

## First record of *Podothrips erami* (Thysanoptera: Tubulifera) from India

Devkant Singha, Kaomud Tyagi and Vikas Kumar\*

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

(Email: [yikaszi77@gmail.com](mailto:yikaszi77@gmail.com))

### Abstract

*Podothrips erami* Minaei is a recently described species from Fars province of southern Iran. This is the first record of *Podothrips erami* from India after its original description.

**Keywords:** First record, *Podothrips erami*, Tubulifera, India.

Received: 2 February 2016; Revised: 12 April 2017; Online: 17 May 2017.

### Introduction

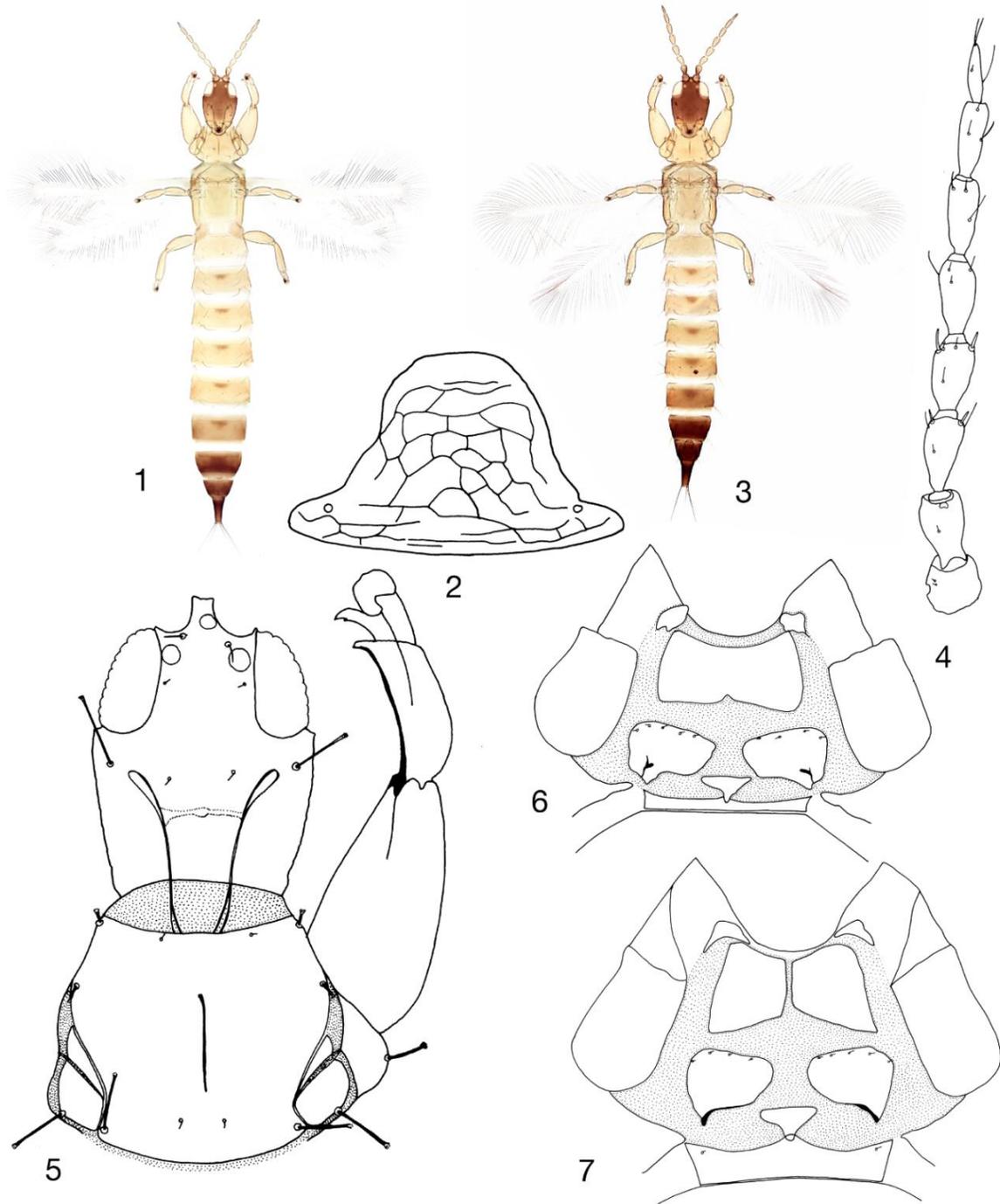
Thrips are fringed wings insects, ranging from 1 to 15 mm in size. The insect order Thysanoptera is classified into two suborders with 9 families (ThripsWiki, 2016). Approximately 3500 species are known in the family Phlaeothripidae across the globe (ThripsWiki, 2016). Out of these, 430 species are recorded from India (Tyagi and Kumar, 2016a). The members of this diverse family Phlaeothripidae exhibit a wide array of habitat from leaf feeders to fungus and spore feeders. Few of them are recorded as gall inducers, predators and kleptoparasites (Crespi and Abbot, 1999). The grass-living genus *Podothrips* Hood is known by 31 species so far (ThripsWiki, 2016), of which 10 species reported from India (Tyagi and Kumar, 2016a). The members of the genus are recorded as obligate predators and usually associated with scale insects on the members of plant family Gramineae (Palmer and Mound, 1991). A key to 19 species of *Podothrips* was provided by Ritchie (1974) which includes 8 species from India. *Podothrips* species have basantral plates which are longer than broad in contrast to other typical Phlaeothripids. *Podothrips erami* Minaei is a recently described species from Fars province of Iran. Recently, specimens of this species are collected from Rajasthan state of India. The purpose of this paper is to record *Podothrips erami* for the first time from India.

