

Short communication

**First report of the fungus-feeding thrips, *Phlaeothrips annulipes* (Thysanoptera: Phlaeothripidae) from Iran**

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**اولین گزارش تریپس قارچ‌خوار، *Phlaeothrips annulipes* (Thysanoptera: Phlaeothripidae) از ایران**

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**چکیده**

در بررسی فونستیک بال‌ریشکداران استان ایلام، نمونه متعلق به گونه *Phlaeothrips annulipes* Reuter, 1880 از مزارع برنج جمع‌آوری و شناسایی شد. این دومین گونه از جنس *Phlaeothrips* Haliday است که برای نخستین بار از ایران گزارش می‌شود. ویژگی‌های ریخت‌شناسی، دامنه انتشار جغرافیایی و صفات متمایز کننده آن از گونه *P. coriaceus* Haliday ارائه شده است.

**واژه‌های کلیدی:** قارچ‌خوار، *Phlaeothrips annulipes*، گزارش جدید، ایلام.

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Globally, Phlaeothripidae is the largest family of Thysanoptera that at least 50% of its species are fungus-feeding (ThripsWiki, 2021). However, for various reasons (see Minaei 2013), the number of species recorded in this family is only 22% of thrips fauna in Iran. Instead, family Thripidae comprising more than 60% of all thrips species recorded in this country so far (Mirab-balou, 2018). In parallel, among various habitats in which thrips may be found, the habitats with fungus feeding thrips, such as leaf litter and dead branches, are less explored. Consequently, only 20 species in this group have been discovered in Iran so far (Hakimara *et al.*, 2019; Mirab-balou, 2019; Minaei & Mound, 2020; Alavi & Minaei, 2021). In this paper, another species of thrips that is associated with fungi is reported from Iran. The single thrips specimen was collected in a rice field and then mounted onto a slide in Hoyer's medium. Photomicrographs were made using an Olympus BX51 microscope with DP27 digital camera and cellSens software. The specimen is deposited in the Department of Plant Protection, College of Agriculture, Shiraz University, Shiraz, Iran. Terminology in this

paper follows Dang *et al.* (2018). Full nomenclatural information about Thysanoptera is available on the web (ThripsWiki, 2021).

***Phlaeothrips annulipes* Reuter**

***Phloeothrips annulipes* Reuter, 1880: 19**

Twenty-three living species are described in the genus *Phlaeothrips* Haliday (ThripsWiki, 2021). However, some of these might be placed in the genus *Hoplandrothrips* Hood (Mound *et al.*, 2018). *P. annulipes* was first described from Finland (Reuter, 1880). Kobro (2007) showed that dead branches of *Betula* and *Alnus* (family Betulaceae) are the favorite habitats of this species in Norway. The species breeds on dead branches and it is assumed that it feeds on the hyphae of fungi (Mound *et al.*, 2018).

**Diagnosis:** Female fully winged. Body generally brown with the legs and tarsi yellowish brown (Fig. 1); antennal segments III–VI yellow in basal half to one quarter (Fig. 4). Antennae 8-segmented; III and IV with 3 and 4 sense cones respectively. Head weakly sculptured medially with transverse reticulation laterally; cheeks lacking prominent tubercles but with one pair of stout setae on posterior fifth; compound eyes fairly large; postocular setae almost short and bluntly capitate at the tip; maxillary stylets retracted to eyes, close together medially (Fig. 2). Fore tarsal tooth much developed (Fig. 2). Pronotum weakly sculptured; five pairs of capitate major setae developed: anteromarginals, anteroangulars, midlaterals, epimerals and posteroangulars (Fig. 3). Prosternal basantra absent; metathoracic sternopleural sutures short (Fig. 5). Meso and Metanotum reticulate (Fig. 6). Fore wings parallel sided (Fig. 7), with 10 duplicated cilia; sub-basal setae S1, S2, and S3 capitate. Pelta reticulate (Fig. 6); tergites II–VII each with two pairs of wing-retaining setae (Fig. 8); tergite IX setae S1 and S2 capitate (Fig. 9).

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**Fig. 1–6.** *Phlaeothrips annulipes*, female 1. Body; 2. Head and foreleg (right); 3. Pronotum; 4. Antenna; 5. Pro, meso and metasternum; 6. Meso and metathorax and pelta.

