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First description of the male of *Dendrothrips aspersus* (Thysanoptera, Thripidae) from Iran

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ABSTRACT. The distribution of *Dendrothrips aspersus* Bhatti, a leaf-feeding thrips species, has so far been confined to India and Iran. Both sexes of the species were collected from olive suckers from Fars province, south of Iran. The male sex of *Dendrothrips aspersus* is recorded and described. The females had been previously collected on grasses in the same place, so the host association for this species is discussed briefly.

Key words: Fars province, new record, olive, thrips

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Introduction

The insect order Thysanoptera are classified into nine families (ThripsWiki 2017). Of these, Thripidae is the most specious family in Iran (Minaei 2013). Species in this family exhibit a wide range of biologies such as leaf feeding, flower-living, feeding on both flowers and leaves and tospovirus vectors on crops. However, a few species play as obligate predators of mites (Mound 1997, 2011b).

The members of family Thripidae being arranged into four subfamilies (Mound 2011a). Most of these thripid species are grouped into the subfamily Thripinae, but others are assigned to one of the three other subfamilies, Dendrothripinae, Panchaethripinae and Sericothripinae (ThripsWiki 2017). The Dendrothripinae is a group of small leaf-feeding thrips with an enlarged

metathoracic furca that is associated with leg muscles involved in jumping (Mound 1999). In Iran, eight species in three genera i.e. *Dendrothrips* Uzel, *Iranodendrothrips* Alavi, Minaei & Fekrat and *Pseudodendrothrips* Schmutz are known in Dendrothripinae (Alavi *et al.* 2014, Minaei 2015). The last recorded species in this group in Iran is *Dendrothrips aspersus* Bhatti which has only been recorded from India and Iran based on female specimens (Minaei 2015). The purpose of this paper is to describe male of this species. Moreover, the host association for the species is discussed briefly.

Material and methods

The specimens discussed in this paper were collected from olive suckers by

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beating them onto a white plastic tray. The fine brush and placed in Eppendorf tubes containing 70% ethyl alcohol. Microscopic slide mounts were prepared using a form of the protocol given in Mound and Marullo (1996). The photomicrographs were prepared using an Olympus BX51 phase-contrast microscope with DP27 digital camera using cellSens software. Specimens are deposited in Department of Plant Protection, College of Agriculture, Shiraz University, Shiraz, with one male in the Australian National Insect Collection, Canberra.

Results

Dendrothrips aspersus Bhatti, 1971

(Figs. 1-5)

Material examined: IRAN, Fars province, Shiraz, Eram Pardis, 5 females, 3 males on suckers of *Olea europaea*, 9.vii.2015 (KM 1378); same locality and plant, 5 females, 4 males, 22. vii.2015 (KM 1379); same locality and plant, 6 females, 6 males, 22.vii.2016 (KM 1533).

Diagnosis: *Dendrothrips aspersus* can be distinguished from other congeneric species by the following characters: antennae 8-segmented, segments III and IV with simple and forked sense cones, respectively. Pronotum granulate and without distinct transverse lines, postero-angular setae are not developed. Forewing not covered with microtrichia.

Description: *Male macroptera.* Body bicolored (Fig. 1), antennal segments yellow, V-VIII sometimes shaded; head and pronotum uniformly brown; abdominal tergites II-III and VII brown on lateral thirds; forewing white with a brown spot near the basae and a very pale spot near the distal end (Fig. 3); major body setae pale. Antennae 8-segmented, segment III with simple sense cone, IV with forked sense cone. Head transverse (Fig. 2), wider than long; ocellar setae pair I absent, pairs II and III minute, ocellar setae III located

