




A newly recorded genus of the *Thrips* genus-group (Thysanoptera, Thripidae) from Iran

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ABSTRACT. The monotypic genus *Fulmekiola* Karny of *Thrips* genus-group (Thripidae: Thripinae) is recorded in Iran for the first time. This is the sixth member of this group recorded from Iran after *Microcephalothrips* (one species), *Sphaerothrips* (one species), *Stenchaetothrips* (2 species), *Stenothrips* (one species) and *Thrips* (35 species). Diagnostic characters and the geographical distribution of the newly recorded thrips, *Fulmekiola serrata* (Kobus) are provided along with an updated key to genera of the Iranian *Thrips*-group.

Key words: Ctenidia, new record, thrips, *Fulmekiola*

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INTRODUCTION

Thripinae comprising 1757 extant species in 228 genera worldwide is the largest subfamily of the order Thysanoptera (ThripsWiki, 2022). In this subfamily, several genus-groups have been recognized (see Mound & Palmer, 1981; Masumoto & Okajima, 2005, 2006, 2007; Mound & Masumoto, 2009). Amongst them, the *Thrips* genus-group is a monophyletic lineage within Thysanoptera, composed of 17 genera, i.e. *Abacothrips* Bhatti, *Baliothrips* Uzel, *Bolacothrips* Uzel, *Bournierothrips* Bhatti, *Ctenidothrips* Priesner, *Ernothrips* Bhatti, *Fulmekiola* Karny, *Larothrips* Pitkin, *Microcephalothrips* Bagnall, *Rhinotripsiella* zur Strassen, *Sminyothrips* Uzel, *Sphaeropotrips* Priesner, *Stenchaetothrips* Bagnall, *Stenothrips* Uzel, *Thrips* Linnaeus, *Toxonothrips* Moulton, and *Tsutsumiothrips* Masumoto & Okajima (Masumoto & Okajima, 2013).

Members of this group are characterized by the following character states: ocellar setae I absent, abdominal tergites V–VIII with paired ctenidia laterally, usually positioned distally to the base of S4 setae on tergites VI–VII, and tergite VIII with ctenidia posteromesad to the spiracles (Mound & Masumoto, 2005; Masumoto & Okajima, 2013). In Iran, 41 species are present in the *Thrips* genus-group, which comprises about 8% of the total species reported from this country (Mirab-balou, 2018). Minaei et al. (2007) provided a key to four genera of *Thrips*-group in Iran, namely *Sphaeropotrips*, *Stenothrips*, *Microcephalothrips* and *Thrips*. Four years later, the fifth member of this group, *Stenchaetothrips* was

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added to Iranian Thripinae by Mirab-balou and Chen (2011), and was updated the key to five *Thrips*-group in Iran provided by them (Mirab-balou, 2021). In this study, the sixth member of this group, *Fulmekiola* Karny with one species, *F. serrata* (Kobus), is newly recorded for the fauna of Iran.

MATERIAL AND METHODS

The single specimen of the new thrips discussed below was collected together with several specimens of *Stenothrips graminum* Uzel, by beating grasses (Poaceae) onto a plastic tray from Lorestan province (west of Iran). Thrips specimen was mounted onto the slide and deposited in the collection of the Department of Plant Protection, College of Agriculture, Ilam University, Iran (ILAMU).

RESULTS

The *Thrips* genus-group in Iran currently comprises 41 species in six genera, including the new record of *Fulmekiola serrata* (Kobus) from Lorestan province in the west of Iran. A key to these six genera of *Thrips*-genus group is provided.

Class Insecta Linnaeus, 1758

Order Thysanoptera Haliday, 1836

Suborder Terebrantia Haliday, 1836

Family Thripidae Stephens, 1829

Subfamily Thripinae Karny, 1921

Genus *Fulmekiola* Karny, 1925

Fulmekiola Karny, 1925:18. Type species *Fulmekiola interrupta* Karny, 1925:18, by original designation; synonym of *Thrips serrata* Kobus.

Diagnosis: Head without ocellar setae pair I, II much longer than interocellars; antennae 7-segmented, segments III and IV each with forked sense cones; maxillary palps 3-segmented; pronotum with two long setae at each posterior angle, with three pairs of posterior marginal setae inner to the major angulas. Tarsi 2-segmented. Fore wing first vein with row of setae broadly interrupted, second vein with numerous setae. Meso- and metasternal spinula absent. Abdominal tergites V–VIII each with a lateral ctenidium, that on VIII situated mesad of spiracles (*Thrips*-type); setae S4 reduced on tergites VI–VIII; setae S3 to s5 on tergites III–V arranged in a triangle, with S4 placed mesio-caudad or mesiad of S5. Tergite X split longitudinally, tergites I–VIII and sternites II–VII (VIII in males) along the posterior margin with long regular teeth; sternites II–V in females (II–VIII in males) with all primary setae inserted at the posterior margin; Sternite II with two pairs of primary setae; sternites without discal setae.

