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The first report of the genus *Sinuothrips* (Thysanoptera: Phlaeothripidae) from Iran

Mahsa Hakimara[1], Saber Sadeghi[1]*, Kambiz Minaei[2] and Inci Sahin[3]

1 *Department of Biology, College of Science, Shiraz University, Shiraz, Iran.*
2 *Department of Plant Protection, College of Agriculture, Shiraz University, Shiraz, Iran.*
3 *Department of Plant Protection, Faculty of Agriculture, Selcuk University, Konya, Turkey.*

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ABSTRACT. The genus and species, *Sinuothrips hasta* Collins, was identified based on specimens of both sexes collected from *Phragmites* and an unkown species of Asteraceae in Fars province. This genus is known previously only from England, Turkey and China. A brief diagnostic characters for the genus and species is provided and illustrated.

Key words: Iran, new record, thrips

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Introduction

In the largest and most complex subfamily in the insect order Thysanoptera, Phlaeothripinae with 2935 species (ThripsWiki, 2018), various attempts have been made to recognise subgroups (Priesner, 1960; Bhatti, 1992a, b). However there is little phylogenetic evidence to support most of these subgroups (Buckman et al., 2013). Despite this, the tribe Haplothripini is now well defined within the subfamily Phlaeothripinae (Mound & Minaei, 2007; Minaei & Mound, 2008).

In Iran information was provided by Minaei & Mound, 2008 about four genera of the tribe Haplothripini (*Dolicholepta* Priesner, *Haplothrips* Amyot & Serville, *Neoheegeria* Schmutz, *Plicothrips* Bhatti), and a fifth genus of the tribe, *Bagnalliella* Karny was reported by Mirab-balou et al. (2012) based on specimens collected from Yucca flowers. Subsequently, two other genera *Karnyothrips* Watson and *Podothrips* Hood were recorded for the country (Minaei, 2015; Miramirkhani et al., 2016). In this paper, another genus of this group is recorded and illustrated for the first time from Iran.

Material and methods

The specimens discussed in this paper were collected by beating flowers of plants onto a plastic tray. The specimens then were macerated in 2% NaOH solution for 12–14 hours and mounted onto slides in Canada balsam after dehydration through a series of ethanols using a form of protocol described by Mound & Kibby (1998). An Olympus BX51 phase-contrast microscope was used for observations on structure. Photomicrographs and measurements were made using this microscope with DP27 digital camera and CellSens software.

Corresponding author: Saber Sadeghi, E-mail: *ssadeghi@shirazu.ac.ir*

Terminology used in this paper follows Mound & Minaei (2007). The materials are deposited in the Department of Plant Protection, College of Agriculture, Shiraz University, Shiraz, Iran.

Results

Sinuothrips Collins

Sinuothrips Collins, 2000: 286. Type species *Sinuothrips hasta* Collins, 2000, by monotypy.

This genus is distinguished from other genera in Haplothripini by prominent dorsal projection in head which is extended beyond antennal segment III (Fig. 2) also the presence of three pairs of sigmoid wing retaining setae on tergites IV-VII. Despite these, in one of females that were studied here abdominal tergite III has 2 wing retaining setae on the left while 3 are present on the right side of the tergite (Fig. 7). Morover, in another female, tergite IV has the same arrangement in the left side but has 4 wing rataing setae on the right.

Sinuothrips hasta Collins

Sinuothrips hasta Collins, 2000: 286.

The species was originally described from specimens collected in England on Phragmites imported from Turkey (Collins, 2000). It was subsequently recorded from Inner Mongolia, China (Dang et al., 2013) and also listed from Turkey (Tunc & Hastenpflug-Vesmanis, 2016) .

Diagnosis: Female macroptera. Body brown (Fig. 1), antennal segment II light brown in basal third but paler in distal, III-V yellow brownish (Fig. 3), base of forewings dark, major body setae light brown.

Head with prominent dorsal projection which is extended beyond antennal segment III (Fig. 2) with maxillary stylets almost 0.15 of head width apart, retracted to post ocular setae; postocular setae small, not extending to posterior margin of eyes. Maxillary bridge well developed (Fig. 2). Mouth cone rounded. Antennae 8-segmented (Fig. 3), III and IV with 1 and 4 sense cones respectively.

Pronotum transverse (Fig. 4), with weak sculpture lines except close to posterior margin; epimeral sutures complete; anteromarginal, anteroangular and midlateral setae not developed while epimeral as well as posteroangular setae conspicuous. Prosternum with paired basantra and ferna, basantra wider than long. Fore tarsal tooth present but not large (Fig. 2). Mesonotum transverse, weakly reticulate, with no microtrichia. Metanotum with polygonally reticulate sculpture (Fig. 5). Fore wing constricted medially with 7-8 duplicated cilia. Sub-basal setae S1, S2 and S3 almost pointed, arranged in straight line. Pelta broadly triangular, weakly reticulate (Fig. 6). Abdominal tergites II–VIII with weak reticulation antero-laterally, II with 2 pairs of wing- retaining setaea, III-VII with 2 pairs of wing- retaining setae but in one side (the right) the posterior pair has an extra sigmoid wing-retaining setae (Figs 6, 7), VII and VIII each with two campaniform sensilla not close to each other. Tube short, less than twice as long as basal width (Fig. 8); anal setae longer than tube.

