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Short Communication

Two new records of Thripidae (Thysanoptera) from India, with notes on morphological variation in the apterous males of *Limothrips denticornis* (Haliday)

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Abstract. Two species of Thripidae, *Limothrips denticornis* (Haliday) and *Eremiothrips taghizadehi* (zur Strassen), are reported for the first time from Ladakh, India, thereby expanding their known geographical range. Detailed morphological observations are included, with particular focus on the variation observed in the apterous males of *L. denticornis*. Moreover, DNA barcodes of female specimens from *E. taghizadehi* were generated and submitted to The Barcode of Life Data Systems (BOLD). These findings enhance understanding of thrips diversity within the high-altitude ecosystems of the Indian Himalaya and highlight the region's previously under-examined faunal richness. The study provides a valuable baseline for future taxonomic and biogeographical investigations.

Keywords: Ladakh, Thrips, new records, morphological variations, DNA Barcode.

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Globally, approximately 6,642 species have been reported in two suborders and 9 families (ThripsWiki, 2026), of which 836 have been reported from India (Tyagi *et al.,* 2025). The family Thripidae is one of the most species-rich taxa in the suborder Terebrantia and comprises four subfamilies: Dendrothripinae, Panchaetothripinae, Sericothripinae, and Thripinae. Members of the subfamily Thripinae are economically important in the agricultural ecosystem, as a few species are reported as serious pests and vectors of Orthotospoviruses (Mound *et al.,* 2022). The European genus *Limothrips* was established by Haliday (1836) based on the type species *Thrips cerealium* Haliday. The genus *Limothrips* currently comprises seven species, mostly associated with the family Poaceae (ThripsWiki, 2026). Out of these, only one species, *L. cerealium* (Haliday), has been reported from India. This species damaged wheat crops in England and Piedmont in 1805 (Haliday, 1836). Species of the genus *Limothrips* are usually sexually dimorphic, with females macropterous and males apterous. However, an exception was observed in *Limothrips angulicornis* Jablonowski from Türkiye, in which females occur in both macropterous and apterous forms, while males are always apterous and lack ocelli (Negis *et al.,* 2025).

The genus *Eremiothrips* was established by Priesner (1950), with *Eremiothrips imitator* Priesner as the type species. *Eremiothrips* is a genus of phytophagous thrips with 24 species reported to date (ThripsWiki, 2026), three of which have been reported from India (Tyagi *et al.,* 2025). The species in this genus were regarded as non-pests (Minaei, 2012). The exception is *Eremiothrips manolachei* (Knechtel), which is considered a pest of *Sarcocornia fruticosa* (Amaranthaceae). (Ben-David, 2017; Minaei & Şahin Negis, 2026). *Eremiothrips taghizadehi* was originally described by zur Strassen (1975) from Iran as *Ascirtothrips taghizadehi,* based on one male and two females collected from flowers of *Dendrostellera lessertii*. The species was subsequently found in Spain (zur Strassen, 2003).

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The objective of this study is to report, for the first time from India, two new records of Thripinae, *Limothrips denticornis* (Haliday) and *E. taghizadehi* (zur Strassen), and to provide notes on morphological variation in apterous males of *L. denticornis*. Moreover, DNA barcode data from one female of *E. taghizadehi* have been generated and deposited in the Barcode of Life Data Systems (BOLD).

Specimens were collected using the standard beating method with a fine camel brush and then stored in 70% high-grade Ethanol. DNA was isolated from each specimen employing the standard non-destructive protocol (Tyagi *et al.,* 2017). After tissue lysis, the specimens were mounted onto glass slides. The mtCOI gene fragments were amplified with the universal primers LCO1490 and HCO2198, and the amplified PCR products were sent for Sanger sequencing to get the forward and reverse sequences. A stereomicroscope SZ61 was used to mount the specimens onto glass slides in natural Canada balsam. Photographs were taken with an Olympus microscope CX31 equipped with a Magcam DC Plus 25MP camera. The studied specimens were assigned a unique registration number and deposited in the Department of Zoology Museum at the University of Jammu, Jammu and Kashmir (J&K), India. The following keys (Negis *et al.,* 2025; Dey *et al.,* 2026; zur Strassen, 1975; Minaei, 2012) were used for the morphological identification of genus and species.

Several surveys were conducted across various regions of the Union Territory of Ladakh, India, to assess thrips species diversity. Two species, *L. denticornis* and *E. taghizadehi*, are recorded for the first time from India. Additionally, we have observed variations in the ocelli pattern in the apterous males of *L. denticornis*.