**Material examined:** Ilam province, Sarableh 1 ♀, rice field, 30.vi.2020 (Majid Mirab-balou).

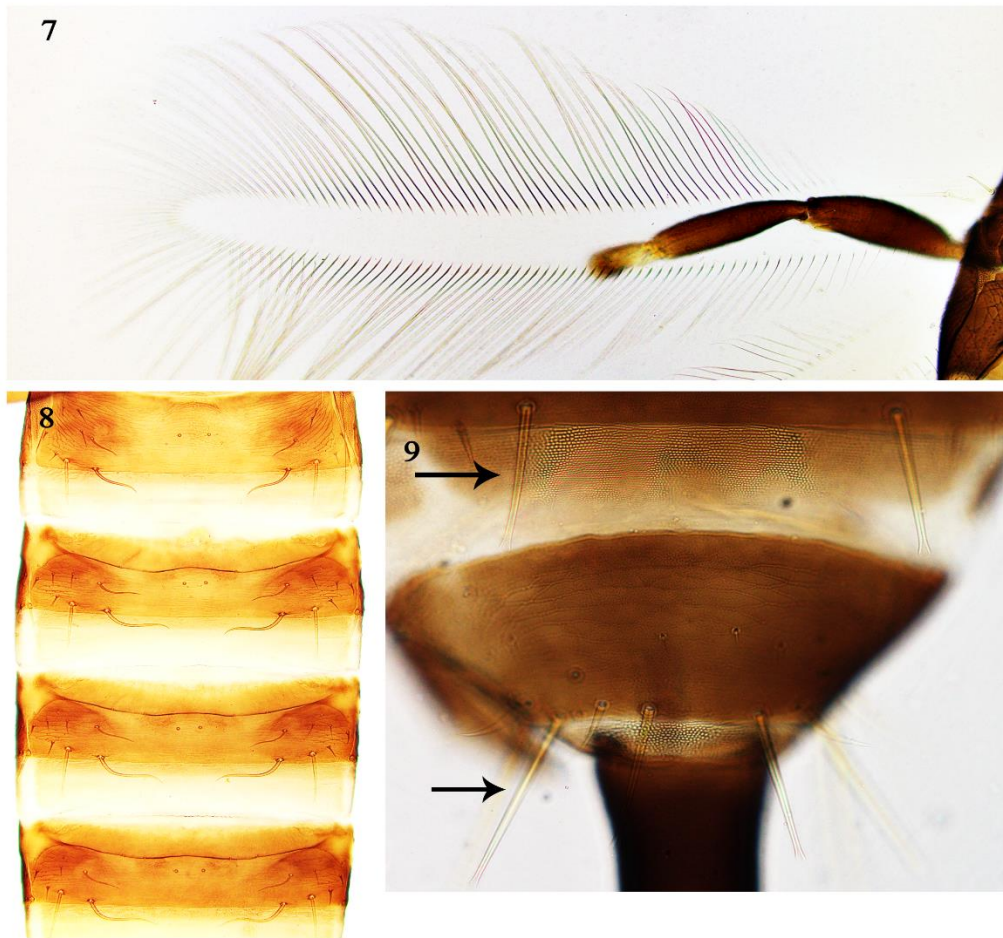
**Distribution in Iran:** Ilam province.

**Distribution in the world:** Denmark, England, Ireland, Finland, Norway, Austria, Scotland, Switzerland (Mound *et al.* 1976; ThripsWiki 2021) and Iran (current study).

**Remarks:** This is the second recorded species of *Phlaeothrips* from Iran. The first one, *Phlaeothrips coriaceus* Haliday, previously was recorded from north of Iran (zur Strassen, 2003). These two species are distinguished by the color of antennal segments of III–IV which

is darker in *P. annulipes*; less prominent tubercles on the cheeks of head in *P. annulipes*, fore tarsal tooth which is more developed in *P. annulipes*, tergite IX setae S2 (in *P. annulipes*, capitate while blunt in *P. coriaceus*) and sternite VIII of the male that has a pore plate in *P. annulipes* in contrast to *P. coriaceus* with no pore plate.

Although all species in *Phlaeothrips* are fungivorous (Mound *et al.*, 1976), the single specimen in this study was collected from rice. In parallel, two females of *P. coriaceus* has been “beaten from shrubs” in Iran (zur Strassen, 2003).



**Fig. 7–9.** *Phlaeothrips annulipes*, female 7. Forewing; 8. Abdominal tergites II–V; 9. S1 (indicated by arrow) on tergites VIII & IX.

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