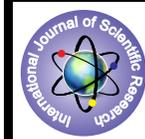


## A Report on Occurrence of Mites on Weeds of Medicinal Values



### ZOOLOGY

**KEYWORDS :** Medicinal weeds, phytophagous mites, predatory mites, South Bengal.

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### ABSTRACT

*This paper reports 56 species of mites under 31 genera, 16 families and 4 orders on medicinal weeds in South Bengal, which includes 31 species of phytophagous mites under 4 families, 16 species of predatory mites under 6 families and 9 species under 6 families of fungal feeding mites. This also records several new host/ habitat records, along with their importance as pests/ predators.*

### Introduction: -

Many of the weeds which are often neglected and trampled down by human beings and cattle may turn out to be very good source of herbal medicines. Despite this importance, no attention has been focused to investigate the mites which occur on medicinal herbs and their economic importance, if any. The present study, therefore, was undertaken to investigate the mites occurring on medicinal weeds and their importance. The present paper includes the results of that study conducted during January 2014 - September 2015.

### Material and Methods:-

The mites were collected from weeds by conventional method of examining the weeds in the field itself with the help of a 20X hand lens and collecting the mites by a fine brush moistened with alcohol. Many a times, the weed samples were brought to the laboratory in polythene bags after tightly closing the mouth with rubber bands and then those were examined under stereo binocular microscope for collection of mites. The mites were mounted in Hoyer's medium and examined under stereo research microscope. The collection trips were made fortnightly in some selected places of South Bengal located in districts of Hooghly, Howrah, Nadia, Burdwan, East Medinipur, North 24 Parganas and South 24 Parganas . The detail localities of collec-

tion spots have been mentioned in Table 1.

### Results and Discussion:-

The collected mite specimens were identified mostly by the junior author. A total of 56 species of mites under 31 genera, 16 families and 4 orders on medicinal weeds in South Bengal were collected. That included 31 species of phytophagous mites under 4 families 16 species of predatory mites under 6 families and 9 species of fungal feeding mites under 6 families. (Table – 1)

Along with the list of mites, the period of collection, localities, degree of dominance and economic importance, if any as pests/ predators have also been mentioned against each of the species.

So far as mites on weeds of South Bengal are concerned, the earlier study by Mondal *et al.* (2012) reported 18 species under 14 genera and 6 families while Gupta (2005, 2012) in his books reported a number of species of mites occurring on some weeds having medicinal values.

The present list includes 41 species which so far were not reported on medicinal weeds from South Bengal and therefore all those form new records. Likewise, there are also several new host / habitat records not known earlier.

**Table-1. A list of mite species collected on medicinal weeds from South Bengal. ( 1= Abundantly available, 2= Moderately available, 3= Scarcely available.)**

MITE	HOST	LOCALITY	PERIOD OF COLLECTION	RELATIVE ABUNDANCE	REMARK
Group:( A ) PHYTOPHAGOUS  Order I Prostigmata Family (a) Tetranychidae					
1. <i>Aponychus corpuzae</i> Rimando	<i>Saccharum spontaneum</i> Linn.	Dist.North 24 Parganas: Barasat, Basirhat, Madhyamgram; Dist. Nadia: Kalyani.	March, April- 2014 June, July -2015.	1	Occurred scatteredly on under surface of leaves causing no noticeable damage.
2. <i>Eotetranychus syzygii</i> Gupta and Gupta	<i>Chenopodium album</i> Linn.	Dist.North 24 Parganas: Naihati; Dist. Howrah: Santragachi.	January, February 2014	3	Observed on undersurface of leaf, stray occurrence.
3. <i>Eotetranychus</i> sp.	<i>Achyranthes aspera</i>	Dist. South 24 Parganas: Narendrapur; Dist. Hooghly: Bandel.	May, June 2014	3	Observed on undersurface of leaf, stray occurrence.
4. <i>Eotetranychus africanus</i> ( Tucker )	<i>Achyranthes bidentata</i>	Dist. Hooghly: Chuchura; Dist. Howrah: Santragachi.	January, March 2014, February 2015.	2	Moderately common but no damage done.
5. <i>Eutetranychus maximae</i> (Nassar and Ghai )	<i>Eichhornia crassipes</i> <i>Colocasia</i> sp.	Dist.Howrah: Ulluberia; Dist.South 24 Parganas: Baruipur, Sonarpur.	March, April 2014, January 2015.	2	Stray occurrence, no damage observed.