Eremiothrips taghizadehi (zur Strassen, 1975)

Material examined: INDIA, Ladakh, Kargil, Khurba thang (33.5506N, 76.152E), 3♀ on mixed vegetation, 09.vii.2025, Shalvinder Kour and Anchal Singh (Reg. No. 322/H24 to 324/H24). Ladakh, District Sham, Nurla (34.295N, 77.005E), 1♀, 4♂ on *Asclepias* sp. (wholly milkweed), 13.vii.2025, Shalvinder Kour (Reg. No. 325H24 to 327/H24, 337/H24,338/H24).

Diagnosis. Female macropterous **(Figs. 1A-1I)**. Body pale yellow (Fig. 1A). Antennal segment I-II pale white (Fig. 1C); III-V with brown shade; VI–IX light brown. Head with striations. Compound eyes with six pigmented facets; three pairs of ocellar setae present, ocellar setae III present in front of hind ocelli (Fig. 1D). Pronotum with faint striate; one pair of long posteroangular setae present; posterior margin with 3-4 pairs of setae. Mesonotum with faint transverse lines, campaniform sensilla present. Metanotum with faint reticulations; median pair of setae well behind the anterior margin; campaniform sensilla absent (Fig. 1E). Tarsi one-segmented. Forewing first vein with 6 setae on the basal half and 3 widely spaced on the distal half; second vein with 10 setae; clavus with 5 veinal and 1 discal seta (Fig. 1I). Abdominal tergite II 3 latero-marginal setae; tergite VIII with a short, complete comb of microtrichia (Fig. 1G); a pair of campaniform sensilla on tergite VIII present between S1 and S2 near the posterior margin; abdominal tergite IX with S2 setae longer than S1.

Male: similar to female in colour but smaller (Fig. 1B). Abdominal sternites IV–VII with pore plates (Fig. 1F). Tergite IX with drepanae outside the posterior margin, with apex short, corkscrew-like turning, and structure length equal to the interbasal interval (Fig. 1H).

Remarks: Females of several species within this genus are difficult to identify, but they can be identified by their males. The pore plates in males are elongated in *E. taghizadehi* but rounded in *E. bhatti* Minaei. Moreover, the presence of special processes on male tergite IX curved in *E. taghizadehi* and straight in *E. arya* (zur Strassen).

Distribution: **India (New record)**, Iran and Spain (ThripsWiki, 2026).

Limothrips denticornis (Haliday, 1836)

Material examined: INDIA, Ladakh, Drass (34.4304260, 75.7480490), 4♀, 5♂, on *Triticum aestivum*, 07.vii.2025, Shalvinder Kour (Reg. No. 256/H24 to 259/H24, 242/H24, 253/H24, 244/H24, 248/H24, 249/24). Ladakh, Drass, Thasgam (34.4795050, 75.9349940), 1♀, 8♂, on *Triticum aestivum*, 07.vii.2025, Anchal Singh (Reg. No. 255/H24, 250/24 to 252/24, 254/H24, 245/H24, 243/H24 and 245/H24 to 247/H24).

