

Short communication

The first report of *Kakothrips dentatus* (Thysanoptera: Thripidae) from Turkey

Inci Sahin^{1&*}, Levent Unlu¹, Cengiz İkten², İrfan Tunc² & Kambiz Minaei³

1. Department of Plant Protection, Faculty of Agriculture, Selcuk University, Konya, Turkey 2. Department of Plant Protection, Faculty of Agriculture, Akdeniz University, Antalya, Turkey & 3. Department of Plant Protection, Faculty of Agriculture, Shiraz University, Shiraz, Iran.

* Corresponding author, Email: incisahin@selcuk.edu.tr

اولین گزارش *Kakothrips dentatus* (Thysanoptera: Thripidae) از ترکیه

انجی شاهین^{۱*}، لونت اونلو^۱، سنگیز ایتکن^۲، ایرفان تونک^۲ و کامبیز مینایی^۳

۱- بخش گیاه‌پزشکی، دانشکده کشاورزی، دانشگاه سلوک، قونیه، ترکیه، ۲- بخش گیاه‌پزشکی، دانشکده کشاورزی، دانشگاه آکدنیز، آنتالیا، ترکیه و ۳- بخش گیاه‌پزشکی، دانشکده کشاورزی، دانشگاه شیراز، ایران.

چکیده

گونه *Kakothrips dentatus* Knechtel, 1939 برای نخستین بار از کشور ترکیه گزارش می‌شود. تنها یک نمونه از این تریپس، از روی گونه‌ای *Carduus* در قونیه جمع‌آوری شده. ویژگی‌های ریختی همراه با شکل‌های مربوطه ارائه شده‌اند. این گونه شباهت زیادی به گونه *Kakothrips dolosus* Berzosa دارد اما از نظر رنگ بند سوم شاخک و موهای پشت چشمی از هم تفکیک می‌شوند.

واژگان کلیدی: گزارش جدید، تریپس، Thripidae.

دریافت: ۱۳۹۷/۹/۳، پذیرش: ۱۳۹۷/۱۲/۱۱

In a molecular phylogenetic study based on 5299 bp from five genetic loci, the family Thripidae has been recovered as monophyletic. However, the subfamily Thripinae is paraphyletic and requires further study to understand its internal relationships (Buckman *et al.*, 2013). A series of 'genus-groups' including *Frankliniella* genus-group has been proposed in Thripinae (Mound & Palmer, 1981). Nine genera including *Kakothrips* Williams have been allocated to this genus-group (Mound, 2002). *Kakothrips* consists of 8 species, mostly recorded from Europe (ThripsWiki, 2018). Up to now, two species of *Kakothrips*, *K. priesneri* Pelikan and *K. robustus* (Uzel) (as *K. robustus* (Westwood)) have been recorded from Turkey (Tunc & Hastenpflug-Vesmanis, 2016). In this paper the third species of the genus is reported from this country.

Thrips specimens discussed in this paper were macerated in 2% NaOH solution for 12 hours. The specimens were then mounted onto slides in Canada balsam using the protocol described by Mound & Kibby (1998). The observations on structure were made using an Olympus BX51 phase-contrast microscope. Photomicrographs and measurements were made using this microscope with DP27 digital camera and cellSens software. The slide is deposited in the Plant Protection Department of Selcuk University, Konya, Turkey.

***Kakothrips dentatus* Knechtel**

Kakothrips dentatus Knechtel, 1939: 322.

Prometheothrips ungulatus Sawenko, 1941: 370.

The species is originally described from Romania (*K. dentatus*) (Knechtel, 1939) and Russia (*P. ungulatus*) (Sawenko, 1941), but now distributed around Europe including Georgia, Crimea, Romania, Bulgaria, Greece, Poland and Czech Republic (zur Strassen, 1996, 2003) as well as Iran (Mirab-balou & Chen, 2011). This is the first record of the species in Turkey.

Material examined: 1 female, TURKEY, Konya, Selcuklu, from *Carduus* sp. (Asteraceae), 13.v.2016, (Inci Sahin).

Diagnosis. Female macroptera. Body brown, antennal segment III yellow, IV yellow in basal half (Fig. 2), tarsi yellow, forewing as well as clavus uniformly dusky (Fig. 5).

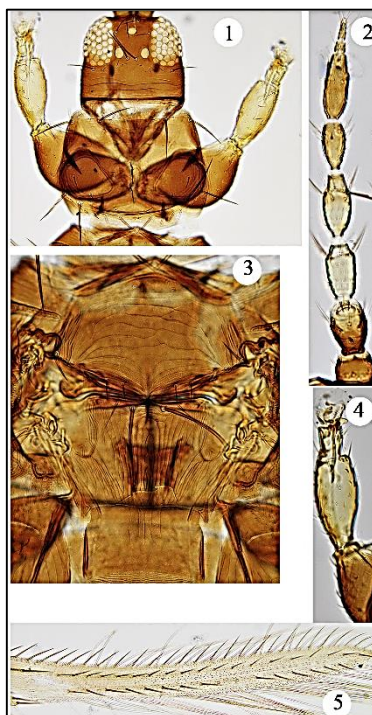
Head almost as long as broad, not projecting in front of eyes, three pairs of ocellar setae present, pair III as long as inter-ocular distance, arising between posterior ocelli; five pairs of postocular setae present, pair IV is the longest (Fig. 1). Antennae 8-segmented, segments III–IV each with forked sense cone, VIII a little longer than VII (Fig. 2). Pronotum wider than long, with 5 pairs of major setae, anteromarginal setae as long as anteroangulars (Fig. 1). Metanotum with longitudinal lines, two pairs of anteromarginal setae present, the inner pair is longer, campaniform sensilla present (Fig. 3). Fore wing with 2 complete rows of veinal setae (Fig. 5). Fore tarsus with triangular tooth at the base of pulvillus (Fig. 4). Abdominal tergites IV–VIII with a pair of weakly developed ctenidia, on VIII anterolateral to spiracle, tergite VIII with complete posteromarginal comb of microtrichia and one pair of campaniform sensilla (Fig. 6), tergite IX with two pairs of campaniform sensilla (Fig. 6), tergite X with incomplete median split. Sternites without discal setae, VII with posteromarginal setal pair S1 arising in front of margin (Fig. 7).

