



Additions to the thrips (Thysanoptera) fauna of Odisha, India

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Abstract: Ten thrips species in ten genera of two families (Phlaeothripidae and Thripidae) of suborders Tubulifera and Terebrantia (Order Thysanoptera) are newly added to the fauna of Odisha, India. These species collected from various host plants are being reported for the first time from Odisha; three species in Phlaeothripidae and seven in Thripidae. Three species, *Panchaetothrips stepheni*, *Scirtothrips bispinosus* and *Elaphrothrips greeni* are recorded as new distribution reports from North India whereas, *Crotonothrips polyalthiae* has been newly reported from India. This survey reports newly added nine genera viz., *Astrothrips*, *Panchaetothrips*, *Selenothrips*, *Neohydatothrips*, *Dendrothripoides*, *Megalurothrips*, *Elaphrothrips*, *Crotonothrips* and *Karnyothrips* and two subfamilies *Panchaetothripinae* and *Idolothripinae* to the fauna of Odisha. Diagnostic features, distribution and data on material studied for these species are given. The number of known species of thrips in Odisha is thus increased to 23.

Keywords: New state records, Odisha, Thrips, Thysanoptera

INTRODUCTION

Insect order Thysanoptera with two suborders, Terebrantia and Tubulifera comprises about 6103 described species in 9 families with about 739 Indian species that is about more than 12 per cent of the total thrips fauna across the globe (Tyagi and Kumar, 2016). The bulk of taxonomic work on Indian Thysanoptera is congregated primarily by of Dr. Ananthkrishnan (Ananthkrishnan and Sen, 1980) and Dr. Bhatti (Bhatti, 1990). The former concentrated on Tubulifera whereas the latter on Terebrantia.

In spite of this bulk of work, our knowledge on Thysanoptera fauna of Odisha is poor with 13 known species in 11 genera in three families. In a recent survey, three species of family Phlaeothripidae and seven species of family Thripidae were discovered and are reported here for the first time from Odisha. The total number of thrips species known in Odisha is increased from 13 to 23 (Tyagi and Kumar, 2016).

MATERIALS AND METHODS

Extensive random taxonomic surveys were conducted from 28th of January to 2th of February, 2016 at Bhubaneswar (Baramunda, Bhagabatipur and Siripur) and Cuttack (Bidyadharpur and Mundali) areas of Odisha district for collection of thrips. Specimens were collected by the standard beating method (Ananthkrishnan and Sen, 1980) and were preserved in thrips collecting media (9 parts 10% alcohol + 1 part glacial acetic acid + 1 ml Triton X-100 in 1000 ml of

the mixture). Specimens were mounted in Canada balsam for permanent preservation. The specimens were collected at random, subsequently sorted out and identified using appropriate keys (Ananthkrishnan and Sen, 1980; Palmer *et al.*, 1989; Mound and Nasruddin, 2012). The classification adopted in the article is that of Mound *et al.*, (1980). Voucher specimens are deposited with ICAR - National Bureau of Agricultural Insect Resources (ICAR-NBAIR), Bangalore, Karnataka, India. All collections were made by the first author unless otherwise stated.

RESULTS AND DISCUSSION

During the present study survey, 450 specimens of thrips were collected. Three tubuliferan species representing three genera and two subfamilies and seven terebrantian species representing seven genera, one family and three subfamilies of Thysanoptera are reported as new distribution records for Odisha as listed below. Notes on distribution and hosts (wherever known) are provided for all the species.

New distributional records for Odisha

Suborder Terebrantia

Family Thripidae

Subfamily Panchaetothripinae

Astrothrips tumiceps Karny, 1923

Specimen examined: 4 Females, 1 Male, Odisha: Bhubaneswar, 29-i-2016

Diagnosis: Antennae yellow with terminal segments dark brown. Tip of abdominal segment X darker. All femora brown, tibiae medially brown with base and

apex yellow and tarsi yellow. Sculpture on mesoscutum deeply notched anteriorly and posteriorly along mid line.