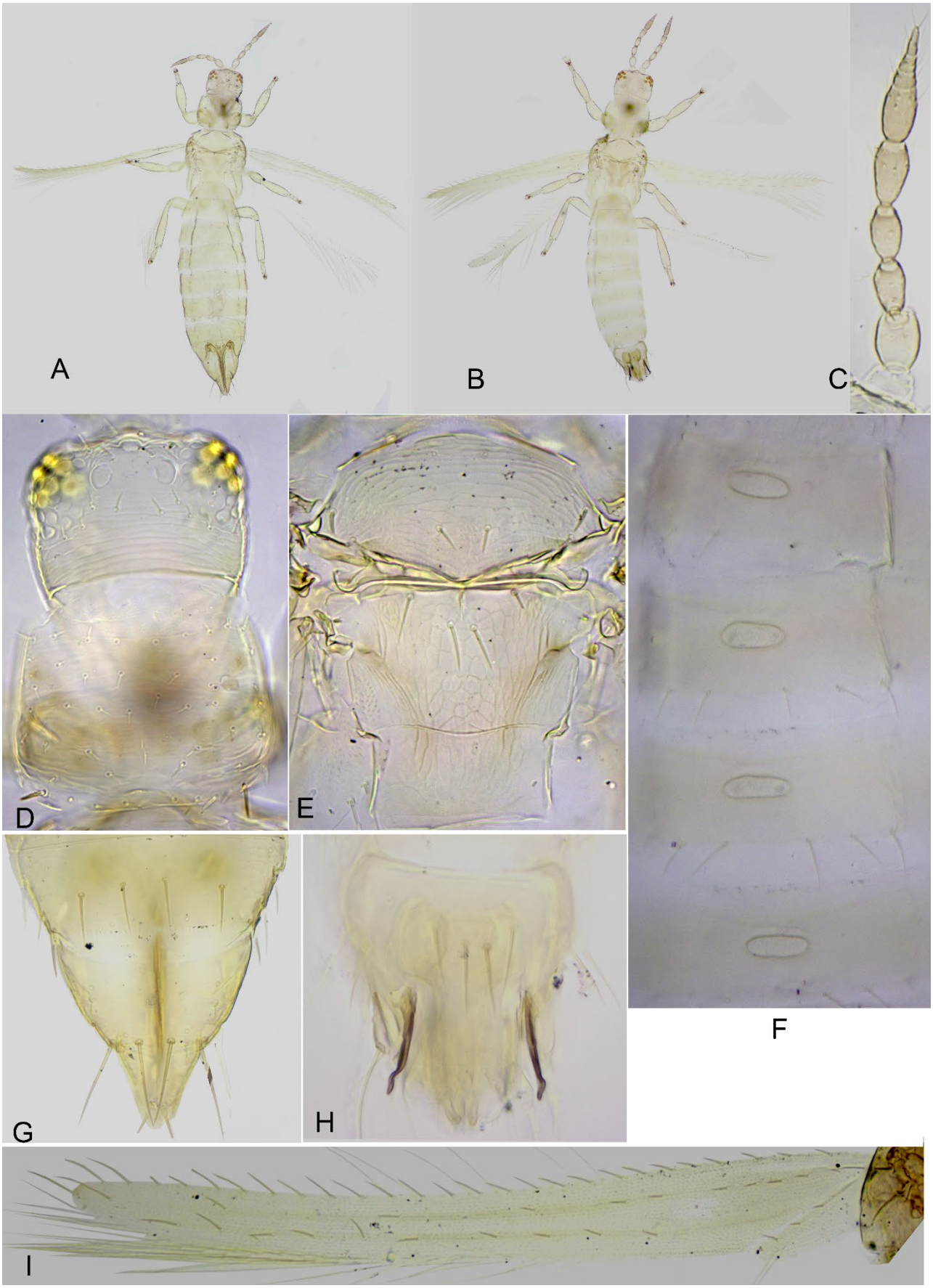


Fig. 1 (A-H), *Eremiothrips taghizadehi*: (A) female body; (B) male body; (C) antenna, female; (D) head and pronotum, female; (E) meso- and metanotum, female; (F) sternites IV–VII, male; (G) tergites VIII–X, female; (H) tergite IX–X, male; (I) fore wing.

