



## New records of Thrips (Insecta: Thysanoptera) from India

**Devkant Singha**

Molecular Systematics Division, Centre for DNA Taxonomy, Zoological Survey of India, Kolkata, India.

✉ [devkant144@gmail.com](mailto:devkant144@gmail.com); <https://orcid.org/0000-0002-0670-520X>

**Abhishek Patidar**

Molecular Systematics Division, Centre for DNA Taxonomy, Zoological Survey of India, Kolkata, India.

✉ [abhipatidar.7a@gmail.com](mailto:abhipatidar.7a@gmail.com); <https://orcid.org/0000-0003-2089-8308>

**Vikas Kumar**

Molecular Systematics Division, Centre for DNA Taxonomy, Zoological Survey of India, Kolkata, India.

✉ [vikaszi77@gmail.com](mailto:vikaszi77@gmail.com); <https://orcid.org/0000-0002-0215-0120>

**Kaomud Tyagi**

Molecular Systematics Division, Centre for DNA Taxonomy, Zoological Survey of India, Kolkata, India.

✉ [kumud.tyagi5@gmail.com](mailto:kumud.tyagi5@gmail.com); <https://orcid.org/0000-0003-1064-9826>

### Received:

25 November, 2021

### Accepted:

03 January, 2022

### Published:

05 January, 2022

### Subject Editor:

Kambiz Minaei

**ABSTRACT.** During 2018–2020, several field surveys have been conducted to collect thrips in different parts of India. Five thrips species: *Dolichothrips reuteri* (Karny), *Hydatothrips haschemi* Girault, *Litotetothrips pasaniae* Kurosawa, *Mesothrips annamensis* Priesner, and *Stenchaetothrips bambusicola* Mound have been identified as new to Indian subcontinent.

**Key words:** Thripidae, Phlaeothripidae, New records, India

**Citation:** Singha, D., Patidar, A., Kumar, V. & Tyagi, K. (2022) New records of Thrips (Insecta: Thysanoptera) from India. *Journal of Insect Biodiversity and Systematics*, 8 (1), 145–150.

## INTRODUCTION

Thysanoptera (Thrips) with nine families under two suborders are known by 6,312 species globally (ThripsWiki, 2021). However, thrips from India is known by 739 species which constitute around 12% of the total world thrips diversity (Tyagi & Kumar, 2016). They have a wide range of feeding habitats from phytophagous to fungivorous. Thrips are important due to their economic important and pestiferous behaviour. Thus, the surveillance and identification of thrips is very crucial to develop the integrated pest management strategies. In last three years, the authors have surveyed three states (Kerala, Mizoram, West Bengal) of India and identify five thrips species for the first time. These new records belong to two families, Phlaeothripidae and Thripidae. The purpose of the present study is to report these five species of thrips which were newly recorded from India along with their diagnosis.

## MATERIAL AND METHODS

The specimens were collected by the standard beating method in 70% ethanol and subsequently stored at -30°C for further analysis. The specimens were mounted onto a glass slide for morphological

Corresponding author: Tyagi, K., E-mail: [kumud.tyagi5@gmail.com](mailto:kumud.tyagi5@gmail.com)

**Copyright** © 2022, Singha et al. This is an open access article distributed under the terms of the Creative Commons NonCommercial Attribution License (CC BY NC 4.0), which permits Share - copy and redistribute the material in any medium or format, and Adapt - remix, transform, and build upon the material, under the Attribution-NonCommercial terms.

identification (Masumoto & Okajima, 2005; Okajima, 2006; Mound & Tree, 2009; Mound, 2011; Mound & Okajima, 2015). Leica® Trinocular Microscope (Leica DM1000) was used for photographs and illustrations. These specimens were deposited in the National Zoological Collections (NZC), Zoological Survey of India, Kolkata, India.

