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STUDIES ON THYSANOPTEROCECIDIA WITH DESCRIPTION OF A NEW SPECIES FROM MANIPUR STATE

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Eleven species including one new among the five genera of gall thrips are reported from Manipur State.

INTRODUCTION

A preliminary survey of Thysanopterocecidia in Manipur has revealed the presence of 11 species of gall thrips belonging to 5 genera, *i.e. Araeothrips, Crotonothrips, Gynaikothrips, Liophlaeothrips* and *Mesothrips*. The host plants like *Artocarpus champlosa, Boerhmeria caprifolia, Hiptage madhablata* and *Strobicanthus* sp. are being reported for the first time as thrips galls from this area. The survey has also revealed the occurrence of a species hitherto unknown to science. This has been named as *Gynaikothrips shyami*. The present communication thus deals with the description of the new species alongwith the new report of the host plants.

A gall is defined by Mani (1973) as an outgrowth of a part or some parts of a plant with pathologically developed cells, tissues and organs which have arisen mostly by hypertrophy (overgrowth) as well as hyperplasy (excessive cell division) normally under the influence of parasitic organisms. The organisms responsible for inducing the galls are called cecidozoans. Ananthakrishnan *et al.* (1982) have contributed a lot in India in the field of thysanopterocecidozoan and free living Thysanoptera. Recently, Nilamani & Prasad (1990a & b, 1991a & b & 1992) have described thysanopterocecidians from the North-Eastern States.

MATERIAL AND METHODS

An extensive survey was conducted to collect thrips galls and galls thrips from different parts of Manipur. The gall thrips were collected from most parts of the plants and brought to the laboratory and reared. Adult thrips were collected from the galls and preserved in 70% alcohol. Some parts of the galled plants were also collected for identification of the host plants. The identification of gall thrips was done after preparation of permanent slides. All measurement are in micrometers (μm), unless otherwise mentioned.

SYSTEMATIC ACCOUNTS

Order	:	Thysanoptera
Suborder	:	Tubulifera
Family	:	Phlaeothripidae

Araeothrips duibongensis Nilamani & Prasad.

1991 Nilamani & Prasad. *Nat. Acad. Sci. India.* 61 (B) IV : 415-470.

Materials: 7 ♀♀, 14 ♂♂. India: Manipur, Jiriam (Duibong) 10. xi. 1985; 2. i. 1986; 5. xii. 1986; 9. xi. 1987. Ex. leaf gall on an unidentified plant.

Araeothrips vamana Muraleedharan

1982 Muraleedhrana. *Rec. Zool. Surv. India*. 79 : 374-376.

Materials: 3 ♀, ♂. India : Manipur, Moreh. 11. iii. 79. Ex. wild plant.

Crotonothrips nagaensis Muraleedharan

1982 Muraleedharan. *Rec. Zool. Surv. India*. 79 : 376-378.

Materials: 4 ♀♀, 3 ♂♂. India : Manipur, Andro. 29. xii. 1986; Litan. 15. i. 1987. Ex. leaf fold gall on *Hiptage madhablata*.

Crotonothrips (*Inermothrips*) *maoensis* Nilamani & Prasad

1990 Nilamani & Prasad. *J. Bombay. Nat. Hist. Soc.* 87 (2) : 262 - 264.

Materials: 6 ♀♀, 4 ♂♂ India : Manipur, Pallel 8. xii. 1984 and Mao 2. xi.1986. Ex. leaf horn gall on *Schefflera wallichii*.

Gynaikothrips cecidii Ananthakrishnan

1968 Ananthakrishnan, *Orient. Ins.* 2 (1) : 45-46.

Materials : 6 ♀♀, India : Manipur, Moreh 25. xi. 1986. Ex. leaf curl gall on an unidentified plant.

Liophlaeothrips succinctus Ananth. & Jagadish

1969 Ananthakrishan & Jagadish, *Marcellia*. 36 (1-2) : 44.

Materials : 4 ♀♀, 3 ♂♂ India : Manipur, Charangpat 14. viii. 1988. Ex. leaf gall on *Mallotus philippinensis*, Jiribam 14. xii. 1989. Ex. leaf gall on *Strobicanthus* sp.

Liophlaeothrips pavattae Ananth. & Jagadish

1969 Ananthakrishnan & Jagadish *Marcellia*. 36 (1-2) : 42-43.

Materials : 3 ♀♀, 5 ♂♂ India : Manipur Chandel 2. xi. 1987 and Litan 10. xi. 1988. Ex. leaf curl gall on *Boerhmeria caprifolia*.

