

***ALEURODOTHrips FASCIAPENNIS* FRANKLIN:  
A NEWLY RECORDED GENUS AND SPECIES FOR IRAN  
(THYSANOPTERA: PHLAEOTHRIPIDAE)**

**Majid Mirab-balou & Xue-xin Chen\***

\* Institute of Insect Sciences, Zhejiang University, 268 Kaixuan Road, Hangzhou 310029, CHINA. E-mail: xxchen@zju.edu.cn

**[Mirab-balou, M. & Chen, X.-X. 2012. *Aleurodothrips fasciapennis* Franklin: A newly recorded genus and species for Iran (Thysanoptera: Phlaeothripidae). Munis Entomology & Zoology, 7 (1): 334-338]**

**ABSTRACT:** During the study of Iranian thrips in 2008-2010, a male of the *Aleurodothrips fasciapennis* Franklin 1908, belong in tribe Aleurodothripini Han 1997 (Phlaeothripidae: Phlaeothripinae) was collected on the infected leaves of grape by *Planococcus citri* (Risso) (Hemiptera: Pseudococcidae) from Zanjan province, which is represented as new records of the tribe, genus and species in Iran for the first time.

**KEY WORDS:** Thysanoptera, Phlaeothripidae, Aleurodothripini, new record, Iran, *Aleurodothrips fasciapennis*.

The Thysanoptera with more than 6000 known species is one of the orders of insects distributed through all parts of the world. This order includes nine families for living species (plus three fossil families) belong in two suborders, of these family Phlaeothripidae is only family in suborder Tubulifera (Mound, 2011). This family is currently interpreted as comprising about 3500 known species in the world (Mound, 2011), of these 44 species in 16 genera have been reported from Iran (Bhatti et al., 2009). At least half of the species in this family are fungus-feeders, mostly on hyphae but with one major group, the Idolothripinae, feeding on spores. More than one-third of the species are phytophagous, including the *Haplothrips* lineage in flowers, and the much larger *Liothrips* lineage on leaves. Some leaf-feeding species include galls on their host plants (Mound, 1994). A few species are predatory on scale insects and mites (Palmer & Mound, 1991), and the members of one small lineage feed on mosses (Mound, 1989).

Most of Iranian phlaeothripids have been recorded from tribe Haplothripini; and amongst them, *Haplothrips* species have a diversity of biologies, with many described species apparently predatory including *Haplothrips* (*H.*) *andresi* Priesner, *H.* (*H.*) *flavitibia* Williams, *H.* (*H.*) *globiceps* Bagnall, *H.* (*H.*) *kurdjumovi* Karny, *H.* (*H.*) *longiceps* Bagnall, *H.* (*H.*) *maroccanus* Priesner, *H.* (*H.*) *minutus* (Uzel), *H.* (*H.*) *phyllophilus* Priesner, *H.* (*H.*) *rabinovitchi* Priesner and *H.* (*H.*) *subtilissimus* (Haliday), and others phytophagous, particularly in the flowers of Asteraceae and Poaceae (Minaei & Mound, 2008).

In this paper, the predatory thrips, *Aleurodothrips fasciapennis* Franklin 1908, is represented as new records of the tribe, genus and species in Iran for the first time.

## MATERIALS AND METHODS

During the course of study on Iranian thrips in 2008-2010, we were collected one specimen from infected leaves of grape by citrus mealy bug, *Planococcus citri* (Risso) (Hemiptera: Pseudococcidae), from Zanjan province, West of Iran. The thrips was mounted on slide using the method of Mirab-balou & Chen (2010). All

descriptions, measurements and photos were made with a Leica DM IRB microscope, a Leica MZ APO microscope with a Leica Image 1000 system. The specimen is deposited in the Institute of Insect Sciences, Zhejiang University, Hangzhou, China (ZJUH).

### ***Aleurodothrips Franklin***

*Aleurodothrips* Franklin, 1909: 228; Stannard, 1968: 399.

*Microcanthothrips* Bagnall, 1914: 295.