## RESULTS

### Order Thysanoptera: Haliday, 1836

### Suborder Tubulifera Haliday, 1836

### Family Phlaeothripidae Uzel, 1895

### Subfamily Phlaeothripinae Uzel, 1895

### Genus *Dolichothrips* Karny, 1912

#### *Dolichothrips reuteri* (Karny, 1920) (Fig. 1A–1B)

**Diagnosis:** Body including all femora and fore tibia dark brown, mid and hind tibiae clear yellow. Pronotum with sculpture lines near posterior and lateral margins. Abdominal tergites II–V with an extra pair of setae that are straight but not sigmoidal close to anterior pair of sigmoid setae; S1 setae on tergite IX as long as tube.

**Material Studied:** West Bengal, Hooghly, 25.viii.2019, 11♀♀ & 3♂♂, from mixed vegetation (Registration no: 9808/H17, 10817/H17, 10819/H17, 10820/H17, 10826/H17, 10828/H17–10837/H17), leg.: Avas Pakrashi.

**Distribution.** Australia, China (including Taiwan), Japan, India (**New**).

### Genus *Litotetothrips* Priesner, 1929

#### *Litotetothrips pasaniae* Kurosawa, 1937 (Fig. 1C–1D)

**Diagnosis:** Body dark brown. Fore femora with extreme apices yellowish, fore tibiae yellow, all tarsi yellow; antennal segments III–VII largely yellow. Fore wings slightly shaded brown basally. Head as long as wide with weak anastomosing striation at basal half dorsally. Pronotum weakly sculptured towards posterior margin. Fore wings without duplicated cilia. Pelta bell-shaped. Tube 2.5 times as long as broad. Anal setae almost as long as tube.

**Material Studied:** Mizoram, Aizwal, 27.i.2019, 2♀♀ & 1♂, on general vegetation (Registration no: 10711/H17, 10930/H17 to 10930/H17), leg.: Iftikar Rahaman.

