

Two New Records of *Tephritis Latreille, 1804* (Diptera: Tephritidae) from Turkey

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Abstract: This study was based on *Tephritis* Latreille, 1804. Samples were collected from Turkey during 2001, 2002 and 2003. *Tephritis dioscurea* (Loew, 1856) and *Tephritis divisa* Rondani, 1871, *Tephritis* species are new records for the fauna of Turkey.

Key Words: New records, *Tephritidae*, *Tephritis divisa*, *Tephritis dioscurea*, Turkey

Türkiye'den *Tephritis Latreille, 1804*'den (Diptera: Tephritidae) İki Yeni Kayıt

Özet: Bu çalışma 2001, 2002 ve 2003 yıllarında Türkiye'den toplanan *Tephritis* Latreille, 1804 örneklerine dayanmaktadır. *Tephritis dioscurea* (Loew, 1856) ve *Tephritis divisa* Rondani, 1871 türleri Türkiye faunası için yeni kayıttır.

Anahtar Sözcükler: Yeni kayıtlar, *Tephritidae*, *Tephritis divisa*, *Tephritis dioscurea*, Türkiye

Introduction

Tephritis is distinguished from all other Tephritinae genera by the combination of characters given below. Here only the major characters are listed and more complete lists of characters can be found in Freidberg and Kugler (1989) and Merz (1994). Two orbital setae, anterior seta acuminate and dark (brown or blackish), posterior seta usually lanceolate and pale (whitish or yellowish; in 2 species brown or black); 2 dark frontal setae; first flagellomere 1.5-1.8 times as long as high; proboscis capitate; dorsocentral seta situated on or slightly posterior to transverse suture; scutellum flat, with 2 pairs of setae, apical seta about 0.3-0.6 times as long as basal seta; vein R_{4+5} bare dorsally and ventrally, or with 0-3 setulae at node, and with a variable number of setulae ventrally, which often reach the middle of the distal section; wing pattern highly variable among the species, usually reticulate with well developed apical fork, sometimes stellate (as in *T. cometa* (Loew), or even banded (as in *T. postica* (Loew) and *T. sinica* (Wang)); abdomen almost invariably densely microtrichose and with pale setulae; oviscapae somewhat flattened dorsoventrally.

Most species of *Tephritis* infest the flowerheads of Asteraceae hosts, collectively belonging to several tribes, with or without the induction of galls. A few species

induce the formation of galls in stems or roots of Asteraceae (Freidberg, 1984; Merz, 1994).

With about 170 species (Wang, 1996; Norrbom et al., 1999; Korneyev and Dirlbek, 2000), *Tephritis* is the sixth largest genus of Tephritidae and third largest genus in the Tephritinae. Although the genus is known from most zoogeographic regions, the majority of species (about 120) are Palaearctic. The most comprehensive key to species is Hering's (1944), which is out of date. Modern keys to species for several countries are available (e.g. Freidberg and Kugler (1989) for Israel and nearby areas, Merz (1994) for North and Central Europe; White (1988) for Great Britain, and Wang (1996) for China), but neither modern comprehensive treatments nor a phylogeny for the genus are available. The first list of fauna Tephritidae was given by Giray (1979) from Turkey. Kütük (2003) and Özgür and Kütük (2003) reported the Tephritidae fauna from the South West Anatolia and Adana region province.

Materials and Method

Tephritis adults were collected by standard sweep net during 2001, 2002 and 2003. The insect net was swung at random on host plants or adult specimens were collected. The samples were killed in a killing jar containing potassium cyanide. Original pictures of the

wing and aculeus of species are presented. The measurement bars on pictures of the wing are equal to 1 mm. Materials were deposited in the İnönü University, Faculty of Science & Arts, Department of Biology, Malatya, Turkey.

Species were identified according to Merz (1994). Identification of species was checked by Dr. Amnon Freidberg (University of Tel Aviv, Life Science, Department of Biology, Tel Aviv, Israel).

Terminology primarily follows Freidberg and Mantis (1986) and White et al. (2000).

Results

Samples were collected from Adana, Amasya, Çankırı, Kahramanmaraş, Hatay, Kırıkkale, Mersin, Sivas and Trabzon provinces. According to the literature *Tephritis dioscurea* and *T. divisa* species are reported as new records for the fauna of Turkey.

Tephritis Latreille, 1804: *Nouv. Dict. Hist. nat.*, 24 (Sec. 3): 196. Type species: *Musca arnicae* Linnaeus, 1758: *Syst. Nat. Ed.*, 10, 1: 600.

***Tephritis dioscurea* (Loew, 1856):** *Programm K. Realschule zu Meseritz* 1856: 1-57.

Two dark frontal setae present; proboscis capitate; scutellum flat; apical scutellar setae about 0.4 times as long as basal scutellar setae; dorsocentral setae on sutura; wing pattern reticular; apical fork present; branches of apical fork widen distinctly towards wing margin; 2 large hyaline areas present in R₁ cell (Figure 1); one round hyaline area present on pterostigma; costal spine distinct; 2 bars present on humeral vein and in the distal costal cell; five or more hyaline areas present in R₄₊₅ cell and on posterior r-m vein (Figure 1); AN cell short, pointed.

