ORIGINAL RESEARCH PAPER
Volume-6 | Issue-9 | September-2017 | ISSN No 2277 - 8179 | IF : 4.176 | IC Value : 78.46
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

PHYTOPHAGOUS AND PREDATORY MITES ON SOME PLANTS USED IN UNANI SYSTEM OF MEDICINE IN NADIA AND SOUTH 24 PARGANA DISTRICT OF WEST BENGAL, INDIA

Zoology

Chandreyi Ghosh M.Sc., Student, PG Departmemt Of Zoology, Vidyasagar College, Saltlake, sector II, Kolkata, West Bengal-700091

Dr.N.Debnath Associate Professor, PG Department of Zoology, Vidyasagar College, Salt Lake Sector-II, Kolkata, West Bengal 700091

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

ABSTRACT

The present paper is based on a study of mites occurring on some economically important plants with special reference to those used in Unani system of medicine in Nadia and South 24 pargana districts of West Bengal and reports the occurrence of 26 species under 13 genera and 7 families belonging to 2 orders. Among these, there were 13 species of phytophagous mites under 6 genera & 3 families while there were 13 species under 7 genera and 4 families which were predatory in nature. This paper also reports the damage symptoms caused by the phytophagous mites on the respective host plants and the prey mites on which the predatory mites were found feeding along with their host/habitat records, localities, relative abundance etc. Earlier to these, no information in these regard from the concerned areas was earlier known.

KEYWORDS

Nadia Dist., West Bengal, phytophagous mites, predatory mites, Unani medicinal plants, damage symptoms.

INTRODUCTION

The districts Nadia and South 24 parganas are endowed with rich vegetation and many of those are used in Unani System of medicines. Such plants are often attacked by mites and those substantially reduce the active ingredients which are used in preparation of medicines. Thereby, the growers sustain economic loss. Unfortunately, these plants in the concerned districts have not been surveyed for occurrence of mites and nature of damage they do. In view of this, the present work was taken up to meet that gap and the results are presented in this paper Gupta (2012) though provided summarized information on mites of medicinal plants but no mentioning was done regarding the occurrence of mites on plants used in Unani medicines.

MATERIAL AND METHODS

For studying the diversity of Mites on some economically important plants of Nadia and South 24 pargana district of West Bengal, the places wherefrom collection was made were Kalyani, Simurali, Chakdaha, Payradanga, Ranaghat and the adjoining areas and Narendrapur Medicinal Plant Garden(Dist. South 24 pargana). The collection trip was conducted twice in a month and as such 12-collection trips were conducted during Sep'16 to March'17. Leaves of Plants were examined in the fields under a 20x hand lens and mites whatever could be seen, were collected with the help of a fine brush, moistened with alcohol and preserved in 70% alcohol. In many a case, the leaves were brought in the laboratory in polythene bags covering the mouth tightly and leaves were examined under a stereobinocular microscope and the mites were collected therefrom. The mounting was done in Hoyer's medium and the mites were identified consulting the current literature. The identified specimens were documented given the respective localities, hosts/habitats, importance etc.

RESULTS AND THE DISCUSSION

The collection of mites made from Nadia and South 24 pargana District of West Bengal and their identification revealed the occurrence of a total of 26 species under 13 genera and 7 families belonging to 2 orders and all those were listed in a **Table:1** along with their hosts/habitats, localities, relative abundance and economic importance if any and the same is self-explanatory. There were 13 species of Phytophagous Mites under 6 genera, 3 families and 2 orders while there were 13 species under 7 genera,4 families and 2 orders which were predatory in nature. Out of those, there were several species which were not earlier known to occur on the respective hosts as listed in **Table:1**

TABLE 1: List of Phytophagous And Predatory Mites On Some Plants Used In Unani System of Medicine In Nadia And South 24 Pargana District of West Bengal, India

No.	Order/Family	Name of Species	Host/Habitat	Locality	Relative Abundance	Remarks
<I>	PHYTOPHAGOUS					
	Order: Prostigmata					
a>	Family: Tetranychidae					
1.		*Eotetranychus suginamensis* (yokoyama)	*Nyctanthes arbor-tristis*	Chakdaha	1	The infestation produced yellowish patches on under surface of leaves.
2.		*Eotetranychus sexmaculatus* (Riley)	* *Nyctanthes arbor-tristis*	Chakdaha	3	Casual occurrence.
3.		*Eutetranychus orientalis* (Klein)	* *Coffea arabica*	Narendrapur	3	Occasionally seen on upper surface of leaves. Population poor, no damage done.
4.		*Eotetranychus indicus* Gupta & Gupta	*Lawsonia inermis*	Payradanga	3	Casual occurrence.no damage done.
5.		*Panonychus citri* (Mc Gregor)	*Theobroma cacao*	Narendrapur	3	Occasionally found on upper surface of leaves, no damage done.
6.		*Tetranychus hypogeae* Gupta	*Abroma augusta*	Simurali, Kalyani	3	The occurrence of this mite was casual and therefore no damage was noticed.