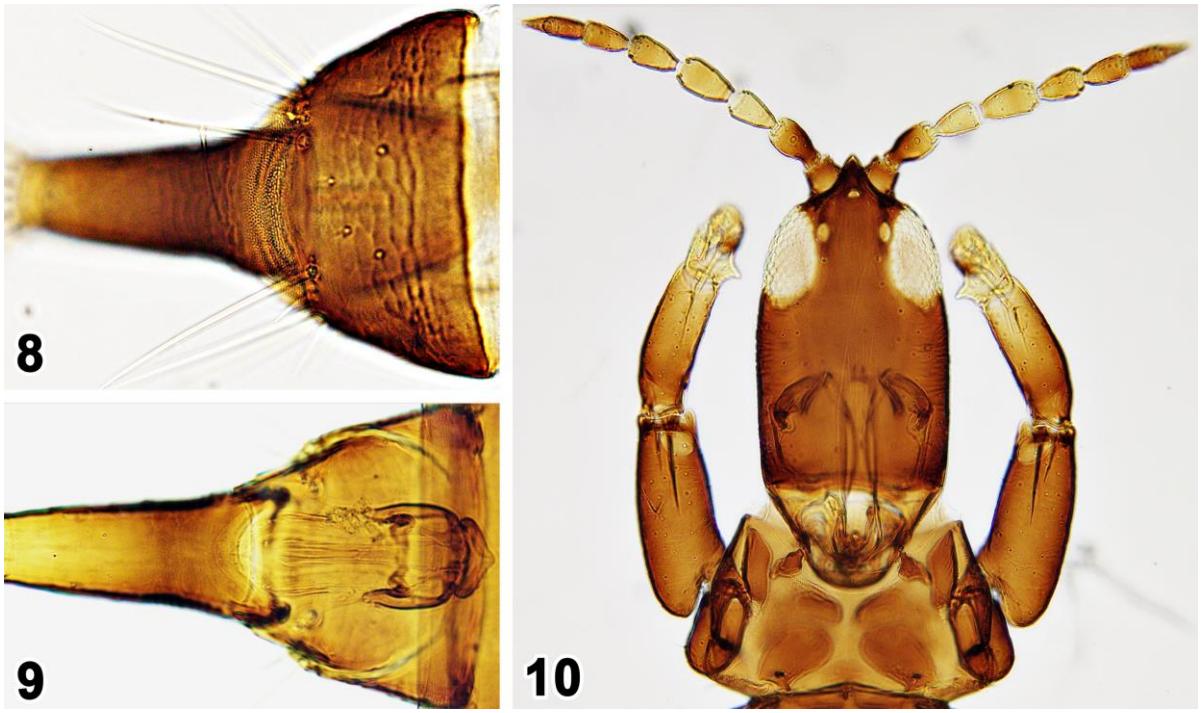
Male macroptera. Similar to female in colour and structure but smaller and the dorsal projection of the head short, not extending beyond antennal segment I (Fig. 10). Antennal segment III with 2 sense cones. Fore tarsal tooth developed (10). Aedagus rounded at the tip (Fig. 9).

Material examined: Fars province, Khorambid, Bayan village, 1♀, 1♂, an unknown Asteraceae, 3.ix.2015, leg.: M. Hakimara. 1♀, the same data, *Phragmites* sp.

Distribution in Iran: Fars province (this study).

Distribution in the world: Iran (this study), Turkey (Collins, 2000; Tunc & Hastenpflug-Vesmanis, 2016), England (Collins, 2000).

Figures 1–7. *Sinuothrips hasta*: **1.** Female; **2.** Head and fore legs; **3.** Antenna; **4.** Pronotum; **5.** Meso and metanotum; **6.** Pelta and tergite II; **7.** Tergites III-IV.



Figures 8–10. *Sinuothrips hasta*: **8.** Tergite IX and tube; **9.** Aedagus and tube (male); **10.** Antenna, head, forelegs and pronotum (male).

Discussion

The genus and species discussed in this paper is readly seperated from other Haplothripini by the dorsal projection on the head (especially in females), as well as the presence of three pairs of sigmoid wing retaining setae on tergites IV-VII. Mound (personal communication) spectaculated that this thrips is probably common in the reeds along the lower reaches of the Euphrates and Tigris, so Fars province is a surprise, as it is a bit more arid. However, all three specimens were found in the north of Fars province near spring.

The previous report of the species is based on 12 females and 1 male that all were collected on *Phragmites australis* (Collins, 2000). In this study one female was also collected on *Phragmites* sp. while two other specimens were beaten from an unknown Asteraceae. As all specimens were collected in the same place in one day it seems likely that the two on Asteraceae were found accidentally. According to Mound (2013) the small size and restless behavior in thrips cause adults land on a wide range of substrates, including plants, on which they can not breed. As a result, the unkown Asteraceae plant in this study may not function as a host for *Sinuothrips hasta*.

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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 *Sinuothrips* (Thysanoptera: Phaeothripidae) برای اولین بار از ایران

مهسا حکیم آرا[1]، صابر صادقی[1*]، کامبیز مینایی[2] و انجی شاهین [3]

۱ بخش زیست شناسی، دانشکده علوم، دانشگاه شیراز، شیراز، ایران.
۲ بخش گیاهپزشکی، دانشکده کشاورزی، دانشگاه شیراز، شیراز، ایران.
۳ بخش گیاهپزشکی، دانشکده کشاورزی، دانشگاه سلچوک، کنیا، ترکیه.
* پست الکترونیکی نویسنده مسئول مکـاتبه: *ssadeghi@shirazu.ac.ir*
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چکیــده: جنس و گونه *Sinuothrips hasta* Collins بر اساس نمونه‌های هر دو جنس نر و مادهٔ جمع‌آوری شده از روی گیاه نِی (*Phragmites*) و یک گونه ناشناخته از خانوادهٔ Asteraceae از فارس شناسایی شد. این گونه قبلاً فقط از انگلستان، ترکیه و چین گزارش شده است. ویژگی‌های جنس و گونه به صورت مختصر ارایه شده است و شکل نمونه‌های مورد مطالعه تهیه شد.

واژگــان کلیدی: ایـران، گـزارش جدید، تریپس