

NEW DISTRIBUTIONAL RECORDS OF THIRIPS (INSECTA: THYSANOPTERA) FROM ODISHA STATE OF INDIA

DEVKANT SINGHA, KAOMUD TYAGI AND VIKAS KUMAR*

Centre for DNA Taxonomy, Molecular Systematics Division, Zoological Survey of India, Kolkata-700053

*Corresponding author: vikaszi77@gmail.com

INTRODUCTION

Thrips are economically important insect ranging from 1 to 15 mm and belong to order Thysanoptera. The order Thysanoptera is classified into two suborders Terebrantia and Tubulifera with 9 families (ThripsWiki 2016). Worldwide 6102 species of thrips are reported so far, of which 739 species recorded from India (ThripsWiki 2016; Tyagi & Kumar 2016). The members of insect order Thysanoptera are reported as pest on a wide variety of agricultural and horticultural crops and few of them are predators on thrips species and some other insects like aphids and mites. Some of them also act as vectors of Tospoviruses on a number of different plant families like Tomato, Capsicum etc. Out of 14 vector species, 6 species are reported from India (Riley *et al.* 2011, Tyagi & Kumar 2015). Correct identification is the prime importance for the proper management of this insect. Odisha, the eastern coastal peninsular state of India is enriched with a wide variety of floral and faunal taxa, unfortunately very poorly explored and only 13 species of thrips are reported till now (Tyagi & Kumar 2016). During the recent survey of Odisha, we have collected 14 species in 13 genera, out of which 8 species are newly added to this state fauna. All these new distributional records are belonging from subfamily Thripinae (6) and Panchaethrotrippinae (2). The species are *Bathrips melanicornis* (Shumsher), *Diarthrothrips nimbus* (Ananthakrishnan), *Microcephalothrips abdominalis* (D.L. Crawford), *Retithrips*

syriacus (Mayet), *Rhipiphorothrips cruentatus* Hood, *Scolothrips rhagebianus* Priesner, *Thrips hawaiiensis* (Morgan), *Tusothrips sumatrensis* (Karny).

The objective of this study is to document the species diversity of thrips from the Odisha state and to report new distributional records. Diagnosis, distribution and material examined for each species is provided. All the species are listed with their valid names, authority and the year of description. Species are listed systematically and alphabetically.

MATERIAL AND METHODS

Specimens were collected by the beating method from different plant families and were preserved in 90% alcohol. Individual specimen was mounted onto the glass slides in Canada balsam for identification (Tyagi *et al.* 2015). Photographs were taken under Leica stereo zoom Microscope (Leica DM-1000) through Leica software application suite (LAS EZ). Image stacks were combined with Combine ZP1.0 (Hadley 2010). All the voucher specimens are registered and deposited at National Zoological Collection of Zoological Survey of India, Kolkata.

RESULTS

New Distributional Records from Odisha

1. *Bathrips melanicornis* (Shumsher) 1946. *Taeniothrips melanicornis* Shumsher : 179. Female and male macropterous. Body pale

yellow with dominant grey patches near to the ocellar area, posterior margin of head, two longitudinal patches on pronotum, abdominal tergites II to VII with dwarf T-shaped patches covering the entire anterior half of tergites and unshaded in lateral 1/3 of the posterior half. Antennae and forewing dark; legs unshaded. Head broader than long. Antennae 8-segmented, III and IV each with forked sense cones. Forewing second vein with 4 setae; posterior fringes wavy. Abdominal tergites and sternites without craspedum. Male abdominal sternite VII with a single pore area.



Bathrips melanicornis, female



Bathrips melanicornis, male

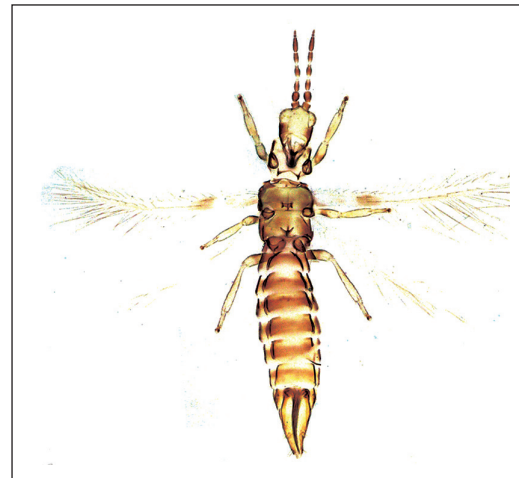
Material studied: 3♀, 2♂, India: Odisha, Bhubaneswar, unidentified plant, 31.v.2015 (Reg. No.7344/H17 to 7347/H17; 7359/H17), Devkant;

1♀, Gopalpur, general vegetation, 23.ii.2013 (Reg. No.7115/H17), Biswatosh.

Distribution: India: Andhra Pradesh, Delhi, Karnataka, Madhya Pradesh, Punjab, Odisha (new record), Tamil Nadu, Uttar Pradesh, West Bengal.