**Distribution.** China (including Taiwan), Japan, India (**New**).

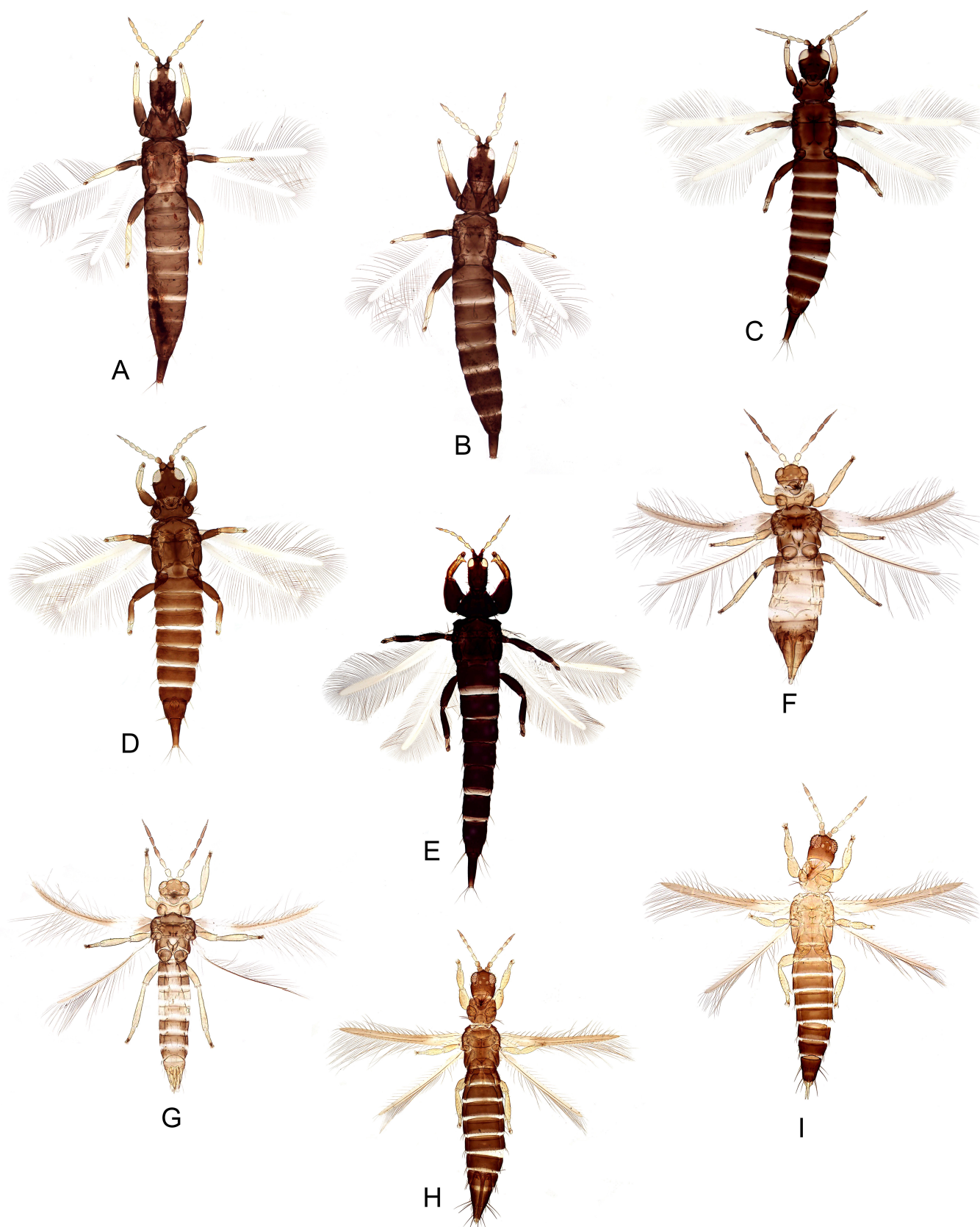
### Genus *Mesothrips* Zimmermann, 1900

#### *Mesothrips annamensis* Priesner, 1929 (Fig. 1E)

**Diagnosis:** Body dark brown with light brown fore tibia and tarsi. Fore wings constricted medially; transparent on distal half and clouded and mottled on proximal half. Head longer than wide. Fore tarsal tooth present. Pelta triangular. Abdominal tergites II–VII with 2 pairs of sigmoid setae. Tube shorter than the head.

**Material Studied:** West Bengal, Jalpaiguri, 4.vi.2018, 3♀♀, on leaf galls (Registration no. 10750/H17, 10771/H17 to 10772/H17), leg.: Pronamoy Karmakar.

**Distribution.** India (**New**), Vietnam.



**Figures 1.** Thrips species new to Indian subcontinent: **A.** *Dolichothrips reuteri*, female; **B.** *D. reuteri*, male; **C.** *Litotetothrips pasaniae*, female; **D.** *L. pasaniae*, male; **E.** *Mesothrips annamensis*, female; **F.** *Hydatothrips haschemi*, female; **G.** *H. haschemi*, male; **H.** *Stenchaetothrips bambusicola*, female; **I.** *S. bambusicola*, male.

## Family Thripidae Stephens, 1829

### Subfamily Sericothripinae Karny, 1921

#### Genus *Hydatothrips* Karny, 1913

##### *Hydatothrips haschemi* Girault, 1930 (Fig. 1F-1G)

**Diagnosis:** Body bicoloured. Fore wings light brown with a pale sub-basal area. Pronotum yellow. Abdominal tergites IV–V with dark antecostal line. Head with weakly reticulation in between the ocellar triangle. Metanotum with irregular linear sculpture, with markings between the main lines. Forewing with a sub-apical lobe extending beyond the base of terminal seta. Abdominal sternites V–VI with continuous discal microtrichia medially. Male with large transversely oval pore plates on sternites V–VII.

**Material Studied:** Kerala, Thrissur, 3.i.2019, 2♀♀ & 4♂♂, on *Cynodon dactylon* L. (Registration no: 10911/H17-10916/H17), leg.: Iftikar Rahaman.