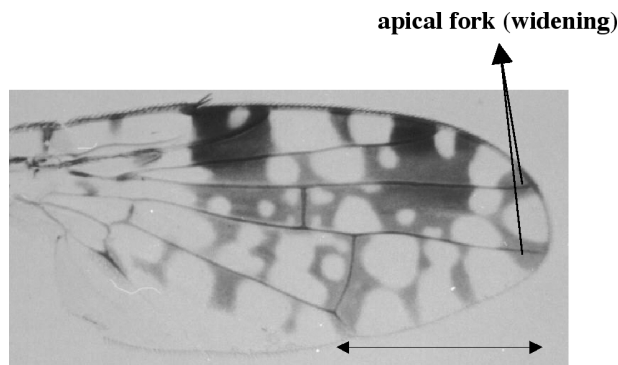


Figure 1. Image of wing of *Tephritis dioscurea* (Loew, 1856).

Oviscape black or dark brown and dorsoventrally flattened; aculeus pointed towards to apex (Figure 2, a); an indentation as deep not present or flat on apex (Figure. 2, b); 2 pairs of hairs present near the apex of aculeus.

Material examined: 2 ♂, 3 ♀, Adana, Saimbeyli, Obruk plateau, 38.02 N, 36.06 E, 1480 m, 30.05.2002; 2 ♂, Adana, Saimbeyli, Gürleşen, 37.54 N, 36.04 E, 785 m, 30.05.2002; 4 ♂, 4 ♀, Adana, Tufanbeyli, Doğanbeyli, 38.05 N, 36.10 E, 30.05.2002; 6 ♂, 8 ♀, Amasya, Taşova, Borabay lake, 40.47 N, 36.07 E, 1265 m, 15.06.2003; 2 ♂, 4 ♀, Çankırı, Ilgaz, Kırkpınar, 41.00 N, 33.38 E, 1700 m, 12.06.2003; 2 ♂, Hatay, Yayladağı, Hisarcık, 35.57 N, 36.06 E, 14.06.2002; 2 ♂, Hatay, Yayladağı, Sungur, 35.59 N, 36.06 E, 935 m, 14.06.2002; 3 ♂, 5 ♀, Kahramanmaraş, Göksun, Hutaş, 37.58 N, 36.20 E, 1656 m, 09.08.2001; 2 ♂, 1 ♀, Kahramanmaraş, Andırın, Kaleboynu, 37.41 N, 36.27 E, 1335 m, 20.06.2002; 2 ♀, Kahramanmaraş, Göksun, Keklikoluk, 38.11 N, 36.27 E, 1630 m, 20.06.2002; 3 ♂, 4 ♀, Kahramanmaraş, Göksun, Hutaş, 37.58 N, 36.20 E, 1655 m, 21.06.2002; 2 ♂, 2 ♀, Kırıkkale, Keskin, 39.38 N, 33.37 E, 1100 m, 12.06.2003; 2 ♂, 1 ♀, Mersin, Erdemli, Gavuruçtuğu, 36.55 N, 34.07 E, 1650 m, 24.06.2002; 1 ♂, 1 ♀, Sivas, Koyulhisar, Eğriçimen plateau, 40.21 N, 37.22 E, 1616 m, 18.06.2003; 2 ♂, 1 ♀, Trabzon, Maçka, Ba?arköy, 40.42 N, 39.20 E, 1470 m, 17.06.2003.

Measurements (length in mm): Male: body 2.4-3.5; wing 2.3-3.4. Female: body 2.8-4.3; wing 2.3-3.8.

Host plants: The larvae develop in flowerhead *Achillea millefolium*, *Artemisia absinthium*, *A. crithmifolia* and *Chrysanthemum corymbosum* (Asteraceae) (Hendel, 1927; Merz, 1994). In this study, host plant of the species is *A. millefolium*.

Distribution: Sweden, France, Hungary, Austria, Germany, Switzerland, Russia, Estonia, Latvia, Lithuania, Ukraine, Moldova, Azerbaijan, Armenia, Georgia, Kazakhstan, Far East (Hendel, 1927; Foote, 1984; Merz, 1994; Thompson, 1998).

