filamentous hairs give it a characteristic feature. Heavily infested plant dried up.
Family IV Pentatomidae				
11. <i>Bagrada cruciferum</i> (F.)	<i>Hygrophila schulli</i> (Buch.-Ham.) M.R. & S.M.	06.09.2022	Bakkhali	It occurred on leaves. Adults and nymphs sucked sap and infested plants lost vitality. <i>Scolothrips</i> sp., was found associated with this bug.
	<i>Abutilon indicum</i> (L.) Sweet.	25.11.2022	Kakdwip	
Family V Aleyrodidae				
12. <i>Bemisia tabaci</i> (Green)	<i>Barleria cristata</i> L.	11.01.2022	Kalyani	Adult nymphs sucked sap resulting in devitalization of plants.
13. <i>Dialeurodes citri</i> Ash.	<i>Coix lacryma</i> L.	07.04.2022	Canning	Adult nymphs sucked sap resulting in devitalization of plants.
Family VI Cercopidae				
14. <i>Poophilus costalis</i> Walker	<i>Cynodon dactylon</i> (L.) Pers.	30.10.2022	Barasat	Nymphs found on undersurface of leaves where they covered themselves with a frothy secretion to avoid desiccation and get rid of natural enemies.
Family VII Cicadellidae				
15. <i>Kolla vesta</i> (Distant)	<i>Eupatorium triplinerve</i> (Vahl)	04.03.2023 15.07.2023	Barrackpur	The nymphs and adults sucked cell sap causing yellowing and later browning of leaves. At later stage the infested leaves curved down to become boat shaped and then defoliated.
Family VIII Membracidae				
16. <i>Tricentrus bicolor</i> (Dist.)	<i>Cynodon dactylon</i> (L.) Pers.	10.11.2022	Kalyani	Due to sucking cell sap, the infested leaves turned brown.
Family IX Tingidae				
17. <i>Monanthia globulifera</i> (Walk) ORDER THYSANOPTERA FAMILY X THRIPIDAE	<i>Cuscuta reflexa</i> Roxb.	12.02.2023	Gosaba	Sucking caused crinkling of leaves. Population was huge
18. <i>Scolothrips</i> sp.	<i>Eupatorium triplinerve</i> (Vahl)	13.10.2021	Barasat	
	<i>Physalis minima</i> L.	05.06.2022	Bakkhali	
	<i>Abutilon indicum</i> (L.) Sweet.	12.02.2023	Gosaba	
				This is a predatory thrips and it fed on eggs of <i>Tetranychus</i> .

19. <i>Thrips coloratus</i> (Pr.)	<i>Argemon Mexicana</i> L.	26.11.2022	Narendrapur	The infested leaves produced silvery white symptoms due to its feeding.
Order Lepidoptera				
Family XI Noctuidae				
20. <i>Helicoverpa armigera</i> (Hb.)	<i>Cynodon dactylon</i> (L.) Pers.	07.06.2022	Barasat	It voraciously fed on leaves making the plant denuded. Within a short time, the plant showed complete loss of leaves.
21. <i>Spodoptera lithura</i> (F.)	<i>Cyperus compressus</i> L.	27.06.2022 16.06.2023	Canning	It voraciously fed on leaves making the plant denuded. Within a short time, the plant showed complete loss of leaves.
Order Coleoptera				
Family XII Coccinellidae				
22. <i>Henocepilachna vingintioctopunctata</i> (F.)	<i>Tridax procumbens</i> L. <i>Solanum torvum</i> Sw.	12.06.2022 26.06.2022	Bethuadahari Canning	This coccinellidae beetle scrapped chlorophyll from leaves, such leaves withered, dried up.

predatory and 5 species as fungal associated. Among these there was 1 species, *Oligonychus coniferarum* reported here for the first time in India. There are as many as 22 species of mites and 16 species of insects, the occurrence of which on weeds was not reported earlier. Altogether 4 species of predatory mites, viz., *Amblyseius largoensis*, *Euseius alstoniae*, *Paraphytoseius orientalis*, *Scapulaseius suknaensis* were found feeding directly on phytophagous species when the infested leaves were examined under stereo-binocular microscope. In addition, most of the hosts and habitats on which the mites were reported form new habitat records. It was reported that 56 species of mites on weeds and out of those 17 species could not be recorded in the present study¹. It was further reported that 23 species of mites and 6 species of insects on weeds from Narendrapur campus of R.K. Mission and out of which 20 species of mites and 5 species of insects could not be collected in the present study². From the biological observation recorded in the field it appeared that some mites do have potentiality to control weeds due to its feeding and those are *Amblyseius largoensis*, *Euseius ovalis*, *Euseius alstoniae* and *Scapulaseius suknaensis* and hence those need to be conserved.

Conclusion

- From the present study as well as those of earlier ones give enough evidence that mites have good potentiality to control weeds from the crop fields and therefore those mites should be conserved and utilized for biological control of weeds.
- Likewise, some predatory mites are there which kill the beneficial phytophagous mites and

therefore their population should be monitored regularly to avoid elimination of beneficial ones.

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