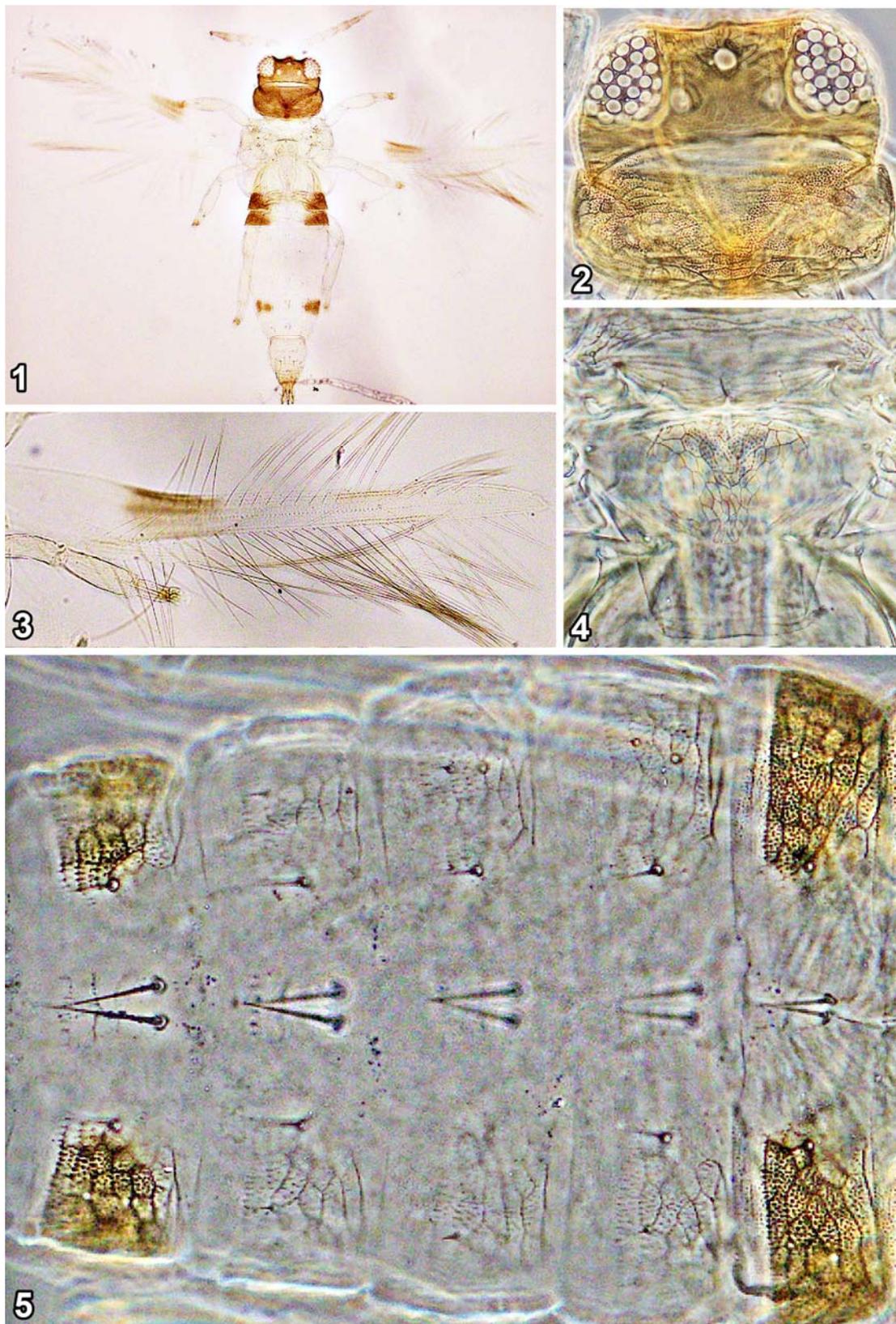
thrips specimens were removed using a just outside the triangle, very close to posterior ocelli. Pronotum wider than long (Fig. 2), granulate, without distinct transverse lines, with 15-20 discal setae; posterior margin with 7-10 setae; ferna divided; prospinasterum well developed. Mesonotum sculptured with transverse anastomosing striae (Fig. 4), without campaniform sensillae; pair of median setae situated medially. Metascutum reticulate distinctively with no campaniform sensillae, pair of minute median setae situated far from anterior margin. Forewing not covered with microtrichia, with costal margin down-turned, scale with three to four veinal seate and one discal seta; remaining wing setae small and finely acute. Tarsi one-segmented.