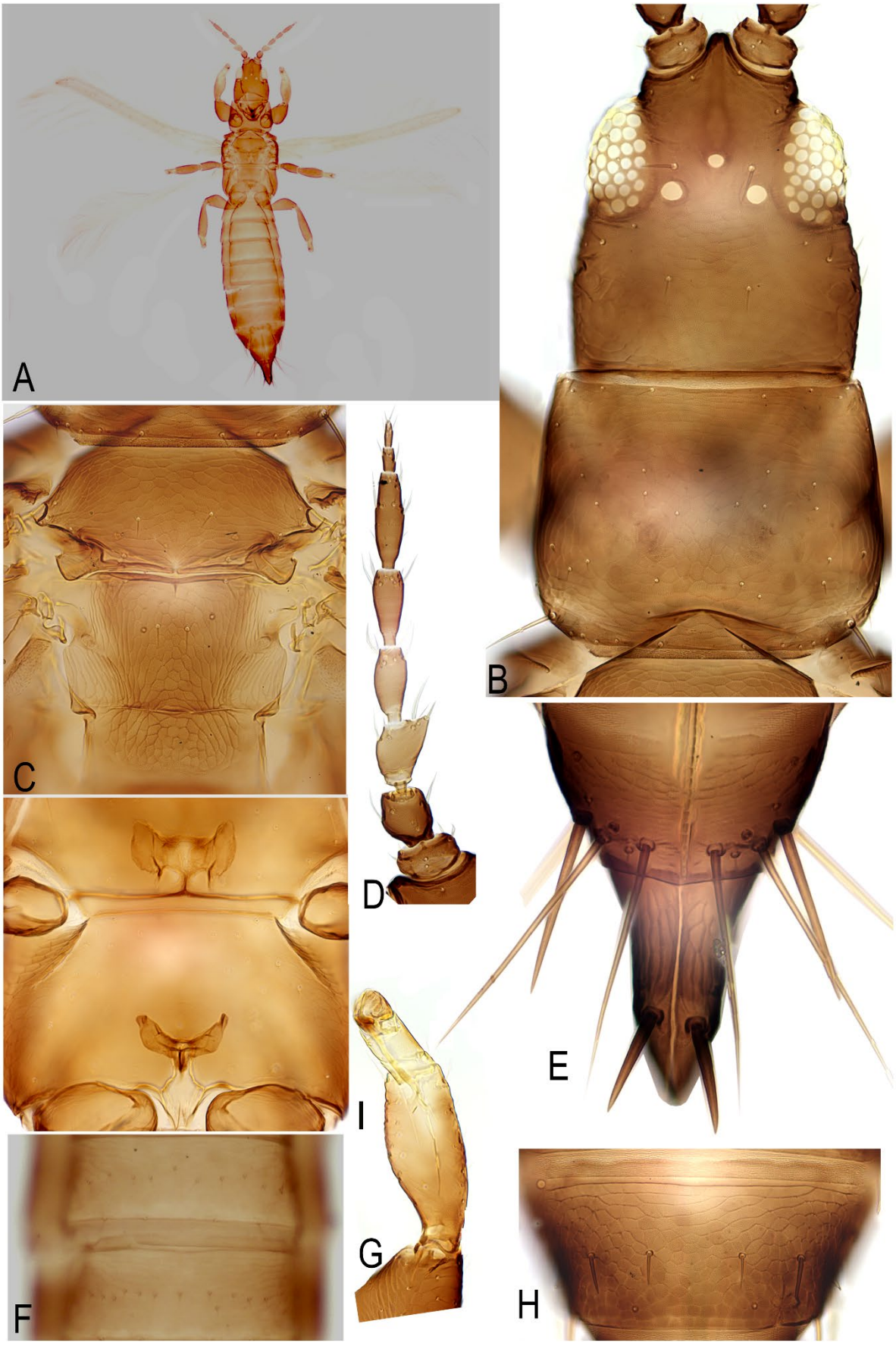


Fig. 2 (A-I), *Limothrips denticornis*, female: (A) female; (B) head and pronotum; (C) meso- and metanotum; (D) antenna; (E) tergites IX–X; (F) sternites V–VI; (G) fore leg; (H) tergite VIII; (I) meso- and metasternum

