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## First record of *Preeriella* Hood with one new record of *Hoplandrothrips* Hood (Thysanoptera, Phlaeothripidae) from India

**Madhurima Sarma**

Centre for DNA Taxonomy, Molecular Systematics Division, Zoological Survey of India, Kolkata, India [1]; Department of Zoology, University of Calcutta, Kolkata, India [2].

✉ [madhusarma97@gmail.com](mailto:madhusarma97@gmail.com) <https://orcid.org/0000-0002-0171-174X>**Abhishek Patidar**

Centre for DNA Taxonomy, Molecular Systematics Division, Zoological Survey of India, Kolkata, India [1]; Department of Zoology, University of Calcutta, Kolkata, India [2].

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

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

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

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

✉ [vikaszsi77@gmail.com](mailto:vikaszsi77@gmail.com) <http://orcid.org/0000-0002-0215-0120>**Kaomud Tyagi**

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

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

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**ABSTRACT.** The fungus feeding genus *Preeriella* Hood is reported first time based on *Preeriella armigera* Okajima, collected on leaf litter from West Bengal, India. Another phlaeothripid species *Hoplandrothrips ochraceus* Okajima & Urushihara is recorded from India for the first time. Specimens of *H. ochraceus* were collected on *Curcuma* species (rhizomatous annual or perennial herb) belonging to family Zingiberaceae. Notes on the material examined, distribution, diagnostic characters and illustration for the new records are presented.

**Key words:** Fungus feeding, New record, thrips, Phlaeothripinae, India.

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## INTRODUCTION

Phlaeothripidae is the sole family under the suborder Tubulifera and is classified into two subfamilies, Phlaeothripinae and Idolothripinae. It comprises 3,550 species under two subfamilies worldwide (ThripsWiki, 2023), of which 430 were reported from India (Tyagi & Kumar, 2016). Members of these subfamilies can be distinguished from each other by the following characters: width of maxillary stylets 1–3 µm in Phlaeothripinae and 5–10 µm in Idolothripinae, maxillary guides present in Phlaeothripinae but apparently absent in Idolothripinae, pore plate on male sternite VIII present in Phlaeothripinae but absent in Idolothripinae, S2 setae on tergite IX shorter in Phlaeothripinae but longer than S1 in Idolothripinae (Mound & Palmer, 1983). Idolothripinae members usually ingested whole fungal spores,

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

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while few Phlaeothripinae usually ingested fungal hyphae (Mound & Palmer, 1983; Mound, 2005; Tree et al., 2010). Associates of subfamily Phlaeothripinae are generally categorized into three groups, *Haplothrips*-lineage, *Liothrips*-lineage and *Phlaeothrips*-lineage (Mound & Marullo, 1996). Members of the *Haplothrips*-lineage are usually associated with flowers and *Liothrips*-lineage with leaves of various plant families. In contrast, the associates of *Phlaeothrips*-lineage are usually fungivorous and can be collected from dead branches and leaf litter.

The genus *Preeriella* Hood belong to *Phlaeothrips*-lineage and is known by 20 species so far. The genus *Preeriella* was originally described by Hood in 1939 with monotypic species *Chirothripoides minutus* Watson 1937. Species of this genus are easily identified by exceptionally small size and laterally compressed body with elongated head (Okajima, 1998). Another *Phlaeothrips*-lineage genus *Hoplandrothrips* Hood is known by 117 species worldwide (Mound & Tree, 2013), of these four species have been reported from India (Tyagi & Kumar, 2016). This genus is very close to *Ecacanthothrips* Bagnall but can be differentiated by the number of sense cones on antennal segment III. *Hoplandrothrips* species have 4 to 5 sense cones on antennal segment III, whereas *Ecacanthothrips* species have seven or more sense cones. Moreover, males of this *Hoplandrothrips* usually show extreme allometry, with or without pore plates on sternite VIII, S2 setae on tergite IX short and stout. The purpose of the present study is to record of the genus and species of *Preeriella armigera* Okajima, and species *Hoplandrothrips ochraceus* Okajima & Urushihara, two Phlaeothripinae fungus feeding thrips from India. Full nomenclatural information about these taxa is available on ThripsWiki (2023).

## MATERIAL AND METHODS

Specimens were collected in 70% high-grade alcohol by previously followed beating method (Tyagi et al., 2017). The specimens were mounted onto the glass slides in Canada Balsam after dehydration through a series of ethanol (Tyagi et al., 2017). Nikon SMZ745T microscope was used for the preparation of slides, while Leica Trinocular Microscope (Leica DM-1000) with a Leica software application suite (LAS EZ 2.1.0) used for taking photographs. The morphologically identified species were deposited at the National Zoological Collections (NZC), Zoological Survey of India, Kolkata, India.