6 <i>Eutetranychus orientalis</i> (Klein )	<i>Croton sparciflora</i>	Dist. Hooghly, Chuchura; Dist.Nadia: Krishnanagar, Kalyani.	January, February 2014. April May 2015.	1	Population observed on upper surface of leaf, no damage noticed.
7. <i>Oligonychus indicus</i> ( Hirst )	<i>Cynodon dactylon</i>	Dist. North 24 Parganas: Barasat, Basirhat; Dist. Nadia: Kalyani.	September, October 2014, March, June, 2015.	1	Feeding produced whitish patches scattered on the undersurface of leaves in both the hosts.
	<i>Saccharum spontaneum</i>			3	Occurrence was seldom, no damage.
	<i>Cynodon rotundus</i>			3	Occurrence was seldom, no damage.
8. <i>Oligonychus sacchari</i> (McGregor )	<i>Saccharum spontaneum</i>	Dist. South 24 Parganas: Narendrapur; Dist.Nadia: Kalyani.	January 2014, May, July, 2015	2	Feeding produced whitish patches on the leaf lamina at the points of feeding
9. <i>Oligonychus</i> sp.	<i>Eleusine indica</i>	Dist. South 24 Parganas: Narendrapur; Dist.Nadia: Kalyani.	May, June 2015	3	Stray occurrence.
10. <i>Petrobia harti</i> ( Ewing )	<i>Oxalis corniculata</i>	Dist. North 24 Parganas: Barasat; Dist. Nadia: Krishnanagar.	January, February 2015	3	Very serious infestations observed in both surfaces of leaves, having over 100 mites / leaflet. All infested leaves showed chlorosis symptoms.
11. <i>Panonychus citri</i> ( McGregor )	<i>Solanum nigrum</i>	Dist.South 24 Parganas: Narendrapur; Dist. Nadia: Krishnanagar.	March, April, 2015.	3	Casual occurrence, no damage.
12. <i>Schizotetranychus andropogoni</i> ( Hirst )	<i>Saccharum spontaneum</i>	Dist.Howrah: Santragachi; Dist.Hooghly: Bandel, Chuchura.	September , October 2014, May, June 2015	1	Series of white stipplings appeared in linear row on undersurface of leaves.