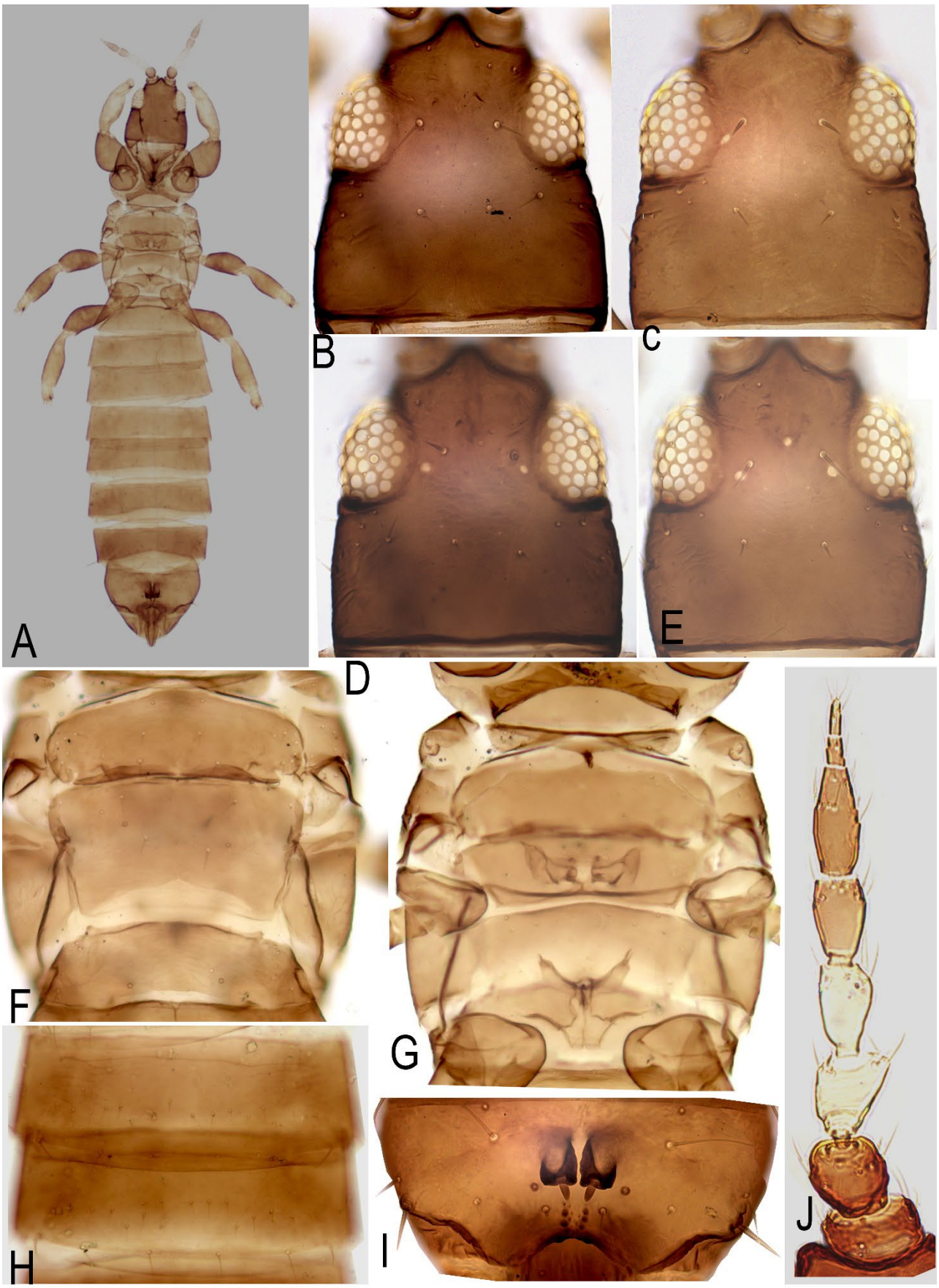


Fig. 3 (A-J), *Limothrips denticornis*, male: (A) male; (B-E) head; (F) meso- and metanotum; (G) meso- and metasternum;(H) sternites V–VI; (I) tergites IX; (J) antenna.

Diagnosis. Female macropterous (**Figs. 2A-2I**). Body brown, including legs, except pale tarsi; antennal segments I–II, V–VIII dark brown, III and IV light brown; forewings light brown (Fig. 2A). Antennae 8-segmented; segment III asymmetric, with an external margin forming a tooth; segment III with simple and IV with forked sense cone (Fig. 2D). Head projecting in front of the eyes with 2-3 pairs of ocellar setae, ocellar setae III outside the ocellar triangle (Fig. 2B). Pronotum with only one pair of posteromarginal setae (Fig. 2B). Metanotum reticulate; median pair of setae far behind the anterior margin; campaniform sensilla present (Fig. 2C). Forewing first vein with 2 setae on the distal half. Abdominal tergite VIII without posteromarginal comb (Fig. 1H); tergite X with a pair of stout thorn-like setae (Fig. 2E). Abdominal sternites II–VII with discal setae (Fig. 2F); VII with a median pair of setae behind the posterior margin. Tarsi two-segmented (Fig. 2G).

Male apterous (Figs. 3A-3J). Males with or without ocelli (Figs. 3B-3E); body colour antennal segments I–II, V–VIII dark brown, III and IV yellow (Fig. 3A); abdominal tergite IX with a pair of stout thorn-like setae on tubercles medially (Fig. 3I), posterolateral pair of setae longer; sternites without pore plates.

Remarks: The presence of ocelli is typically associated with winged (macropterous) adults, while in wingless (apterous) adults, it is weakly developed or completely absent. Many apterous species lack ocelli, such as females in the genus *Aptinothrips* Haliday or the males in *Limothrips*, but a few species, particularly in the genus *Anaphothrips* Uzel, are apterous but possess weakly developed ocelli. The complete absence of ocelli is generally associated with populations inhabiting dark and subterranean environments. Moreover, ocelli are strongly linked to flight capabilities; therefore, adults lacking ocelli do not fly or have reduced flight ability. The males of the genus *Limothrips* are always apterous and without ocelli (Negis *et al*., 2025; zur Strassen, 2003). Recently, we examined variation in ocelli development in 13 apterous males collected along with macropterous females on *Triticum aestivum* from Ladakh, India. Of these, only a few specimens had three ocelli, and others had either one or two weakly developed ocelli or were completely absent.