Mesothrips moundi Ananthakrishnan

1976 Ananthakrishnan, *Orient. Ins.* 10 (2) : 195-196.

Materials : 4 ♀♀, 3 ♂♂. India : Manipur, Moreh 9.xi. 1986. Ex. leaf gall on *Croton* sp. and *Mallotus philippinensis* and Noneh 9. ii. 1987. Ex. leaf gall on *Croton oblongifolia*.

Mesothrips ustulatus Karny

1922 Karny, *J. Siam Soc.*, 16 (2) : 146-149.

Materials : 6 ♀♀, 4 ♂♂. India : Manipur, Moreh 25. xi. 1987. Ex. leaf gall on *Artocarpus champlosa*.

Mesothrips bombicinus Nilamani & Prasad

1992 Nilamani & Prasad. *Orient. Zool.* 6 & 7 : 47-50.

Materials : 8 ♀♀. India : Manipur, Langol 25. xii. 1987. Ex. leaf on *Michalus bombicina*.

Gynaikothrips shyami sp. nov. (Fig. 1)

Female (Male) : General body colour brown. Antennal segments 1, 2 and 8 brown with apical half yellow, 3-7 uniformly yellow. All femora brown, fore tibiae yellow with brownish margin, mid and hind tibiae brown, all tarsi yellow. Fore tarsi armed and wings infumate. All setae yellowish brown and blunt.

Head longer than wide, 198-206 (176 - 86) long, 170 -176 (160 -166) wide across eyes, 188 -194 (172-176) wide across the cheeks, 184-190 (168 -172) wide at base. Cheeks smooth with a few small setae. Surface weakly reticulate. Eyes 64-70 (60-64) long, 54-58 (50-54) wide, lateral ocelli 20-24 (16-20) wide, median ocellus overhanging between the antennae. Postoculars longer than eyes, 70-82 (64-68) long, placed 16-22 below the eyes. Antennal segments 1-8 length (width) :

	1st	2nd	3rd	4th	5th	6th	7th	8th
Female	40-44 (38)	46-50 (32)	62-66 (24)	50-54 (24)	56-60 (24)	58-62 (24)	50-54 (20)	38-42 (12)
Male	36-40 (36)	42-46 (24)	54-58 (20)	48-52 (24)	46-50 (20)	50-54 (24)	42-46 (16)	32-36 (12)

Sense cones 22-26 (20-24) long, mouth cones 112-118 (94-98) long, 178-182 (160-164) wide at base, 80-86 (64-68) wide at apex. Maxillary stylets not approximated at middle.

Prothorax 162-166 (140-146) long at median dorsal line, 192-198 (188-192) wide across anterior margin, 364-370 (326-330) wide across posterior margin including coxae. Anteromarginals vestigial, anteroangulars 48-52 (28-32) long, mid laterals 56-60 (52-56) long, epimerals and postangulars subequal, 86-90 (70-76) long. Notopleural sutures complete. Pterothorax 428-434 (366-370) wide at mesothorax, 396-402 (348-356) wide at metathorax. Forwings infumate, 812-818 (716-722) long, 78-84 (64-70) wide, with 1-2 double fringes. Basal wing bristles $B_1 - B_3$ 42-46 (36-40), 58-62 (60-64), 70-74 (66-70) long respectively. Mesopraesternum incomplete, restricted to two lateral plate.

Pelta hat-shaped, with flattened apex. Abdomen 400-410 (350-356) wide at base, 416-422 (380-386) wide at middle, 320-328 (300-306) wide at segment VIII, 200-208 (160-166) wide at segment IX. $B_1 - B_3$ of segment IX 156-160 (148-152), 152-156 (40-46), 140-144 (96-100) long respectively. Tube 172-178 (160-164) long, anal setae 142-146 (140-144) long.

Total body length without tube 1.9-2.1 (1.7-1.9) mm.

Materials : Holotype ♀, allotype, ♂, paratype 4 ♀♀, 3 ♂♂. India : Manipur, Pallel - 3. xii. 1989; Chakpikarong 20. xi.1990 Iroishemba 27. viii. 1991. Ex. leaf gall on *Ficus* sp.