**Generic diagnosis.** Head quadrate, about as long as wide, weakly striate, not projecting much beyond anterior eye margin. Ocelli present. Eyes moderately large, not prolonged ventrally. Postocular setae small, pointed (Fig. 1). Antennae 8-segmented, segment II with dorsal sensorium, III and IV with short sense cones; segment VIII separate but closely joined to segment VII (Fig. 8). Mouth-cone short, broadly rounded. Maxillary stylets extended up to eyes, widely spaced within head. Pronotum shorter than head, smooth except for posterior margin. Only anterolateral and epimeral setae well developed, these dilated (Fig. 3). Praepectus (basantra) present (Fig. 3). Probasisternal plates (ferna) large (Fig. 3). Metascutum smooth. Mesospinasternum fully formed. Females with fore legs unarmed; males bearing a large tooth-like projection on each of the fore femora, 3 or 4 setae bearing warts on each of the fore tibiae, and a moderate-sized tooth on each fore tarsus (Fig. 2). Mid and hind femora without differentiated setae. All tarsi one-segmented. Forewings slightly narrowed in the middle, lacking duplicated cilia (Fig. 9). Pelta divided into three parts. Abdominal terga II-IV more or less with anastomosing, transverse striate, terga V-VIII more or less hexagonally reticulate, tergum VIII and IX nearly smooth. Abdominal terga II-VII each with one pair of sigmoidal wing-retaining setae (Fig. 7); lateral setae dilated.

Males with abdominal sternum V with several pairs of differentiated median setae, abdominal sternum VIII with glandular area. Abdominal tergum IX with major dorsal, posterior setae shorter than tube, dilated; lateral pair in males as long as in females, not shorter as in males of many species in the Phlaeothripinae. Tube much shorter than head, terminal setae shorter than tube (Fig. 4) (Stannard, 1968).

**Remarks.** *Aleurodothrips* is easily distinguished from other related genera by the lack of epimeral sutures on the pronotum; the division of the pelta into three parts; and the shape of fore legs of male.

### ***Aleurodothrips fasciapennis* (Franklin)** (Figures 1-9)

*Cryptothrips fasciapennis* Franklin, 1908: 727; Stannard, 1968: 399, 400.

*Cephalothrips spinosus* Bagnall, 1909: 174.

This species was identified based on the descriptions by Stannard (1968), Han (1997) and Moritz et al. (2001).

**Diagnosis.** *Male macroptera.* Body bicolored, brown and yellow; antennal segments I-IV yellow (Fig. 8), head and pronotum faintly shaded; forewings pale, banded with light brown at base, medially and at apex (Fig. 9); Abdominal segments V-VI dark brown; major setae pale yellow. Head without long postocular setae (Fig. 1). Mouth cone short, bluntly rounded. Maxillary stylets widely spaced. Maxillary bridge not discernible. Antennae 8-segmented, III with 1 sense cone, IV with 2 sense cones (Fig. 8). Pronotum shorter than head, with only 2 pairs of major setae (anterolateral and epimeral setae) (Fig. 3); prosternal ferna

large (Fig. 3). Fore femur with stout spur on inner margin, fore tarsus with small pointed tooth, fore tibia with about 3 small tubercles on inner margin (Fig. 2). Mesonotum sculpture; metanotum smooth (Fig. 6). Forewing narrow but swollen at base, without duplicated cilia (Fig. 9). Pelta weakly sclerotised. Abdominal terga II-VII each with 1 pair of sigmoid wing-retaining setae (Fig. 7); tergum IX setae B1 & B2 capitate; tube shorter than head (Fig. 4). Abdominal sternum VIII without glandular area; sternum V with three pairs of enlarged median setae; and latero-ventral setae spine-like (Fig. 5).

**Measurements of male in  $\mu\text{m}$ ; Length (width).** Body 1600(330); head 160(185); pronotum 120(250); forewing 660(32); hind wing 570(30); abdominal tergum X (tube) 130(65); tergum IX setae B1 80, B2 90, B3 105. Antennal segments I-VIII as follows: I 28(37); II 30(37), III 54(26), IV 53(30), V 55(28), VI 50(27), VII 37(20), and VIII 34(15).

**Material examined.** IRAN: **Zanjan Province**, Yenjgeh ( $51^{\circ} 424' \text{N}$ ,  $35^{\circ} 672' \text{E}$ , 1149 m), 1♂ from grape (infected by mealy bug), 25.vi.2009, coll. M. Mirab-balou; (ZJUH).

**Host plants.** Grape (Family Vinifera).

**Distribution.** Iran (Zanjan province); China (Including Taiwan), Vietnam, Japan, India, Sri Lanka, Indonesia, Barbados (West Indies), Reunion Island (Indian Ocean), Fiji (Pacific), Borneo (Kalimantan), Micronesia (Oceania), Polynesia, Australia, Bermuda, the United States, Jamaica, Cuba, Nassau, Puerto Rico, and Belgium (Mirab-balou et al., 2011).