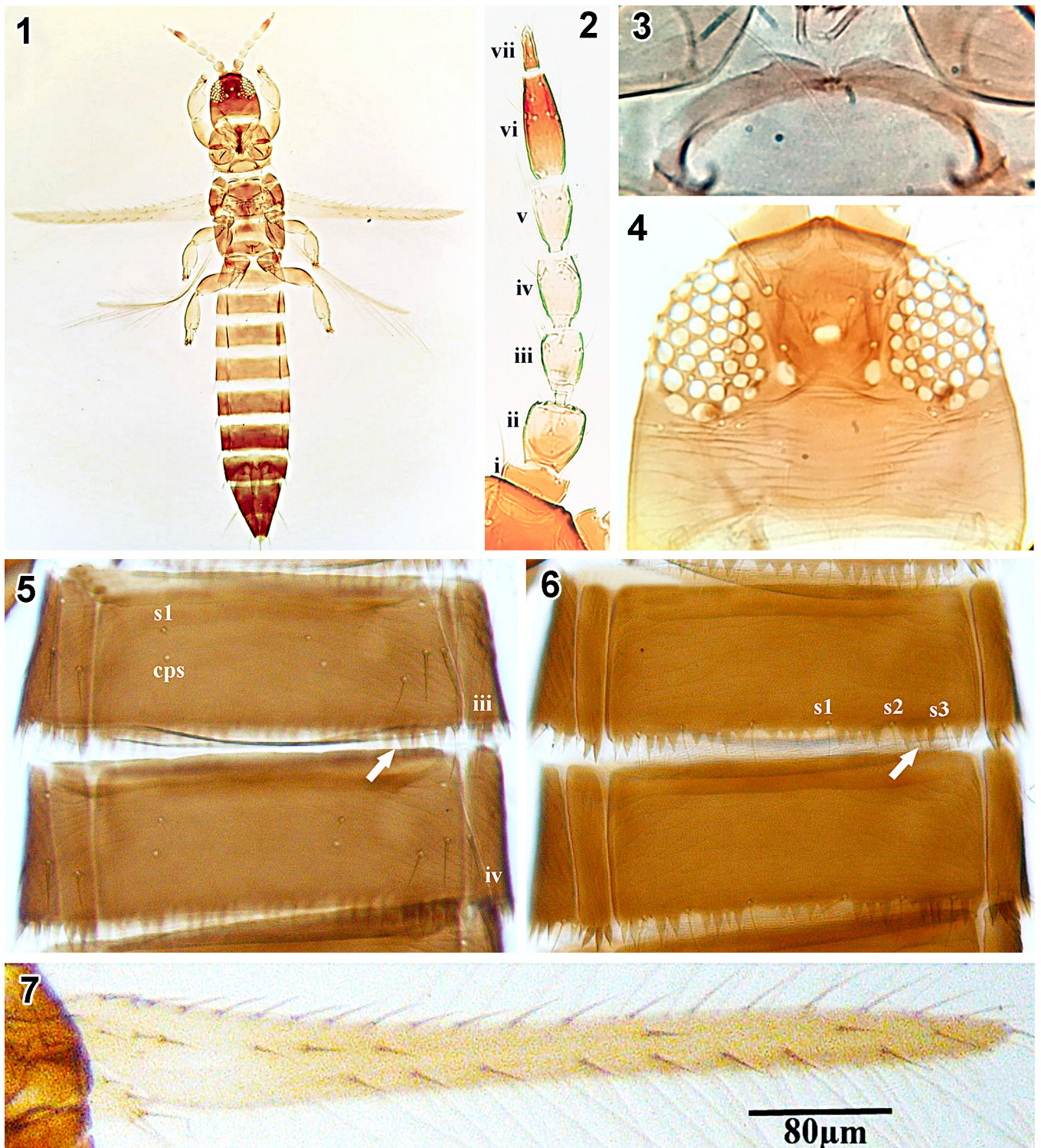
***Fulmekiola serrata* (Kobus, 1893)**

Thrips serrata Kobus, 1893:16. Holotype ♀, – California Academy of Sciences, San Francisco (CAS).

