The first record of *Dendrothrips aspersus* (Thysanoptera: Thripidae) from Iran

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Abstract

The species *Dendrothrips aspersus* Bhatti, 1971 is reported for the first time from Iran, based on the materials collected on grasses. This species was endemic to their originated region and is recorded for the first time outside their native range. The host records of *D. aspersus* in both India and Iran are discussed. Moreover, the number of thrips species that have been recently recorded from Iran are tabulated.

Introduction

In the most recent treatment of the insect order Thysanoptera, 9 families have been recognised (Mound, 2011b). However, most of the species belongs to these two families: Phlaeothripidae and Thripidae. Although Thripidae is the second largest family of Thysanoptera, it is much more abundant than Phlaeothripidae in temperate regions (ThripsWiki, 2015), and this situation is also true for Iran, where 125 species (including one species group) of Thripidae *versus* 45 species of Phlaeothripidae (Minaei, 2013) were collected. A large proportion of thripids are flower and leaf-feeders.

In Iran, three genera (*Dendrothrips* Usel, *Iranodendrothrips* Alavi, Minaei & Fekrat, *Pseudodendrothrips* Schmutz) with seven species are known in Dendrothripinae. An identification key for those genera and species including four species in *Dendrothrips* are also available (Alavi *et al*., 2014). The purpose of this paper is to report *Dendrothrips aspersus* as the fifth species in this genus in Iran. This is also the first record of this species outside India.

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Key words: Dendrothripinae; Iran, grass; new record; thrips.

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Materials and methods

Thrips specimens were collected into ethanol (70%) and then mounted on to the glass slides in Canada balsam. The photomicrographs and measurements were taken using a Motic BA310 microscope with Motic Image Plus 2.0 ML software. Most of the specimens are deposited in Department of Plant Protection, Shiraz University, Iran (PPSU) with two females in Australian National Insect Collection, Canberra (CSIRO).

Results

Dendrothrips aspersus Bhatti, 1971

Dendrothrips aspersus Bhatti, 1971: 349.

FEMALE MACROPTERA: Body generally yellow (Figure 1), antennal segments V-VIII brown; pronotum yellow with brown spots medially and anterolaterally; tergites with brown markings on lateral thirds, two pairs of longitudinal markings joined by two transverse markings on III-VII, but the posterior transverse marking usually absent on II and V; forewing white with three brown spots; major body setae pale.

Antennae 8-segmented (Figure 2A), segments III and IV each with simple sense-cones, III to VI each with two to five rows of microtrichia on dorsal and ventral surface; segments V cylindrical; VI not constricted basally, its inner sense-cone exceeding apex of segment VIII.

Head transverse (Figure 2B), wider than long; ocellar setae pair I absent, pairs II and III minute, ocellar setae III located just outside the triangle (in front of posterior ocelli).

Pronotum wider than long (Figure 2B), granulate, without distinct transverse lines, with no elongate setae, shallowly concave at each side near posterior margin, with about 20 discal setae; posterior margin with about 10 setae; ferna divided; prospinasterum well developed. Mesonotum sculptured with transverse anastomosing striae (Figure 2C), without campaniform sensilla; pair of median setae sit-

uated medially. Metascutum reticulate distinctively with no campaniform sensilla, pair of minute median setae situated far from anterior margin. Forewing with 3 grayish spots along anterior margin and one next to scale along posterior margin, not covered with microtrichia, with costal margin downturned, scale with three to four veinal seate and one discal seta; remaining wing setae small and finely acute. Tarsi one-segmented.

Lateral sides of abdominal tergites II-VIII with reticulations; tergites III to VII with microtrichia along posterior margin behind S1 and S2 setae; tergite VIII with posteromarginal comb complete; tergites IX and X with some rows of microtrichia; tergite IX longer than tergite X, S1 slightly longer than S2; tergite X not divided (Figure 2D).

REMARKS: The species is distinguished from other recorded species of *Dendrothrips* in Iran (*D. phyllireae*, *D. saltatrix*, *D. karnyi*, *D. deggeri*) by the absence of prominent posteroangular setae as well as eight segmented antennae. The posteroangular setae are not developed in both *deggeri* and *phyllireae* as do in *aspersus*. However, the number of antennal segments in *deggeri* and *phyllireae* are 9 and 7 respectively while this is 8 for *aspersus*.

MEASUREMENTS (one female, in micrometers): Body length 910. Head, length (width across cheeks) 78 (157). Pronotum median length (width) 92 (183). Fore wing length 6665. Tergite IX median length S1 setae length 40, S2 setae length 43. Ovipositor length 160. Antennal segments I-VIII length: 22, 26, 30, 28, 26, 22, 9, 11.

MATERIAL STUDIED: Iran, Fars province, Shiraz, 1 female on *Cynodon dactylon*, 15.viii.2014 (KM 1241) (in ANIC); same locality and plant, 2 females, 16. viii.2014 (KM 1243); same locality and plant, 3 females, 29. viii. 2014 (KM 1250); same locality and plant, 6 females (1 in ANIC), 5. ix. 2014 (KM 1255, 1256).

Discussion and conclusions

Dendrothrips aspersus was described by Bhatti in 1971 from India based on specimens collected on *Zizyphus* flowers (family Rhamanaceae) and leaves of *Acacia* (family Fabaceae) with an identification key to 13 species of *Dendrothrips*. Recently, Bhagat (2011) collected this species on the same plants from Jammu and Kashmir state of India. There is no report of this species outside India, so this is the first record outside this sub-continent. The fauna of Iran shares many species with the European Mediterranean area (Minaei, 2013), but Oriental region has also a considerable influence on the Iranian fauna. The presence of *D. aspersus* in Iran confirms that statement.