7.		*Tetranychus ludeni* Andre	*Rauvolfia serpentina*	Narendrapur	1	The infestation Was found on under surface of leaves causing chlorosis.
8.		*Tetranychus macfarlanei* Baker and Prichard	*Abutilon indicum*	Narendrapur	1	Heavy infestation on under surface of leaves, affected plants had shown retarded growth.
9.		*Tetranychus neocaledonicus* Andre	*Rauvolfia serpentina, Hibiscus rosa-sinensis, Tagetes erecta*	Ranaghat, Payradanga, Chakdaha	2	Infested heavily on *Rauvolfia serpentina* The leaves suffered from chlorosis,turned brown and dried up.
10.		*Tetranychus urticae* Koch	*Nyctanthes arbor-tristis*	Chakdaha	3	Casual occurrence.
b>	Family: Tarsonemidae					
11.		*Polyphagotarsonemus latus* Banks	*Coffea arabica, Nyctanthes arbor-tristis, Datura metel.*	Narendrapur	2	This mite was seen on young leaves, which turned yellowish.
c>	Family: Tenuipalpidae					
12.		*Brevipalpus californicus* (Banks)	*Justicia adhatoda*	Narendrapur	1	A huge population was seen all along the study period. The infested leaves turned brownish especially towards the margin.
13.		*Brevipalpus phoenicis* (Geijskes)	*Datura metel, Nyctanthes arbor-tristis*	Narendrapur	2	A good population was seen during December 2016, January 2017. produced brownish patches on under surface of leaf lamina.
<II>	*PREDATOR*					
d>	Family: Cunaxidae					
14.		*Cunaxa capreiolus* (Berlese)	** *Nyctanthes arbor-tristis*	Chakdaha	2	This is known to be a very good predatory mite but such behaviour was not seen in the present study.
15.		*Cunaxa mangiferae* Gupta	** *Tagetes erecta*	Payradanga,Ranaghat	3	Casual occurrence.no importance observed.
e>	Family: Stigmaeidae					
16.		*Agistemus edulis* Gupta	** *Hibiscus rosa-sinensis, Tagetes erecta, Justicia adhatoda*	Narendrapur	3	Casual occurrence in association with *Brevipalpus obovatus.*
17.		*Agistemus gamblei* Gupta	*Nyctanthes arbor-tristis,Hibiscus rosa-sinensis*	Chakdaha, Kalyani	3	Casual occurrence.
18.		*Agistemus hystrix* Gupta	** *Nyctanthes arbor-tristis*	Chakdaha	3	Its casual occurrence was in association with *Polyphagotersonemus latus*, no feeding observed.
f>	Family: Tydeidae					
19.		*Pronematus fleschneri* Baker	*Tagetes erecta*	Simurali, Chakdaha, Payradanga	3	Quite often encountered on the host plant.
B	*Order: Mesostigmata*					
g>	Family: Phytoseiidae					
20.		*Amblyseius herbicolus* (Chant)	*Nyctanthes arbor-tristis*	Chakdaha	2	Abundantly available in association with *Polyphagotarsoneums latus.*
21.		*Amblyseius largoensis* (Muma)	*Rauvolfia serpentina*	Narendrapur	2	Quite often encountered.
22.		*Amblyseius paraaerialis Muma*	*Coffea arabica*	Narendrapur	3	Casual occurrence.
23.		*Euseius ovalis* (Evans)	*Hibiscus rosa-sinensis*	Payradanga,Chakdaha ,Simurali	3	Quite often encountered. it is otherwise a good predator but such behaviour not seen.
24.		*Neoseiulus cynodoane* (Gupta)	*Lawsonia inermis*	Simurali	3	Casual occurrence.
25.		*Scapulaseius polyantheae* (Gupta)	* *Mentha arvensis*	Narendrapur	3	Occasionally encountered. no importance known, population low.
26.		*Scapulaseius suknaensis* (Gupta)	*Datura metel*	Payradanga	3	Casual occurrence.

New host records** * New habitat records**

ACKNOWLEDGEMENTS

The authors are thankful to the Principal Vidyasagar College and Head, PG Department Of Zoology, for providing infrastructure facilities and to the Secretary, Ramakrishna Mission Ashrama Narendrapur for allowing the authors to collect specimen from their medicinal plants garden and using the laboratory.

REFERENCE

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.