Distribution: Bulgaria, England, Euro-Siberian region, Hungary, **India (new record),** Iran, Moldova, Romania, Slovakia, Spain, Sweden, Türkiye (ThripsWiki, 2026).

The India, one of the megadiverse countries, supports a wide range of ecosystems and hosts high species richness. However, the trans-Himalayan cold desert of Ladakh remains underexplored for insect diversity. Extreme environmental conditions, such as low temperatures, high-altitude habitats, intense solar radiation, and short growing seasons, are major drivers of the development of specialised adaptations necessary for survival and reproduction. This study reports two new Thripinae taxa, *L. denticornis* and *E. taghizadehi,* for the first time from Ladakh, India. Additionally, observations on morphological variation in apterous males of *L. denticornis* are presented. Among Thysanoptera, ocelli are typically associated with macropterous forms and are reduced or completely absent in apterous forms (Lewis, 1973; Mound & Marullo, 1996). This pattern is functionally linked to the role of ocelli in light perception and flight orientation, and their reduction in apterous is generally seen as an adaptation to a non-dispersing lifestyle. In the genus *Limothrips*, ocelli are present in females but are usually absent in apterous males (Negis *et al.,* 2025). In the present study, examination of 13 apterous males of *L. denticornis* revealed variability, including the presence of one to three weakly developed ocelli or their complete absence. Furthermore, one DNA barcode sequence was generated from female *E. tahgizadehi* specimens to facilitate accurate identification and support future molecular studies. The present study expands the known geographical distribution of *L. denticornis* and *E. taghizadehi* by documenting them for the first time from the trans-Himalayan region of Ladakh, India.

Author's Contributions

Shalvinder Kour: resources; methodology; funding acquisition; draft preparation; **Gulzar Hussain:** conceptualization; visualization; **Janvi Bali:** investigation; methodology; **Rakesh Kumar:** methodology; conceptualization; supervision; **Seema Langer:** formal analysis; visualization; funding acquisition; **Kaomud Tyagi:** supervision; investigation; final review and edit; **Shash Pal:** methodology; draft preparation; final review and edit; funding acquisition.

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Data Availability Statement

All data for this study are available from the corresponding author upon request.

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Ethics Approval and Consent to Participate

This study followed all required ethical guidelines for insect studies in accordance with international, national, and institutional regulations.

Conflict of Interest

The authors declare no conflict of interest.

Generative AI statement

The authors declare that no Generative AI was used in the creation of this manuscript.

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گزارش دو گونه بال‌ریشکدار Thripidae از هند، همراه با نکاتی درباره تغییرات ریخت‌شناختی در نر بدون بال *Limothrips denticornis* (Haliday)

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چکیده: دو گونه از تریپس های خانواده Thripidae به نام‌های *Limothrips denticornis* (Haliday) و *Eremiothrips taghizadehi* (zur Strassen) برای نخستین بار از لاداک (هند) گزارش می‌شوند که به واسطه آن، گستره جغرافیایی شناخته‌شده آن‌ها وسعت می‌یابد. مشاهدات دقیق ریخت‌شناختی، با تمرکز ویژه بر تغییرات مشاهده‌شده در نرهای بدون بال *L. denticornis*، در این پژوهش گنجانده شده است. علاوه بر این، بارکدهای DNA نمونه‌های ماده‌ی *E. taghizadehi* استخراج شده و به سامانه داده‌های بارکد حیات (BOLD) ارسال گردیدند. این یافته‌ها درک ما را از تنوع تریپس‌ها در اکوسیستم‌های مرتفع هیمالیای هند ارتقا بخشیده و غنای گونه‌های جانوریِ کمتر بررسی‌شده‌ی این منطقه را برجسته می‌سازند. این مطالعه مبنای ارزشمندی را برای بررسی‌های آینده در زمینه‌های تاکسونومی و بیوژئوگرافی فراهم می‌کند.

کلمات کلیدی: لاداک، تریپس، گزارش‌های جدید، تغییرات ریخت‌شناختی، بارکد DNA.

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