## RESULTS

### *Taxonomic hierarchy*

**Class Insecta Linnaeus, 1758**

**Order Thysanoptera Haliday, 1836**

**Suborder Tubulifera Haliday, 1836**

**Family Phlaeothripidae Uzel, 1895**

**Subfamily Phlaeothripinae Uzel, 1895**

**Genus *Hoplandrothrips* Hood, 1912**

***Hoplandrothrips ochraceus* Okajima & Urushihara, 1992 (Fig. 1A)**

**Diagnosis.** Body brown to dark brown except tibiae yellow apically, tarsi yellow. Antennal segments I–II brown, III yellow at basal third, brown apically; IV–VIII brown with yellow base. Fore wing pale with brown shade medially. Head as long as broad with reticulations. Postocular setae expanded apically, as long as eyes. Cheeks weakly rounded. Pronotum weakly sculptured marginally. Forewing with 7–11 duplicated cilia. Pelta bell-shaped. Tube longer than head. Anal setae longer than tube.

**Material examined.** India, Tamil Nadu, Thanjavur, 5♀♀, on *Curcuma* sp. 19.i.2018, leg. Ajith Kumar. (Registration No: 11310/H17, 11673/H17, 11674/H17, 11923/H17, 1221/H17)

**Distribution.** China (Dang & Qiao, 2014), India (**New record**) and Japan (Okajima & Urushihara, 1992).

### Genus *Preeriella* Hood, 1939

Type species: *Chirothripoides minutus* Watson, 1937.

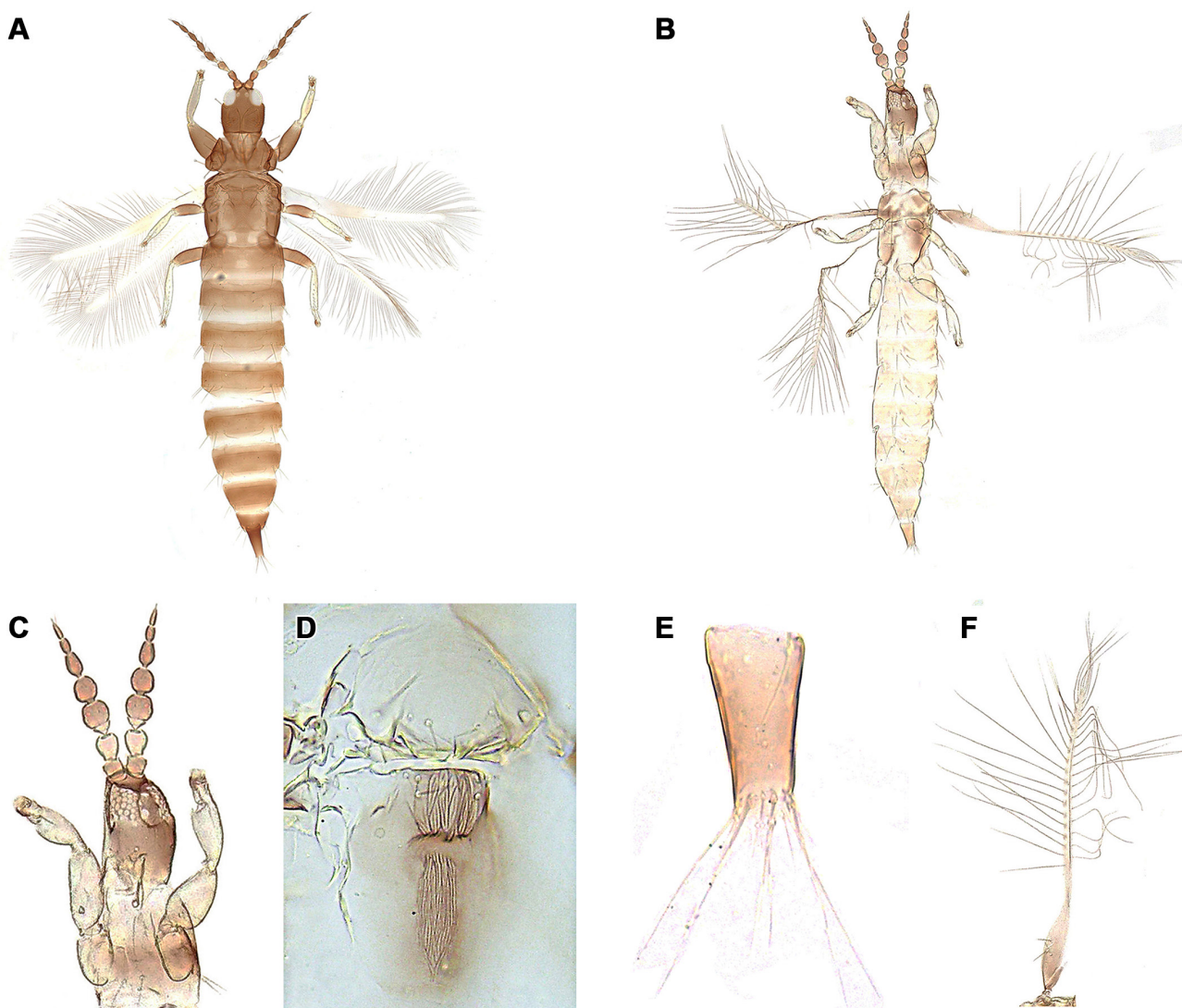
**Diagnosis.** Macropterous or micropterous. Head longer than broad; projected in front of eyes; postocular seta one pair expanded apically. Antennae 8-segmented; II with campaniform sensilla medially; III short and broad, fused to segment IV; VIII long and slender. Mouthcone short and rounded. Abdominal tergite I divided into several sclerites; tergites III–VII with a pair of wing retaining setae.