13. <i>Schizotetranychus cajani</i> Gupta	<i>Cymbopogon</i> sp	Dist.Nadia: Kalyani; Dist.South 24 Parganas: Narendrapur.	July, September, 2015.	3	This greenish yellow mite infested under surface of leaf often having 15-20 mites per leaf in all stages of development. The damaged leaves turned yellow, followed by defoliation.
14. <i>Schizotetranychus hindustanicus</i> ( Hirst )	<i>Urena lobata</i>	Dist.North 24 Parganas: Barasat; Dist.Nadia: Krishnanagar.	March, June 2014.	3	Casual occurrence.
15. <i>Tetranychus ludeni</i> Zacher	<i>Lantana camara</i>	Dist.Howrah: Ulluberia; Dist.Hooghly: Baidyabati, Chuchura.	June, July 2014. April May 2015.	1.	This mite was seen on <i>Lantana camara</i> quite abundantly.
16. <i>Tetranychus macfarlanei</i> Baker and Pritchard	<i>Pavonia odorata</i> <i>Eclipta prostrata</i> <i>Malachra capitata</i> <i>Salvia splendens</i>	Dist.Hooghly: Baidyabati; Dist.North 24 Parganas: Barasat, Madhyamgram.	October, November 2014, March, September, May 2015.	1 1 3 3	Stray occurrence of this mite was seen causing no damage on its host .But it was serious on <i>Pavonia odorata</i> and <i>Eclipta prostrata</i> , causing yellowing of leaves
17. <i>Tetranychus neocaledenicus</i> Andre	<i>Abutilon indicum</i> , <i>Solanum viarum</i> , <i>Medicago sativa</i> , <i>Parthenium hysteroporus</i> .	Dist.Nadia: Kalyani, Krishnagar; Dist.Hooghly: Baidyabati; Dist.Burdwan: Kalna; Dist.East Medinipur: Haldia.	February, March 2014. April, June-2015	1 3 1 2	Out of four listed hosts, infestation was more on <i>Abutilon indicum</i> and <i>Medicago sativa</i> and less on the other two hosts. The infested leaves turned yellowish.
18. <i>Tetranychus urticae</i> ( Koch )	<i>Amaranthus viridis</i> <i>Amaranthus mexicana</i> <i>Amaranthus spinosus</i>	Dist.North 24 Parganas: Barasat; Dist.Nadia: Kalyani; Dist East Medinipur: Haldia.	March, April May 2014. March, September 2015.	1 1 1	This is a common mite infested on all the three species of <i>Amaranthus</i> and the population was reasonably high.
Family (b) Tenuipalpidae					
19. <i>Brevipalpus californicus</i> ( Banks )	<i>Amaranthus spinosus</i> , <i>Cassia fistula</i>	Dist.Hooghly: Baidyabati; Dist. North 24 Parganas: Barasat; Dist.Burdwan: Kalna.	September 2014. March , September, 2015	2 2	This tiny mite occurred on undersurface of leaves, more near the midrib, no damage.
20. <i>Brevipalpus euphorbiae</i> Mohanasundaram	<i>Croton sparciflora</i>	Dist.North 24 Parganas: Barasat; Dist.Nadia: Kalyani.	June, July 2015.	3	Casual occurrence on undersurface of leaves, no damage.
21. <i>Brevipalpus obovatus</i> ( Donnadieu )	<i>Clerodendron inerme</i>	Dist.Howrah: Santragachi; Dist.Hooghly: Chuchura; Dist. East Medinipur: Haldia.	March, April, 014.	3	Casual occurrence on undersurface of leaves, no damage.
22. <i>Brevipalpus phoenicis</i> (Geij.)	<i>Ocimum sanctum</i> <i>Enydra fluctuans</i>	Dist.North 24 Parganas: Barasat; Dist.Hooghly: Chuchura; Dist.Burdwan: Kalna.	April May 2014. March, April, 2015	1 2	Produced brownish patches on leaves. Such leaves gradually dried up.

23. <i>Brevipalpus rugulosus</i> (Chaudhuri <i>et al.</i> )	<i>Cannabis sativa</i>	Dist.Nadia: Krishnanagar; Dist.Hooghly: Bandel; Dist.East Medinipur: Haldia.	October 2014, March, September 2015.	2	Casual occurrence.
24. <i>Brevipalpus</i> sp.	<i>Lantana camara</i>	Dist.Howrah: Santragachi; Dist.Hooghly: Chuchura.	July, August 2014. June 2015.	2	Casual Occurrence, No damage.
Family (c) - Tarsonemidae					
25. <i>Polyphagotarsonemus latus</i> ( Banks )	<i>Asparagus racemous</i> , <i>Croton sparciflora</i> , <i>Physalis minima</i>	Dist.Nadia: Krishnanagar; Dist.South 24 Parganas: Baruipur; Dist.Burdwan: Katwa.	March, September 2015.	3 2 3	This tiny mite was found on undersurface of leaf causing wrinkling of leaves and stunting of growth.
26. <i>Tarsonemus</i> sp.	<i>Cyperus rotundus</i> <i>Eichhornia crassipes</i>	Dist.Nadia: Kalyani; Dist.Hooghly: Bandel; Dist.Burdwan: Katwa	May, June 2014. July, August 2015.	2 2	This tiny mite was found on undersurface of leaf causing no damage.
27. <i>Xenotarsonemus</i> sp.	<i>Cynodon dactylon</i>	Dist.South 24 Parganas: Baruipur; Dist. Howrah: Santragachi; Dist. Nadia: Kalyani.	June , July 2014 August 2015.	2	This tiny mite was found on under surface of leaf causing no damage.
Family (d) Eriophyidae					
28. <i>Aculops abutiloni</i> . Mondal & Chakraborty	<i>Abutilon indicum</i>	Dist. South 24 Parganas: Narendrapur; Dist. Nadia: Kalyani.	March, April. 2015	3	Found as vagrants on undersurface of leaves.
29. <i>Aceria barleriae</i> Channabasavanna	<i>Barleria cristata</i>	Dist.Nadia: Kalyani; Dist. Howrah: Ulluberia.	May, June 2014	3	Casual occurrence.
30. <i>Aceria lycopersici</i> (Wolff.)	<i>Solanum niagram</i>	Dist.Howrah: Ulluberia; Dist.Nadia: Kalyani	June 2014. July, August , 2015	2	Although this mite is known to produce excessive erineum on undersurface of leaves in other solanaceous plants but such symptoms were not noticed when examined under microscope.
31. <i>Aceria</i> sp.	<i>Acalypha indica</i>	Dist.Nadia: Kalyani; Dist.Howrah: Ulluberia.	May, June, 2015.	3	Stray occurrence.