2. *Diarthrothrips nimbus* (Ananthakrishnan) 1965. *Mycterothrips nimbus* Ananthakrishnan: 20.

Female macropterous. Body pale yellow with brown patches. Antennae 8-segmented, III and IV each with forked sense cone. Head broader than long; antecellar setae 2 pairs; maxillary palps 2-segmented. Pronotum with 2 pairs of posteromarginal setae; basantra membranous, without setae; ferna entire, undivided. Male abdominal sternites III-IV with pore area.



Diarthrothrips nimbus, female

Material studied: 3♀, India: Odisha, Bhubaneswar, general vegetation (Reg No. 7357/H17; 7362/H17 to 7363/H17) Devkant.

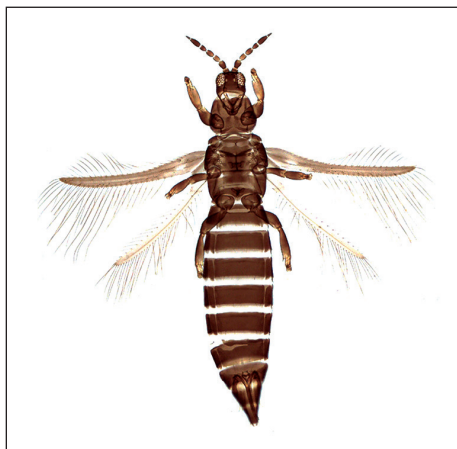
Distribution: India: Andhra Pradesh, Delhi, Karnataka, Madhya Pradesh, Maharashtra, Odisha (new record), Rajasthan, Tamil Nadu, Uttar Pradesh.

3. *Microcephalothrips abdominalis* (D.L. Crawford)

1910. *Thrips abdominalis* D.L. Crawford: 157.

Female macropterous. Body light brown including legs. Antennae 7-segmented, segment II without microtrichia; Head small. Pronotum hind angel with one pair of short setae; posterior margin of abdominal tergites I-VIII with teeth or scallops. Wings setae few; distance at arranged.

Material studied: 4♀, India: Odisha: Bhubaneswar, *Tagetes erecta*, 2.vi.2015 (Reg. No. 6950/H17 to 6951/H17; 7121/H17; 7360/H17) Devkant; 2♀, Jharsuguda, *Tagetes erecta*, 14.ix.2015 (Reg. No. 7191/H17), Devkant.



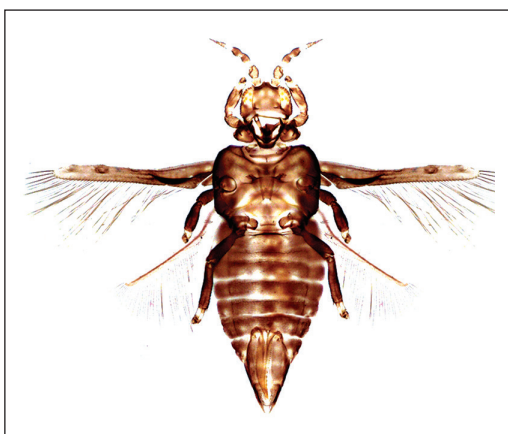
Microcephalothrips abdominalis, female

Distribution: India: Arunachal Pradesh, Delhi, Himachal Pradesh, Karnataka, Meghalaya, Odisha (new record), Punjab, West Bengal.

4. *Retithrips syriacus* (Mayet)

1890. *Thrips (Heliothrips) syriacus* Mayet: 451.

Female macropterous. Body dark brown with reticulate sculpture. Antennae 8-segmented, III-IV each with simple sense cone. Pronotum equal at anterior and posterior margins, much longer than lateral. Fore wings with three straight callosities enveloping completely with vein. Abdominal segments with strong teeth like comb at their posterior margin.



Retithrips syriacus, female

Material studied: 1♀, India: Odisha: Bhubaneswar, *Rosa rubiginosa*, 2.vi.2015 (Reg. No 7356/H17) Devkant.

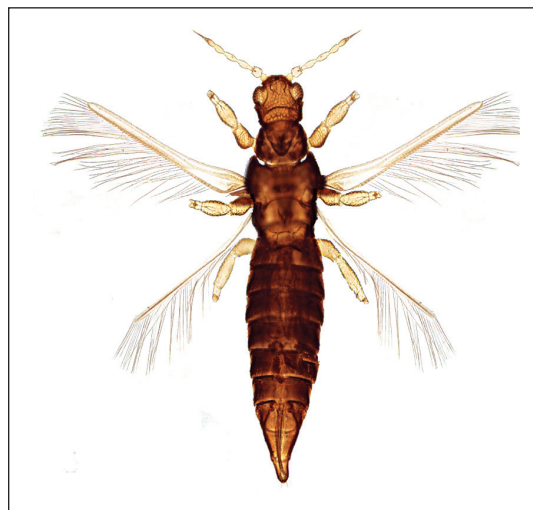
Distribution: India: Andaman Island, Goa, Karnataka, Kerala, Odisha (new record), Tamil Nadu, West Bengal.