Abdominal tergites II-VIII with transversely reticulate sculpture laterally (Fig. 5), those on VIII weaker, postero-marginal comb not developed on VIII, tergite IX with a pair of long setae close together medially and two pairs of long setae closer to posterior margin.

Measurements: (one male, in microns). Body length 762. Head, length (width across cheeks) 56 (137). Pronotum median length (width) 75 (154). Fore wing length 540. Antennal segments I-VIII length: 20, 29, 29, 27, 29, 23, 10, and 14.

Discussion

Dendrothrips aspersus was described from India based on the specimens collected on *Zizyphus* flowers (family Rhamnaceae) and leaves of *Acacia* (family Fabaceae) (Bhatti 1971). In the second report of this species, Bhagat (2011) collected it on both plants from Jammu and Kashmir States of India. There has been no report of this species until recently from southern Iran, based on a few specimens collected on leaves of *Cynodon dactylon* (Poaceae) which were grown up in an olive garden (Minaei 2015).



Figures 1-5. *Dendrothrips aspersus* Bhatti, male: 1. Adult; 2. Head and pronotum; 3. Forewing; 4. Meso and Metanotum; 5. Abdominal tergites III-VII.

In all of the mentioned reports, no males reported. Although two species of *Dendrothrips* have been collected on *Vitex* sp. (Lamiaceae) (zur Strassen, 2003, Bagheri and Alavi 2007), most species in this genus are associated with two plant families, Oleaceae and Flacourtiaceae. Furthermore, Mound (1999) and Marullo (2003) claimed that among Dendrothripinae, none of *Dendrothrips* species associated with grasses. Therefore, a search for any other potential hosts for *D. aspersus* has been conducted during 2015 and 2016 in the same olive garden reported by Minaei (2015). The olive leaves infested by olive psyllid, *Euphyllura olivina* (Costa), were without any thrips. However, both sexes of *D. aspersus* were found on most olive suckers. Despite these observations, the author doesn't claim that olive is a host for *D. aspersus* as the host determination in Thysanoptera is complicated (Mound 2013). More investigations are needed to confirm any relationship between olive plant and *D. aspersus*.

As demonstrated by Mound (2005), a natural population of thrips is composed of only 30% males. Consequently for several species in the insect order Thysanoptera, the males are not found and described (Minaei *et al.* 2013). In recent years, the study of Thysanoptera fauna in Iran received much attention. So several species have been described or recorded from various parts of this country. The description of males for *Anaphothrips obscurus* (Muller) (Mirab-balou and Chen 2010), *Aeolothrips afghanus* Jenser (Minaei *et al.* 2013), *A. eremicola* Priesner (Alavi *et al.* 2013) and the species in this paper confirm the existence of a rich fauna in Iran.

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اولین توصیف جنس نر *Dendrothrips aspersus* (Thysanoptera: Thripidae) از ایران

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چکیده: تاکنون انتشار گونه برگخوار *Dendrothrips aspersus* Bhatti به هند و ایران محدود شده است. هر دو جنس این گونه از روی پاجوش‌های زیتون از استان فارس، جنوب ایران جمع آوری شده‌اند. جنس نر گونه *Dendrothrips aspersus* از ایران گزارش و توصیف شد. قبلاً ماده‌ها از روی گندمیان در همان محل جمع آوری شده بودند. بنابراین ارتباط میزبانی این گونه به صورت مختصر مورد بحث قرار گرفته است.

واژگان کلیدی: استان فارس، گزارش جدید، زیتون، تریپس.