***Tephritis divisa* Rondani, 1871:** *Bull. Soc. Entomol. Ital.* 3: 3-24.

Two dark frontal setae present; proboscis capitate; scutellum flat; apical scutellar setae about 0.3 times as long as basal scutellar setae; dorsocentral setae slightly posterior of sutura; wing pattern reticular; apical fork present; branches of apical fork not widening distinctly towards wing margin; only one large hyaline area present

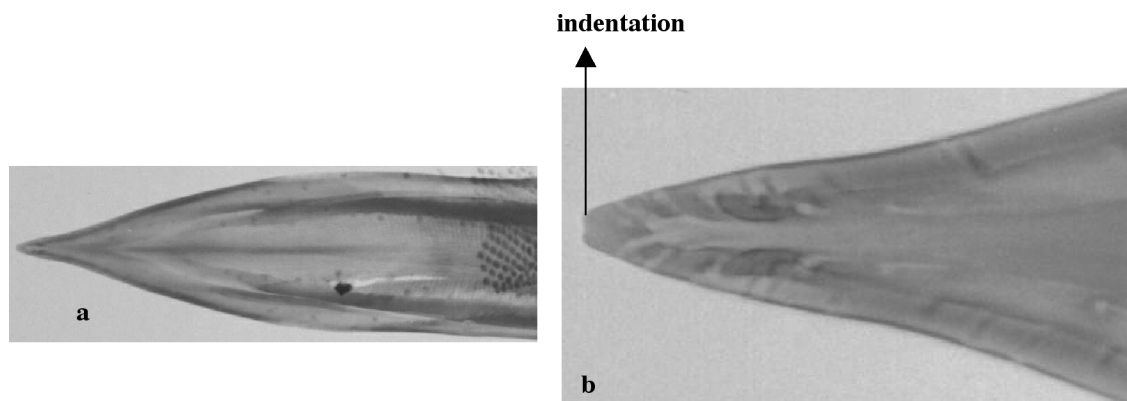


Figure 2. The aculeus of *Tephritis dioscurea* (Loew, 1856); a. aculeus, b. enlarged aculeus apex.

in R_1 cell (Figure 3); only one bar present on humeral vein; only one hyaline area present in R_{4+5} cell and on slightly posterior r-m vein; A cell short, pointed.

Oviscape black or dark brown and dorsoventrally flattened; aculeus pointed towards to apex (Figure 4, a); a deep indentation present on apex (Figure 4, b); 2 pairs of hairs present near the apex of aculeus.

Material examined: 2 ♂♂, 4 ♀♀, Amasya Taşova, Borabay lake, 40.47 N, 36.07 E, 1265 m, 15.06.2003; 2 ♀♀, Kahramanmaraş, Göksun, Hutaş, 37.58 N, 36.20 E, 1656 m, 09.08.2001; 2 ♂♂, 1 ♀, Kahramanmaraş, Göksun, Püren, 37.56 N, 36.30 E, 1625 m, 09.08.2001.

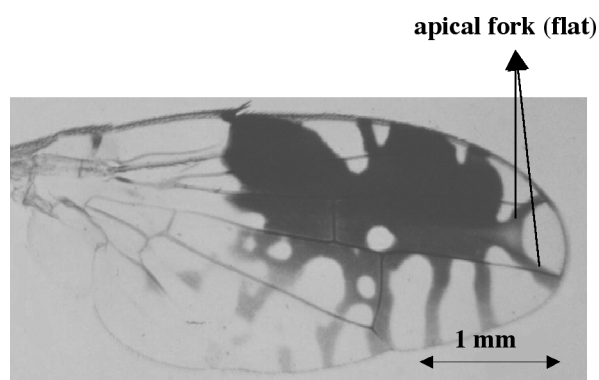


Figure 3. Image of wing of *Tephritis divisa* Rondani, 1871.

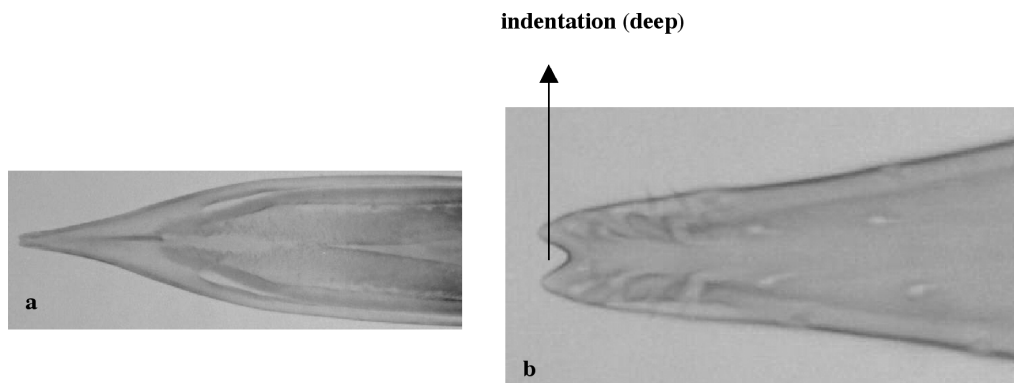


Figure 4. The aculeus of *Tephritis divisa* Rondani, 1871; a. aculeus, b. enlarged aculeus apex.

Measurements (length in mm): Male: body 3.2-4.0; wing 3.0-3.7. Female: body 3.3-4.8; wing 3.1-4.0.

Host plants: The larvae develop in flowerhead *Picris echioides* (Asteraceae) (Merz, 1994). In this study, host plant of the species is *Picris echioides*.

Distribution: Switzerland, Spain, France, Italy, Greece (Crete), Israel, (Merz, 1994; Thompson, 1998).

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