### Materials and Methods

Specimen collection, DNA isolation and amplification of partial fragment of mt COI gene were performed as detailed in Tyagi and Kumar (2016b). Voucher specimen was retrieved and slide mounted in Canada balsam for morphological examination. PCR product was purified from the Agarose gel using Qiagen Gel Purification Kit as per manufacturer's instructions. Sequencing of purified PCR product was carried out in both directions using 48-capillary Genetic Analyzer (Applied BioSystems ABI 3730) using BigDye® Terminator Cycle Sequencing Kit (v3.1) at sequencing facility of Zoological Survey of India, Kolkata. The generated forward and reverse COI fragments of *Podothrips erami* were analysed with SeqScape software version 2.7 (Applied Biosystems) and consensus sequences were obtained after checking deletion, insertion and stop codons. The generated sequence was submitted to BOLD (Barcode of Life Database) under the project titled "DNA Barcoding Thrips of India". The photographs were taken through a Leica Trinocular Microscope (Leica DM-1000) and using Leica software application suite (LAS EZ 2.1.0).

### *Podothrips erami* Minaei (Figs 1-7)

*Podothrips erami* Minaei 2015: 959.



Figures 1-7: *Podothrips erami* 1. Female; 2. Pelta, female; 3. Male; 4. Antenna, female; 5. Head and pronotum with leg, female; 6. Prosternum, male; 7. Prosternum, female.

**Description:** This species can be easily recognised by the following characters; Body bicoloured. Head, antennal segment I, basal half of II, abdominal segments VIII-X brown,

abdominal segments III-VII with a brown area anteriorly, remaining part yellow. Fore wing pale. Major body setae pale. Head longer than broad, with a distinct tooth just behind the eyes,

postocular setae well developed, weakly expanded apically; maxillary stylets one third of head width apart, maxillary bridge present. Antennae 8-segmented, segment II with campaniform sensilla apically, III and IV each with 2 sense cones. All pronotal setae well developed, expanded apically except anteromarginal setae. Notopleural sutures complete. Basantral plates longer than broad. Mesopresternum boat shaped. Metathoracic sternopleural sutures present. Fore tibia with a sub apical tubercle, fore tarsus with a prominent tooth. Fore wing with 4-5 duplicated cilia. Pelta bell-shaped. Abdominal tergites II-VII with 2 pairs of wing retaining setae. Tube shorter than head, anal setae longer than tube.

**Remarks:** In most of the Phlaeothripids, the basantral plates when present are separated from each other. In male specimen of *P. erami*, the basantral plates are united in contrast to type specimens (Kambiz Minaei per. Commun.) but in female these plates are separated. In second male the antennae is 7-segmented. The aberration of the basantral plates and 7-segmented antennae may be due to incomplete development.

**Material studied:** One male, INDIA: Rajasthan, Jaipur, 21.xii.2014, wheat crop, coll. Vikas, Kaomud & Devkant (Reg. No. 7897/H17); Two females and two males, Rajasthan, Sawai Madhopur, Ranthambore National Park, 3.iv.2016, grass clumps, coll Vikas (Reg. No. 7449/H17, 7636/H17, 7646/H17 to 7647/H17).

**Distribution:** India, Iran.

#### Acknowledgements

The authors are grateful to Dr. Kailash Chandra, Director, Zoological Survey of India for his encouragement and moral support and providing necessary facilities. We thank Laurence A.

Mound (CSIRO, Australia) for reviewing this manuscript. Dr. Kambiz Minaei (Shiraz University, Shiraz) is thanked for his comments on type specimens of *P. erami*. The study is financially supported by core funding to the corresponding author through ZSI research programme "Investigating thrips diversity (Thysanoptera: Insecta) in Rajasthan State of India". This work is a part of the Ph. D thesis of the first author.

#### References

- Crespi, B. and Abbot, P. 1999. The behavioral ecology and evolution of kleptoparasitism in Australian gall thrips. *Florida Entomologist* 82(2): 147-164.
- Minaei, K. 2015. *Podothrips*: first record from Iran with a new species (Thysanoptera: Phlaeothripidae). *Turkish Journal of Zoology* 39: 958-961. doi: 10.3906/zoo-1409-38.
- Palmer, J.M. and Mound, L.A. 1991. Thysanoptera. Chapter 22. In: Rosen D, (ed.) *The Armoured Scale Insects: Their Biology, Natural Enemies and Control*. Vol. B. Amsterdam, Netherlands: Elsevier, pp. 67-76.
- Ritchie, J.M. 1974. A revision of the grass-living genus *Podothrips* (Thysanoptera: Phlaeothripidae). *Journal of Entomology Series B*: 261-282.
- ThripsWiki 2016. *ThripsWiki*—providing information on the World's thrips. Available from: [http://thrips.info/wiki/Main\\_Page](http://thrips.info/wiki/Main_Page) (accessed 7 September 2016).
- Tyagi, K. and Kumar, V. 2016a. Thrips (Insecta: Thysanoptera) of India- An Updated Checklist. *Halteres* 7: 64-98.
- Tyagi, K. and Kumar, V. 2016b. The Sericothripinae genus *Neohydatothrips* (Thysanoptera, Thripidae) in India with description of two new species. *Zootaxa* 4132(3): 438-444.