#### *Preeriella armigera* Okajima, 1998 (Figs 1B–F)

**Diagnosis.** Body yellow with light brownish head and metathorax. Antennal segments I, IV–VIII concolourous with head. Fore wings shaded with brown basally. Major body setae hyaline. Head as long as broad with weakly sculptured at posterior margin. Cheeks almost straight or slightly concave. Metanotum with irregular reticulation anteromedially, weakly sculptured with longitudinal anastomosing striae posteriorly at the middle. Tube shorter than head. Anal setae longer than tube.

**Material examined.** India, West Bengal, Birbhum, 1♀, on leaf litter, 22.x.2022, leg. Nupur Sen (Registration No: 12361/H17)

**Distribution.** India (New record), Japan and Taiwan (Mirab-balou et al., 2011).



**Figure 1.** A. *Hoplandrothrips ochraceus*, Female; B–F. *Preeriella armigera*; B. Female, general habitus; C. Head and prothorax; D. Meso- and metanota; E. Tube; F. Fore wing.

## DISCUSSION

Thrips are known by their diverse habitats and feeding behaviour from phytophagous to mycophagous and spore feeders. The present study aims to collect and identify fungus feeding species throughout India. Keeping in view, different states of India were surveyed to explore the thrips diversity. During the surveys, the specimens of two fungus feeding Phlaeothripine species were collected, *Preeriella armigera* Okajima, and *Hoplandrothrips ochraceus* Okajima & Urushihara. These two species were originally described from Japan (Okajima & Urushihara, 1992; Okajima, 1998). Later on, *P. armigera* was reported from Taiwan (Mirab-balou et al., 2011) and *H. ochraceus* reported from China (Dang & Qiao 2014). These two species extend the range of distribution and now recorded from India. More survey is required to collect and identify fungus feeding species from India.

## AUTHOR'S CONTRIBUTION

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

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## 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.

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## اولین گزارش از جنس *Preeriella* Hood به همراه یک گزارش جدید گونه از جنس *Hoplandrothrips* Hood (Thysanoptera, Phlaeothripidae) از هند

مدهوری ما سارما<sup>۱،۲</sup>، آیشک پاتیدار<sup>۱،۲</sup>، دیوکانت سینگا، ویکاس کومار<sup>۱</sup> و کائومود تیاگی<sup>۱\*</sup>

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

۲ گروه جانورشناسی، دانشگاه کلکته، هند

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

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**چکیده:** جنس *Preeriella* Hood شامل تریپس قارچ‌خوار، بر اساس حضور گونه *Preeriella armigera* Okajima که از نمونه خاک‌برگ جمع‌آوری شده در منطقه بنگال غربی شناسایی شده، برای اولین بار از هند گزارش شد. گونه‌ای دیگر از تریپس‌های خانواده Phlaeothripidae به نام *Hoplandrothrips ochraceus* Okajima & Urushihara برای اولین بار از هند گزارش شد. نمونه‌های تریپس *H. ochraceus* از روی گونه‌ای از گیاهان جنس *Curcuma* (گیاه چندساله ریزوم‌دار) متعلق به خانواده Zingiberaceae جمع‌آوری شده بود. اطلاعاتی در مورد نمونه‌های بررسی شده، پراکنش، خصوصیات افتراقی شامل تصاویر گونه‌های به تازگی گزارش شده، ارائه شد.

**واژگان کلیدی:** تریپس قارچ‌خوار، گزارش جدید، زیرخانواده Phaeothripidae، هند