**Remarks.** This species is predator of scale insects. The bicolored body and banded forewings are characteristic of this species (Mound & Marullo, 1996). In this study, we have collected this predatory thrips on the infected leaves of grape by *Planococcus citri* (Risso) (Hemiptera: Pseudococcidae).

#### ACKNOWLEDGEMENTS

We are grateful to Prof. Tong Xiao-li of South China Agricultural University, Guangzhou-China for his supplying some references; and Prof. Feng Ji-nian of Northwest A. & F. University, Yangling, Shaanxi-China for his supplying some materials in Thrips & Coccid Systematic Research Laboratory.

#### LITERATURE CITED

- Bagnall, R. S.** 1909. On the Thysanoptera of the Botanical Gardens, Brussels. *Annals de la Societe entomologique de Belge*, 53: 171-176.
- Bagnall, R. S.** 1914. Brief descriptions of new Thysanoptera. III. *Annals and Magazine of Natural History*, 813: 287-297.
- Bhatti, J. S., Alavi, J., zur Strassen, R. & Telmadarraiy, Z.** 2009. Thysanoptera in Iran 1938-2007. An Overview. Part 1. Thrips, 7: 1-82.
- Franklin, H. J.** 1908. On some new West Indian thrips. *Proc. U. S. Natn.-Mus.*, 33 (1510): 719-724.
- Franklin, H. J.** 1909. On Thysanoptera. *Entomological News*, 20: 228-231.
- Han, Y. F.** 1997. Economic insect fauna of China, FASC. 55 (Thysanoptera). Science Press, Beijing, China, 510 pages (In Chinese).
- Minaci, K. & Mound, L. A.** 2008. The Thysanoptera Haplothripini (Insecta: Phlaeothripidae) of Iran. *Journal of Natural History*, 42 (41-42): 2617-2658.
- Mirab-balou, M. & Chen, X. X.** 2010. A new method for preparing and mounting thrips for microscopic examination. *Journal of Environmental Entomology*, 32 (1): 115-121.

**Mirab-balou, M., Tong, X. L., Feng, J. N. & Chen, X. X.** 2011. Insecta, Thysanoptera, China. Check List (Journal of Species Lists and Distribution), Brazil, (under review).

**Moritz, G., Morris, D. C. & Mound, L. A.** 2001. Thrips ID. Pest thrips of the world. An interactive identification and information system. CD-ROM published by ACLAR, Australia.

**Mound, L. A.** 1989. Systematics of thrips (Insecta: Thysanoptera) associated with mosses. Zoological Journal of the Linnean Society, 96: 1-17.

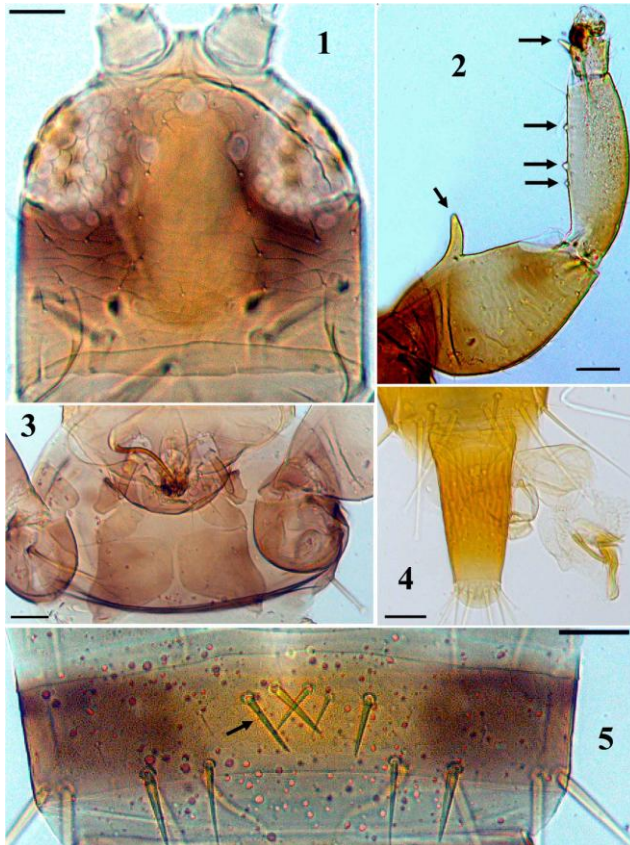
**Mound, L. A.** 1994. Thrips and gall induction: a search for patterns. *In: Plant galls: Organisms, Interactions, Populations.* (ed. M.A.J. Williams). Systematics Association Special Volume 49: 131-149. Clarendon Press, Oxford.