The species of the genus *Dendrothrips* are mainly associated with two plant families, Oleaceae and Flacourtiaceae (Marullo, 2003), however, two species have been collected on *Vitex* sp (Fam. Lamiaceae). These include *D. minutus* (Ananthakrishnan, 1961) as well as *D. karnyi* (zur Strassen, 2003). Furthermore, *D. aspersus* has just apparently collected on *Ziziphus* sp. and *Acacia* sp. Despite the foregoing, all specimens of *D. aspersus* in this study were collected from leaves of grasses (family Poaceae), which were grown up in an olive garden, but there are no documents, which demonstrate that olive (family Oleaceae) may be a host for the species. The host plant recognition in Thysanoptera is difficult (Mound, 2013). Mound (1999, 2011a) demonstrated that among Dendrothripinae, none of *Dendrothrips* species is associated with grasses.

From the last two decades the number of thrips species described or recorded in Iran increased. Minaei (2013) reported 202 species (including one species group) from Iran. Later on, 19 species including one new genus and 10 new species have been recorded from Iran (Table 1). Some of the species were synonymised (Table 2), considering the reports of *Thrips viminalis* (Rahemi *et al*., 2010), of two *Haplothrips* species, *H. cahirensis* (Trybom 1911) and *H. knechteli* Priesner (Fallahzadeh & Saghaei, 2012) not in Minaei checklist (Minaei, 2013), the number of species of Thysanoptera known from Iran grows to 223.

Figure 1. ***Dendrothrips aspersus*****, female.**

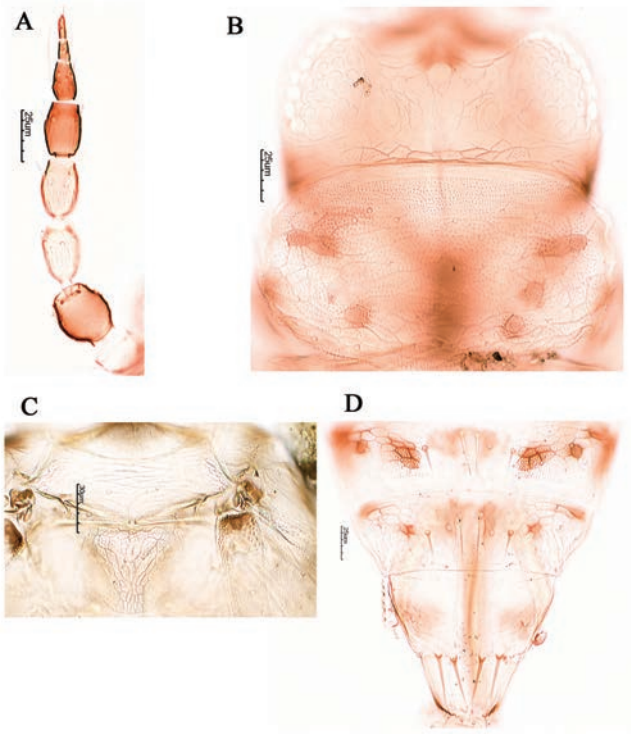

Figure 2. ***Dendrothrips aspersus*****, female. A) Antenna; B) Head and pronotum; C) Mesonotum and metanotum; D) Abdominal tergites VII-X.**

Table 1. The species recorded in Iran after the Checklist by Minaei (2013).

Species*	Family	Reference
Aeolothrips melaleucus	Aeolothripidae	Minaei, 2014b
Anaphothrips microptera	Thripidae	Mirab-balou *et al.*, 2014b
Eremiothrips eshghii	Thripidae	Minaei, 2014a
Eryngyothrips banihashemii	Thripidae	Minaei *et al.*, 2014
Haplothrips verbasci	Phlaeothripidae	Mirab-balou, 2014a
Iranodendrothrips kamalii	Thripidae	Alavi *et al.*, 2014
Karnyothrips flavipes	Phlaeothripidae	Miramirkhani *et al.*, 2014
Neohydatothrips ilamensis	Thripidae	Mirab-balou *et al.*, 2014a
Nesothrips brevicollis	Phlaeothripidae	Mirab-balou, 2014b
Mycterothrips mahvelatensis	Thripidae	Alavi *et al.*, 2013
Mycterothrips nastarani	Thripidae	Alavi *et al.*, 2013
Mycterothrips sanubari	Thripidae	Alavi *et al.*, 2013
Psilothrips zygophylli	Thripidae	Minaei & Mound, 2015
Scolothrips dilongicornis	Thripidae	Fekrat & Manzari, 2014
Scolothrips tenuipennis	Thripidae	Minaei & Abdollahi, 2015
Sitothrips izadpanahi	Thripidae	Minaei & Mound, 2014b
Thrips juniperinus	Thripidae	Gholami *et al.*, 2014
Thrips italicus	Thripidae	Jahangiri *et al.*, 2014
Thrips longiceps (Bagnall)	Thripidae	Mirab-balou, 2013

*Full details of scientific names are provided by ThripsWiki (2015).

Table 2. Nomenclature changes in thrips species recorded in Iran after the Checklist by Minaei (2013).

Species	Change	Reference
Haplothrips cerealis	Synonymised with *H. tritici*	Minaei & Mound, 2014a
Ataliothrips reuteri	Moved to *Liothrips*	Minaei & Mound, 2014c

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