Measurements (a female in microns): Body length 710. Head, length 61; width across eyes 71; ocellar setae III 62. Pronotum, length 164; width 248; outer (inner) posteroangular setae 69 (66). Fore wing length 900. Tergite IX S1 52. Antennal segments I–VIII length 28, 40, 54, 56, 40, 54, 10, 19.

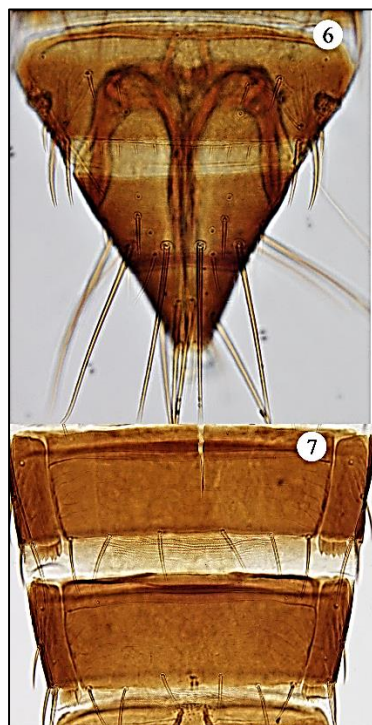
Comment: The genus *Kakothrips* is closely related to *Frankliniella*. However in contrast to the species in *Frankliniella*, all species have a tooth on the fore tarsal pulvillus, and the S1 setae on sternite VII of females arise in front of the sternite margin. According to the key by zur Strassen (2003), *K. dentatus*, *K. dolosus* Berzosa and *K. acanthus* Berzosa share in the position of fore tarsus tooth which is placed at the base of pulvillus instead of at apex of pulvillus. However *K. dentatus* is distinguished from both by the color of third antennal segment (yellow in *K. dentatus* while this is brown or yellow brownish in *K. dolosus* and *K. acanthus*). Moreover, *K. acanthus* and *K. dentatus* differ from each other in the length of pronotal anteroangular setae which is almost as long as anteromarginal setae in the latter while pronotal anteroangular is longer than anteromarginal setae in *K. acanthus* (Berzosa, 1994). In *K. dolosus* postocular setae S2 and S4 are long but in *K. dentatus* only S4 is long.

Acknowledgment

The manuscript was improved through the advice and criticisms kindly provided by two anonymous reviewers.



Figs 1-5. *Kakothrips dentatus*, female. 1. Head and Prothorax, 2. Antenna, 3. Meso- and Metanotum, 4. Fore leg, 5. Fore wing.



Figs 6-7. 6. Abdominal tergites VIII-X, 7. Abdominal sternites VI and VII.

References

- Berzosa, J.** (1994) Two new species of *Kakothrips* Williams 1914. (Insecta: Thysanoptera: Thripidae). *Senckenbergiana biologica* 73 (1/2), 77–82.
- Buckman, R. S., Mound, L. A. & Whiting, M. F.** (2013) Phylogeny of Thrips (Insecta: Thysanoptera) based on five molecular loci. *Systematic Entomology* 38, (in press). [Early View: <http://onlinelibrary.wiley.com/doi/10.1111/j.1365-3113.2012.00650.x/pdf>].
- Knechtel, W. K.** (1939) *Kakothrips dentatus*. *Comptes rendus des seances de la Institut des Sciences de Roumanie* 3, 322.
- Mirab-balou, M. & Chen, X.** (2011) Iranian Thripinae with ctenidia laterally on the abdominal tergites (Thysanoptera: Thripidae). *Natura Montenegrina* 10, 435–466.
- Mound, L. A.** (2002). The *Thrips* and *Frankliniella* genus groups: the phylogenetic significance of ctenidia. *Proceedings of the 7th International Symposium on Thysanoptera. Australian National Insect Collection, Canberra*, 379–386.
- Mound, L. A. & Kibby, G.** (1998) *Thysanoptera: an identification guide*. 70 pp. Cab International, Wallingford, UK.
- Mound, L. A. & Palmer, J. M.** (1981) Phylogenetic relationships between some genera of Thripidae (Thysanoptera). *Entomologica Scandinavica* 15, 153–170.
- Sawenko, R. F.** (1941) Neue thysanopteren aus Georgien. *Bulletin of the Georgian SSR Academy of Sciences* 2 (4), 369–371.
- ThripsWiki** (2018). ThripsWiki - providing information on the World's thrips. Available from: http://thrips.info/wiki/Main_Page (accessed 2 November 2018).
- Tunc, I. & Hastenpflug-Vesmanis, A.** (2016) Records and checklist of Thysanoptera in Turkey. *Turkish Journal of Zoology* 40 (5), 769–778.
- zur Strassen, R.** (1996) Neue daten zur Systematik und Verbreitung einiger west-paläarktischer Terebrantia-Arten (Thysanoptera). *Entomologische Nachrichten und Berichte* 40, 111–118.
- zur Strassen, R.** (2003) Die terebranten Thysanopteren Europas und des Mittelmeer-Gebietes. *Die Tierwelt Deutschlands* 74, 1–271.
-