**Mound, L. A.** 2011. Thysanoptera (Thrips) of the World- a checklist. Available on: <http://www.ento.csiro.au/thysanoptera/worldthrips.html>. (accessed 10.04.2011).

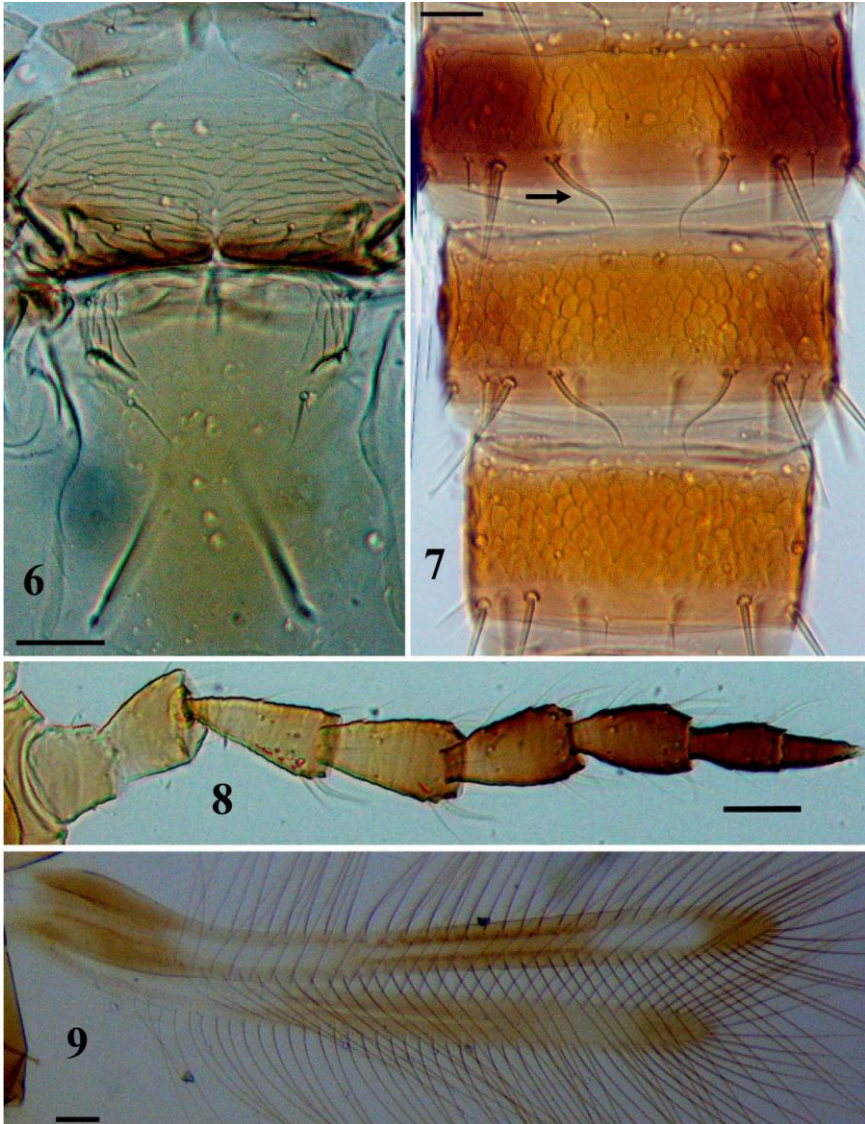
**Mound, L. A. & Marullo, R.** 1996. The Thrips of central and south America: An introduction (Insecta: Thysanoptera). *Memoirs on Entomology, International*, 6: 487 pp.

**Palmer, J. M. & Mound, L. A.** 1991. Thysanoptera. Chapter 22. 5: 67-76. *In: Rosen, D. (ed.), The Armoured Scale Insects, Their Biology, Natural Enemies and Control, Vol B.* Amsterdam.

**Stannard, L. J.** 1968. The thrips, or Thysanoptera, of Illinois. *Illinois Natural History Survey*, 29 (4): 215-551.



Figures 1-5. *Aleurodothrips fasciapennis* (♂): (1) head, (2) fore leg, (3) prosternum, (4) tube, (5) sternum V. (Scale bar=30 microns).



Figures 6-9. *Aleurodothrips fasciapennis* (♂): (6) meso- and metanotum, (7) terga VI-VIII, (8) antennae, (9) wing. (Scale bar=30 microns).