**Distribution.** Australia, India (**New**), Philippines, Thailand.

### Subfamily Thripinae Karny, 1921

#### Genus *Stenchaetothrips* Bagnall, 1926

##### *Stenchaetothrips bambusicola* Mound, 2011 (Fig. 1H-1I)

**Diagnosis:** Body brown with yellow legs; antennal segment III, distal half of II, IV–VI yellow. Fore wings uniformly light brown with yellow basally. Head about as long as wide. Pronotum with weakly spaced transverse striations. Meso- and metanotum with campaniform sensilla. Mesonotum with median pair of setae medially. Metanotum with median setae arising behind anterior margin. Abdominal tergites V–VIII each with a paired ctenidia; I–VII with dentate microtrichia laterally at posterior margin; VIII with complete comb of microtrichia; IX with two pairs of campaniform sensilla. Sternites V–VI each with a small transverse pore plate medially. Male with yellow thorax; abdominal tergite IX with 4 median setae in a straight line; sternites III–VII each with a transverse pore plate.

**Material Studied:** West Bengal, Kolkata, 23.ix.2019, 24♀♀ & 10♂♂, on *Bamboo* sp. (Registration no: 10876/H17 to 10900/H17, 10906/H17 to 10909/H17, 10936/H17, 10937/H17, 11072/H17, 11073/H17, 11076/H17), leg.: Devkant Singha.

**Distribution.** Australia, China, India (**New**).

## DISCUSSION

Thrips are particularly diverse in nature and can be collected from wide range of plant families. The present study was aimed to mitigate the gap information for this Insect group in India by adding five species of thrips for the first time as new records to Indian Thysanoptera. The added species belong to the family Phleothripidae: *D. reuteri* (Karny), *L. pasaniae* Kurosawa, *M. annamensis* Priesner, and family Thripidae: *H. haschemi* Girault and *S. bambusicola* Mound. The presence of these five species in India is not surprising as they have been recorded from southeast Asia or Australia former as indicated above. Occurrence of 744 species of thrips in Indian subcontinent mark this part of the world as one of the richest area in the global.

*Dolichothrips reuteri* is very close to Indian species, *D. indicus* but can be differentiated by the colour of legs. *Litotetothrips pasaniae* was reported on *Castanopsis sieboldii* (Fagaceae) in Japan and Taiwan, but here, the specimens of this species were collected from general vegetation. *Hydatothrips haschemi* is unique among all the species of *Hydatothrips* by having a sub-apical lobe on the fore wing which extends beyond the base of terminal seta (Mound & Tree, 2009). This species usually inhabits on the various plant species of the family Fabaceae but in India, it is reported from Poaceae. To implement the correct strategies for the integrated pest management and to identify the correct host plants of these species, extensive sampling is required.



## AUTHOR'S CONTRIBUTION

The authors confirm contribution to the paper as follows: D.S.: participated in field work, and writing; A.P.: photography, and mounting the specimens; V.K.: field work, writing, and reviewing; K.T.: Identification, data collection, writing and reviewing. All authors approved the final version of the manuscript.

## FUNDING

This study is financially supported by the Science and Engineering Research Board (SERB), Department of Science and Technology (DST), Govt. of India under the project granted "Delimiting Species Boundaries in Pest and Vector thrips (Thysanoptera: Thripidae) from India" to V.K. and K.T.

## AVAILABILITY OF DATA AND MATERIAL

Not applicable.

## ETHICS APPROVAL AND CONSENT TO PARTICIPATE

Not applicable.

## CONSENT FOR PUBLICATION

Not applicable.

## CONFLICT OF INTERESTS

The authors declare that there is no conflict of interest regarding the publication of this paper.