5. *Rhipiphorothrips cruentatus* Hood

1919. *Rhipiphorothrips cruentatus* Hood: 94.

Female macropterous. Body dark brown to blackish brown, covered by strong rugose sculpture. Antennae 8-segmented, segment I golden yellow; II faintly brownish; III-V and basal half of VI yellow; apical half of VI and VII-VIII light brown. Legs pale yellow. Fore wings unshaded, hyaline, with pale yellow veins.

Materials studied: 8♀, India: Odisha: Bhubaneswar, *Rosa rubiginosa*, 2.vi.2015 (Reg. No.7246/H17 to 7253/H17) Devkant.



Rhipiphorothrips cruentatus, female

Distribution: India: Andaman Island, Assam, Delhi, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Odisha (new record), Punjab, Tamil Nadu, Uttar Pradesh, West Bengal.

6. *Scolothrips rhagebianus* Priesner

1950. *Scolothrips rhagebianus* Priesner: 46.

Female macropterous. Body yellowish uniformly with greyish spots on thorax and abdominal segment I and II. Antennae 8-segmented, segment I-II unshaded. Pronotum with a pair of pre basal setae. Metascutum with

transversely elongate reticulates. Proximal half of forewing clavus shaded. Abdominal tergites I, II and III with a small area of line of sculpture in middle; tergite II with three major lateral setae.

Materials studied: 2 ♀, India: Odisha: Bhubaneswar, plant with white flower, 2.vi.2015 (Reg. No.7349/H17 to 7350/H17); 1 ♀, Jharsuguda, *Tagetes erecta*, 14.ix.2015 (Reg. No.7348/H17) Devkant.



Scolothrips rhagebianus, female

Distribution: India: Delhi, Karnataka, Odisha (new record), West Bengal.

7. *Thrips hawaiiensis* (Morgan)

1913. *Euthrips hawaiiensis* Morgan : 3.

Female macropterous. Body bicoloured. Antennae 7-segmented, segment I-II brown, II yellow discally. Eye without pigmented facets. Interocellar setae are situated outside the ocellar triangle, much stouter and longer than any other dorsal head setae; postocular setae (PoI) longest. Metanotum with a pair of anterior median campaniform sensilla, around these area transversely sculptured; Forewing clavus with apical veinal seta longer than sub apical veinal seta; basal discal seta shorter than apical veinal seta; posterior margin of abdominal tergite VIII with a complete comb of microtrichia in female; comb is absent in males.

Materials studied: 3 ♀, India: Odisha: Jharsuguda, *Tagetes erecta*, 14.ix.2015 (7277/H17; 7279/H17; 7280/H17) Devkant.

Distribution: India: Andaman Island, Assam,

Delhi, Karnataka, Meghalaya, Sikkim, Odisha (new record), West Bengal.



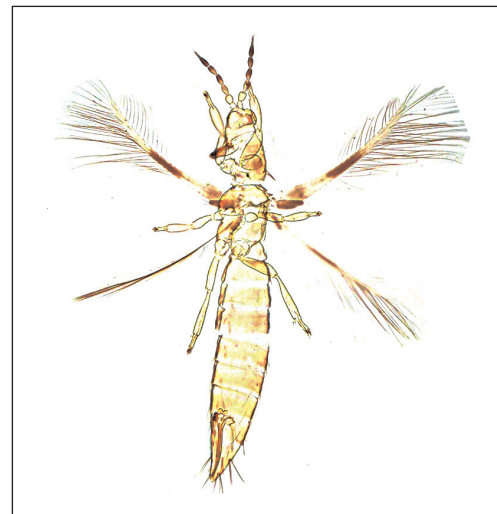
Thrips hawaiiensis, female

8. *Tusothrips sumatrensis* (Karny)

1925. *Anaphothrips sumatrensis* Karny: 27.

Female macropterous. Body light yellow. Antenna 8-segmented, segments IV-V dark brown at apical margin, segment VI darkest; segments V and VI with inner sense cone emerged from elongate base. Mesospinula absent. Forewing clavus dark brown with a cross band at the middle of wing.

Materials studied: 2 ♀, India: Odisha: Jharsuguda (N21.8441E84.0629, 220 m), *Vigna mungo*, 14.ix.2015 (7342/H17 to 7343/H17), Devkant.



Tusothrips sumatrensis, female

Distribution: India: Delhi, Jammu & Kashmir, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Punjab, Odisha (new record), Rajasthan, Tamil Nadu, Uttar Pradesh, West Bengal.

SUMMARY

Eight species of thrips of order Thysanoptera are reported first time from Odisha state of India.

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