(B) Predatory Mites Order I Prostigmata Family(e) Cunaxidae					
32. <i>Cunaxa setirostris</i> (Hermann)	<i>Eichhornia crassipes</i>	Dist.Howrah: Santragachi; Dist. Hooghly: Bandel.	January, February 2015	3	Occurred casually on aquatic weed.
Family (f) Eupodidae					
33. <i>Eupodes sigmoidensis</i> Strandtmann and Goff	<i>Ocimum sanctum</i>	Dist.South 24 Parganas: Narendrapur; Dist.Hooghly: Bandel.	January, February 2014.	3	This jumping mite was observed on the host leaf but nature of association is doubtful.
Family (g) Stigmaeidae					
34. <i>Agistemus fleschneri</i> Summers	<i>Ricinus communis</i> <i>Lantana camara</i>	Dist.South 24 Parganas: Baruipur ; Dist.Howrah: Ulluberia; Dist.Burdwan: Kalna.	January, February 2015.	3 2	Occurred in association with Tetranychid mite may be predatory.
35. <i>Agistemus industani</i> Gonzalez –Rodriguez	<i>Cyperus rotundus</i>	Dist.Howrah: Santragachi; Dist.Hooghly: Bandel.	March, April- 2015	3	No feeding on prey mite of Tetranychids observed.
Family (h) Tydeidae					
36. <i>Pronematus sextoni</i> Baker	<i>Barleria cristata</i>	Dist.Howrah: Santragachi; Dist.Nadia: Krishnanagar, Kalyani; Dist. Burdwan: Kalna.	March, April 2014. January , February 2015	1	Occurred in association with <i>Aceria barleriae</i>
OrderII Mesostigmata					
Family (i) Ascidae					
37. <i>Lasioseius</i> sp.	<i>Cynodon dactylon</i> <i>Eichhornia crassipes</i>	Dist.Nadia: Kalyani; Dist.South 24 Parganas: Narendrapur.	March, April 2014	3 3	Occurred casually.
38. <i>Blattisocius</i> sp.	<i>Cynodon dactylon</i>	Dist.South24Parganas: Baruipur; Dist.Hooghly: Bandel.	January, February 2015	3	Occurred casually

Family (j) Phytoseiidae					
39. <i>Amblyseius herbcicolus</i> ( Chant )	<i>Croton sparciflora</i>	Dist.Hooghly: Bandel; Dist.Howrah: Ulluberia; Dist.East Medinipur: Haldia.	May 2014. March, April 2015	2	Occurred in association with <i>Polyphagotarsonemus latus</i>
40. <i>Amblyseius largoensis</i> ( Muma )	<i>Clerodendron inerme</i> , <i>Euphorbia triplinerve</i> <i>Croton sparciflora</i>	Dist.South 24 Parganas: Baruipur; Dist.Nadia: Kalyani; Dist.Hooghly: Bandel.	March, April 2014. Januray, February 2015.	1 2 2	Quite common on <i>Clerodendron inerme</i> and less so on the other two plants. It is a well known predator of Tetranychid mites.
41. <i>Euseius alstoniae</i> (Gupta)	<i>Enydra fluctuans</i> <i>Solanum surattense</i>	Dist.South 24Parganas: Baruipur; Dist: Howrah: Ulluberia.	January, February 2015	3 3	Casual occurrence.
42. <i>Euseius coccineae</i> (Gupta )	<i>Coccinia grandis</i>	Dist.Howrah: Santragachi; Dist.Nadia: Kalyani; Dist.Burdwan: Katwa.	May, June 2014. July, August 2015	1	No predatory importance noticed.
43. <i>Euseius finlandicus</i> ( Oudemans)	<i>Coccinia grandis</i>	Dist.Hooghly: Baidyabati; Dist.Nadia: Kalyani; Dist. East Medinipur: Haldia.	March, April 2014.May 2015.	2	Predatory behavior not noticed population low.
44. <i>Euseius ovalis</i> ( Evans)	<i>Ipomoea digitalis</i> <i>Ricinus communis</i>	Dist.Hooghly: Baidyabati; Dist.Nadia: Kalyani; Dist.Burdwan: Katwa.	March, April 2014. February 2015.	3 2	Known to be a good predator, but such behavior not noticed in the present study.
45. <i>Neoseiulus cynodonae</i> ( Gupta )	Jhonson grass	Dist. North 24Parganas: Barasat; Dist Hooghly: Bandel.	January, February 2015.	3	Predatory behavior not noticed.