Distribution: India (Delhi, Karnataka, Madhya Pradesh, Odisha, Punjab, Tamil Nadu, Uttar Pradesh, West Bengal), Australia, Indonesia, Java and Philippines.

Host: General vegetation

***Panchaetothrips stepheni* Reyes, 1994**

Specimen examined: 2 Females, Odisha: Bhubaneswar, 01-ii-2016

Diagnosis: Head entirely reticulate except on occipital collar; small setae present midway between the eye and hind ocellus. Sense cones on antennal segment IV forked while on III both simple and forked. Antecostal lines on tergite III-VIII with weak posteriorly directed notches. Metanotum with an inverted triangle

Distribution: India (Manipur, Odisha), Luzon, Philippine Islands.

Host: Unidentified weed

***Selenothrips rubrocinctus* (Giard, 1901)**

Specimen examined: 23 Females, Odisha: Bhubaneswar, 01-ii-2016

Diagnosis: Tarsi and apices of tibiae yellow, antennal segments III-IV yellow at base and apex; fore wing dark brown. Head with strongly constricted basal neck. Metanotum with prominent triangle enclosing transverse lines of sculpture.

Distribution: India (Andaman Island, Assam, Karnataka, Kerala, Manipur, Meghalaya, Odisha, West Bengal), widespread in tropical areas.

Host: *Saraca ashoka* (Roxb.)

Subfamily Sericothripinae

***Neohydatothrips gracilipes* (Hood, 1924)**

Specimen examined: 5 Females, Odisha: Bhubaneswar, 30-i-2016

Diagnosis: Body and legs mainly yellow, tergites II-VII with dark antecostal line and brown shadings anterolaterally. Ocellar setae III close together behind fore ocellus. Tergites II-VI with no marginal comb medially. Sternites with discal microtrichia extending fully across median area of II-VI, posterior margins with long microtrichia; sternite VII medially with neither discal nor marginal microtrichia.

Distribution: India (Chandigarh, Delhi, Karnataka, Kerala, Odisha, Tamil Nadu), Costa Rica, Hawaii, Jamaica, Mexico, Texas, Trinidad.

Host: *Achyranthes aspera* L.

Subfamily Thripinae

***Dendrothripoides innoxius* (Karny 1914)**

Specimen examined: 2 Females, Odisha: Bhubaneswar, 31-i-2016

Diagnosis: Body golden yellow with brown shadings laterally; antennal segments IV-VI brown in apical half or more; fore wings pale with brown marking sub-basally and medially. Head with cheeks bulging behind eyes, constricted to basal neck. Ocellar setae III on

anterior margins of ocellar triangle. Pronotum without long setae. Tergites II-VIII laterally with numerous broadly based stout microtrichia; VI-VIII with 1-2 pairs of stout setae medially pointing toward midline; posterior margin of VIII with dentate craspedum laterally but smooth craspedum medially.

Distribution: India (Delhi, Karnataka, Odisha), Australia, Brazil, Indonesia, Java, Nepal, Sumatra.

Host: *Artocarpus heterophyllus* Lam.

***Megalurothrips usitatus* (Bagnall, 1913)**

Specimen examined: 12 Females, 2 Males, Odisha: Bhubaneswar, 01-ii-2016

Diagnosis: Body brown; tarsi, apices of mid and hind tibiae, also most of fore tibiae yellow; antennal segment III yellow to light brown. Sternites without discal setae; median pair of marginal setae on sternite VII arise in front of margin.

Distribution: India (Delhi, Karnataka, Tamil Nadu, Uttar Pradesh), Nepal, Bangladesh, Philippines

Host: *Arachis hypogaea* L.

***Scirtothrips bispinosus* (Bagnall, 1924)**

Specimen examined: 13 Females, Odisha: Bhubaneswar, 30-i-2016

Diagnosis: Forewings with only one lower vein setae, upper vein with 7-8 setae. Metanotum reticulate. Abdominal sternites devoid of microtrichia medially.