## ACKNOWLEDGMENTS

The authors are grateful to the Dr. Dhirti Banerjee, Director, Zoological Survey of India (ZSI), for her encouragement, moral support, and necessary facilities. D.S. acknowledges the Institutional Postdoctoral Fellowship (PDF) received from ZSI, Kolkata.

## REFERENCES

- Girault, A.A. (1930) *New Pests from Australia VII*. Privately published, Brisbane. 3 pp.
- Karny, H. (1920) Nova Australiska Thysanoptera, jez nashbiral Mjöberg. *Casopis Československé Společnosti Entomologické*, 17, 35–44.
- Kurosawa, M. (1937) Descriptions of four new thrips in Japan. *Kontyu*, 11, 266–275.
- Masumoto, M. & Okajima, S. (2005) A remarkable new genus of Thripinae (Thysanoptera, Thripidae) with enlarged metathoracic furca, from Southeast Asia. *Zootaxa*, 1048, 53–64. <https://doi.org/10.11646/zootaxa.1048.1.5>
- Mound, L.A. & Okajima, S. (2015) Taxonomic studies on *Dolichothrips* (Thysanoptera: Phlaeothripinae), pollinators of *Macaranga* trees in Southeast Asia (Euphorbiaceae). *Zootaxa*, 3956 (1), 79–96. <https://doi.org/10.11646/zootaxa.3956.1.4>
- Mound, L.A. & Tree, D.J. (2009) Identification and host-plant associations of Australian Sericothripinae (Thysanoptera, Thripidae). *Zootaxa*, 1983, 1–22. <https://doi.org/10.11646/zootaxa.1983.1.1>
- Mound, L.A. (2011) Grass-dependent Thysanoptera of the family Thripidae from Australia. *Zootaxa*, 3064, 1–40. <https://doi.org/10.11646/zootaxa.3064.1.1>
- Okajima, S. (2006) *The Insects of Japan. Vol. 2. The suborder Tubulifera (Thysanoptera)*. The Entomological Society of Japan, Touka Shobo Co. Ltd., Fukuoka. 720 pp.
- Priesner, H. (1929) Eine neue *Mesothrips*-Art aus Annam. *Bollettino del Laboratorio di Zoologia Generale e Agraria*, 21, 215–217.
- ThripsWiki (2021) ThripsWiki-providing information on the World's thrips. [http://thrips.info/wiki/Main\\_Page](http://thrips.info/wiki/Main_Page). [Accessed February 15 2021].
- Tyagi, K. & Kumar, V. (2016) Thrips (Insecta: Thysanoptera) of India: an updated checklist. *Halteres*, 7, 64–98. <https://doi.org/10.5281/zenodo.54896>

## گزارش‌های جدید تریپس (Insecta: Thysanoptera) از هند

دیوکانت سینگا، آیشک پاتیدار، ویکاس کومار و کائومود تیاگی\*

بخش سیستماتیک مولکولی، مرکز رده‌بندی DNA، ارزیابی جانورشناسی هند، کلکته، هند.

\* پست الکترونیکی نویسنده مسئول مکاتبه: [kumud.tyagi5@gmail.com](mailto:kumud.tyagi5@gmail.com)

| تاریخ دریافت: ۰۴ آذر ۱۴۰۰ | تاریخ پذیرش: ۱۳ دی ۱۴۰۰ | تاریخ انتشار: ۱۵ دی ۱۴۰۰ |

**چکیده:** طی سال‌های ۲۰۱۸-۲۰۲۰، چندین بررسی میدانی برای جمع‌آوری تریپس‌ها از مناطق مختلف هند انجام شد. پنج گونه تریپس شامل *Dolichothrips reuteri* (Karny)، *Litotetothrips pasaniae* Kurosawa، *Hydatothrips haschemi* Girault و *Mesothrips annamensis* Priesner به *Stenchaetothrips bambusicola* Mound عنوان گزارش‌های جدید از هند شناسایی شدند.

**واژگان کلیدی:** Thripidae، Phlaeothripidae، گزارش‌های جدید، هند