46. <i>Neoseiulus longispinosus</i> ( Evans )	Jhonson grass	Dist.North 24 Parganas: Barrackpur; Dist.Hooghly: Bandel	July 2014. May, June 2015.	2	Known to be a good predator but such behavior not noticed in the present study.
47. <i>Neoseiulus fallacis</i> ( Garman )	<i>Cynodon dactylon</i>	Dist. Hooghly: Baidyabati; Dist.Howrah: Ulluberia; Dist. East Medinipur: Haldia.	March, April 2014. May, June 2015.	1	Occurred regularly but predatory behavior not noticed
(C) Fungivorus Order III Astigmata Family ( k ) Acaridae					
48. <i>Acarus</i> sp.	<i>Datura metel</i>	Dist.North 24 Parganas: Barasat; Dist.Nadia: Kalyani.	March 2014. January, February 2015.	2	Found in association with fungus.
49. <i>Tyrophagus putrescentiae</i> ( Schrank )	<i>Eichhornia crassipes</i>	Dist.Nadia: Krishnanagar; South 24 Parganas: Baruipur; East Medinipur: Haldia.	September, October 2014. July, August 2015.	1	Good population noticed on aquatic weed.
Order IV Cryptostigmata Family ( 1 ) Galumnidae					
50. <i>Galumna</i> sp. Family ( m ) Mycobatidae	<i>Eichhornia</i> sp.	Dist.North 24 Parganas: Barasat; Dist.Nadia: Kalyani.	May, June 2014.	3	Casual occurrence, importance unknown.
51. <i>Punctoribates insignis</i> ( Balogh and Csizar ) Family ( n ) Oribatulidae	<i>Eichhornia crassipes</i>	Dist.Nadia: Kalyani; Dist.Hooghly: Bandel.	January, February 2015.	3	Casual occurrence, importance unknown.
52. <i>Scleroribates decarinatus</i>	<i>Eichhornia crassipes</i>	Dist.Nadia: Kalyani; Dist.Hooghly: Bandel.	March, April 2015.	3	Casual occurrence, importance unknown.
53. <i>Scleroribates</i> sp.	<i>Eichhornia crassipes</i>	Dist.Nadia: Krishnanagar; Dist. Hooghly: Bandel.	January , February 2014	3	Casual occurrence, importance unknown.

Family (o) Oribitellidae					
54. <i>Lamellobates</i> sp.	<i>Eichhornia crassipes</i>	Dist.Nadia: Kalyani; Dist. South 24 Parganas: Baruipur.	January, February 2014	3	Casual occurrence, importance unknown.
55. <i>Paralamellobates</i> sp.	<i>Eichhornia crassipes</i>	Dist. South 24 Parganas: Narendrapur; Dist.Hooghly: Chuchura.	January, February 2014	3	Casual occurrence, importance unknown.
Family ( p) Orthogalumnidae					
56. <i>Orthogalumna terebrantis</i>	<i>Eichhornia crassipes</i>	Dist.Hooghly: Bandel; Dist. Nadia: Kalyani.	March, April 2015.	3	Casual occurrence, importance unknown.

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