Distribution: India (Karnataka, Odisha, Tamilnadu)

Host: *Passiflora edulis* Sims

Suborder Tubulifera

Family Phlaeothripidae

Subfamily Idolothripinae

***Elaphrothrips greeni* (Bagnall 1914)**

Specimen examined: 2 Males, Odisha: Bhubaneswar, 29-i-2016

Diagnosis: All tibiae with distal half pale. Body setae much longer and distinctly hyaline, except those on head production. Antennal segment 3 yellow, brownish at apex, 4 and 5 with proximal halves yellow, rest brown.

Distribution: India (Karnataka, Odisha), Sri Lanka

Host: *Acacia* sp.

Subfamily Phlaeothripinae

***Crotonothrips polyalthiae* Mound and Nasruddin, 2012**

Specimen examined: 12 Females, Odisha: Bhubaneswar, 01-ii-2016

Diagnosis: Antennal segments I and VII-VIII brown, II yellow at apex, III almost clear yellow but weakly shaded at apex. Forewing extensively shaded, paler at apex, clear near base around sub-basal setae and with a longitudinal pale line close to posterior margin. Mesopraesternum incomplete medially

Distribution: India (Odisha), Indonesia, Malaysia

Host: *Polyalthia longifolia* Sonn.

***Karnyothrips melaleucus* (Bagnall, 1911)**

Specimen examined: 10 Females, Odisha: Bhubaneswar, 01-ii-2016

Diagnosis: Body pale yellow. Head transversely striate with 2 pairs of antecellar setae. Interocellar setae situated in line with anterior margins of hind ocelli. Antennae 8 segmented. Pronotum with 4 pairs of postero-marginal setae. Tergum VIII and IX with microtrichia medially.

Distribution: India (Andaman Island, Assam, Karnataka, Kerala, Meghalaya, Odisha, Tamil Nadu, West Bengal), Cuba, Denmark, Florida, Japan.

Host: Wild grass

This study has added 10 thrips species in two families, five subfamilies and 10 genera to the fauna of Odisha in addition to those listed in 2016 (Tyagi and Kumar, 2016) and thus increased the thysanopteran fauna of Odisha to 23. Our survey reports newly added nine genera viz., *Astrothrips*, *Panchaetothrips*, *Selenothrips*, *Neohydathrips*, *Dendrothripoides*, *Megalurothrips*, *Elaphrothrips*, *Crotonothrips* and *Karnyothrips* and two subfamilies *Panchaetothripinae* and *Idolothripinae* to the fauna of Odisha. Three species; *Panchaetothrips stepheni*, *Scirtothrips bispinosus* and *Elaphrothrips greeni* have been newly added to the fauna of North India in addition to those listed in 2016 (Tyagi and Kumar, 2016). *Crotonothrips polyalthiae* is a new report from India and has been collected from galls of *Polyalthia longifolia* as reported by Mound and Nasruddin, 2012. Salient findings from our survey demands further survey and study in this field from Odisha state.

Conclusion

Our survey reports newly added nine genera viz., *Astrothrips*, *Panchaetothrips*, *Selenothrips*, *Neohydathrips*, *Dendrothripoides*, *Megalurothrips*, *Elaphrothrips*, *Crotonothrips* and *Karnyothrips* and two subfamilies *Panchaetothripinae* and *Idolothripinae* to the fauna of Odisha. Three species; *Panchaetothrips stepheni*, *Scirtothrips bispinosus* and *Elaphrothrips greeni* have been newly added to the fauna of North India in addition to those listed in 2016 (Tyagi and Kumar, 2016). *Crotonothrips polyalthiae* is a new report from India and has been collected from galls of *Polyalthia longifolia* as reported by Mound and Nasruddin (2012). Being a short term preliminary study, only limited areas could be covered during the survey. However, the above observations indicated that Odisha is a rich spot for thysanopteran fauna. It also suggests that a long term survey covering maximum habitats over different seasons would be required at the earliest to explore and document the thysanopteran wealth of the state. Since thrips are economically

very important as crop pests, virus vectors and pollinators, further surveys and studies in this field are needed to thoroughly understand the thysanopteran fauna of Odisha.

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