Diagnosis – Female: macroptera (Fig. 1): Body brown including all femora, all tibiae and tarsi along with antennal segments III–V and base of VI yellow (Fig. 2); fore wings light brown with pale base. Head longer than wide and projecting slightly in front of eyes; only 2 pairs of ocellar setae present, pair II longer than ocellar triangle (Fig. 4), pair III outside the triangle; postocular setae small, with the second pair (No. II) back of the level of III, No. I often absent. Pronotum with two pairs of long posteroangular setae, posterior margin with 3 pairs of setae. Metanotum with converging lines of sculpture; campaniform sensilla present; median setae located behind anterior margin. Fore wing first vein with 7 basal and 3 distal setae (Fig. 7), second vein with 10 to 12 setae. Abdominal tergites I–VIII with craspedum with long pointed teeth (Fig. 5); abdominal sternites without discal setae, posteromarginal craspedum of pointed lobes (Fig. 6).

Male: macroptera (not examined). Similar to female in structure but smaller; tergite IX with two pairs of subequal setae medially; sternites III-VII with transverse pore plate.

Specimens examined. *Female macroptera.* **IRAN**, Lorestan province, Seleseleh, Aleshtar, on an unknown grass (Poaceae), 16.vi.2020, leg. H. Mohammadi Noori.



Figures 1-7. *Fulmekiola serrata*, female macroptera. 1. Adult; 2. Antenna; 3. Basantra without setae, showing ferna; 4. Head; 5. Abdominal tergites III & IV; 6. Abdominal tergites III & IV; 7. Fore wing.

Distribution. This Oriental species is widespread between India and The Philippines. It has been introduced and established in many other regions and has been recorded in Asia, Africa, North America and South America (Ulitzka, 2022).

Key to genera of *Thrips*-genus group

1. Maxillary palps 2-segmented. 2
 – Maxillary palps 3-segmented. 3
2. Antennal segment II without dorsal seta basad of campaniform sensilla; mesothoracic sternopleural sutures absent. *Sphaeropothrips* Priesner
 – Antennal segment II with dorsal seta basad of campaniform sensilla; mesothoracic sternopleural sutures present. *Stenothrips* Uzel
3. Abdominal tergites with large dentate craspeda on posterior margin. 4
 – Abdominal tergites without large dentate craspeda on posterior margin, but often with small teeth on posterior margin. 5
4. Basantra with 8–16 setae and numerous microtrichia; abdominal sternites with numerous discal setae, without craspeda; ocellar setae II shorter than ocellar setae III. *Microcephalothrips* Bagnall
 – Basantra without setae (Fig. 3); abdominal sternites without discal setae, with craspeda (Fig. 6); ocellar setae II much longer than setae III (Fig. 4). *Fulmekiola* Karny
5. Ocellar setae II longer than ocellar setae III. *Stenchaetothrips* Bagnall
 – Ocellar setae II shorter than ocellar setae III. *Thrips* Linnaeus

DISCUSSION

The Oriental genus, *Fulmekiola* is closely related to *Thrips*-group with the abdominal tergites bear a pair of ctenidia laterally, which on tergite VIII lie posteromedially of the spiracle. Unlike the species of the *Thrips* genus, the only species *F. serrata* has a well-developed lobed craspedum on the posterior margins of the tergites and sternites. The genus *Fulmekiola* is very similar to *Stenchaetothrips* but is easily distinguished from later by having large teeth-like craspeda along the posterior margin of abdominal tergites and sternites (Masumoto, 2010). It differs from *Microcephalothrips* in having one pair of long preocellar setae on the head. The sugar cane thrips, *F. serrata*, originally described from Indonesia and it is now widespread between India and the Philippines. This species breeds on the tightly curled young leaf spindles at the growing points of sugar cane (Way et al., 2006), possibly also living on other Poaceae. This species is one of the major pests on sugar cane fields in some countries such as China, Japan and South Africa (Leslie, 2005; Reitz et al., 2011).

AUTHOR'S CONTRIBUTION

The authors confirm contribution to the paper as follows: HMN: sampling, mounting the specimen; SJ: drafting and reviewing; MMB: Identification, photography, 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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گزارش جنس جدید از گروه جنس *Thrips* (Thysanoptera, Thripidae) از ایران

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چکیده: جنس تک گونه‌ای *Fulmekiola Karny* از اعضای گروه جنس *Thrips* (Thripidae: Thripinae) برای اولین بار از ایران گزارش می‌شود. این جنس ششمین عضو این گروه از ایران است که بعد از *Microcephalothrips* (یک گونه)، *Sphaerothrips* (یک گونه)، *Stenchaetothrips* (۲ گونه)، *Stenothrips* (یک گونه) و *Thrips* (۳۵ گونه) از ایران گزارش می‌شود. ویژگی‌های ریخت‌شناسی و دامنه انتشار جغرافیایی رکورد جدید، *Fulmekiola serrata* (Kobus)، به همراه کلید به روز شده‌ی جنس‌های گروه جنس *Thrips* ایران ارائه شد.

واژگان کلیدی: کتنیدی، گزارش جدید، تریپس، *Fulmekiola*