Remarks : This species is close to *Gynaikothrips flaviantennatus* Moulton but differs in having incomplete mesopraesternum and vestigial anteromarginals. It is also similar to *Gynaikothrips cecidii* Ananth., but differs in postoculars longer than eyes, incomplete epimeral sutures and the number of double frignes.

DISCUSSION

This preliminary work has revealed that the gall thrips and thrip galls of Manipur are varied and comprise different genera of Thysanopterocecidozoan associated with different host plants. *Araeothrips Ananth.*, *Crotonothrips* Ananth., *Gynaikothrips* Karny, *Liophlaeothrips* Priesner and *Mesothrips* Zimm. are the genera whose members have been found forming the galls on the host plants belonging to the families Acantheceae, Araliaceae, Caprifoliaceae, Euphorbiaceae, Malpighiaceae, Moraceae, etc. From among these families, Caprifoliaceae and Malphighiaceae are new records for India.

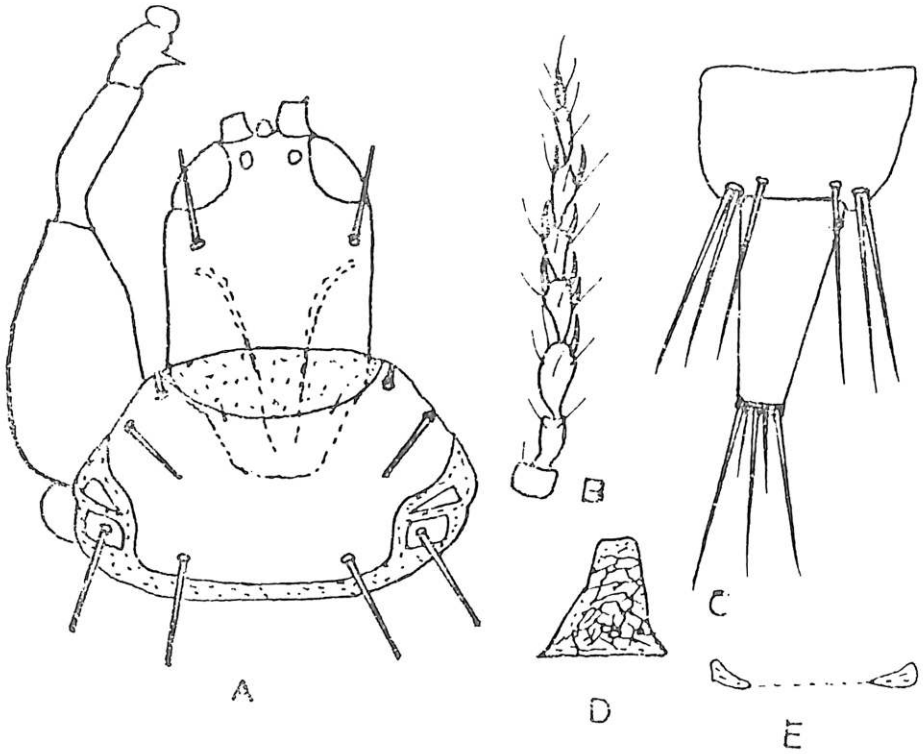

Fig. 1. *Gynaikothrips shyami* sp. nov. A. Head and prothorax; B. Antenna; C. $B_1 - B_3$ of IX segment with tube; D. Pelta; E. Mesopraesternum.

The distribution of thrips galls in Manipur presents a number of interesting peculiarities. Some galls are extremely common throughout Manipur during all seasons but others are restricted to certain areas. The galls on *Mallotus philippinensis* induced by *Liophlaeothrips succinctus* Ananth. & Jagadish and *Mesothrips moundi* Ananth., and on *Schefflera wallichii* caused by *Crotonothrips (Inermothrips) maoensis* Nilamani & Prasad, are distributed all over Manipur in all seasons. The galls on *Artocarpus champlosa, Michalus bombicina* and *Strobicanthus* sp. induced respectively by *Mesothrips ustulatus* Karny, *Mesothrips bombicinus* Nilamani & Prasad and *Liophlaeothrips succinctus* Ananth. & Jagadish are restricted only to some areas. The host plants *Artocarpus champlosa, Boerhmeria caprifolia, Hiptage madhablata* and *Storbicanthus* sp. are new records on which gall formation has been recorded for first time from this area. By far most of the thrips galls in Manipur during the winter season. All the thrips galls and gall thrips except *A. vamana* Muraleedharan and *C. nagaensis* Muraleedharan reported in this paper are new records from Manipur.

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