

The acalyptrate fly family *Trixoscelididae* (Diptera): newly recorded from Malta

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ABSTRACT. Two species of the family *Trixoscelididae*, namely *Trixoscelis approximata* and *Trixoscelis flagellata*, have been reported from the Maltese Islands for the first time. Short illustrated descriptions of adults and an identification key are provided.

KEY WORDS. *Trixoscelis*, new records, Mediterranean basin.

INTRODUCTION

The *Trixoscelididae* are rather small or minute flies adapted to warm semiarid habitats, e.g. sand dunes, grasslands or shrubby areas and are commonly found on some flowers and various plants (WOŹNICA, 2007; 2009). The family is widely distributed in the Palaearctic, especially in the Mediterranean basin and Mongolian highlands and 40 species belonging to three genera have been recorded in this zoogeographical region (WOŹNICA, 2007). *Trixoscelis* is the only recorded genus in Europe with 26 hitherto recorded species, mostly from the Mediterranean region (WOŹNICA, 2014).

Although the *Trixoscelididae* have been recently placed by some authors as a subfamily within *Heleomyzidae* (e.g. McALPINE, 2011), in most cases this group is often treated as a separate family (GRIFFITHS, 1972; COGAN, 1977; PAPP, 1998; WOŹNICA, 2008; 2009; 2014).

Among the material collected in June 2014 at the Verdala Palace two species of *Trixoscelidid* flies were found. These represent the first records for the family *Trixoscelidae* from Malta.

MATERIAL AND METHODS

Nomenclature and taxonomic placement, measurements, and relevant ratios used in the species descriptions follow WOŹNICA (2003; 2014). The material was identified by using the key of HACKMAN (1970) and later species descriptions. The voucher specimens, kept in alcohol and in glycerin vials, are housed in the author collection. The material was collected using a Malaise trap in the private grounds of the Verdala Palace, close to Buskett. This area is one of the few afforested area of Malta and the trap was places in an area surrounded by *Pinus halepensis*.

Genus *Trixoscelis* Rondani, 1856

Diagnosis: Head with one vibrissa, and with well developed central-cheek bristle. Frons with two well developed orbital bristles and without interfrontal setulae inside the frontal plate. Ocellar bristles arising outside ocellar triangle. Mesonotum bearing 2+3 pairs of dorsocentral bristles.

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Anepisternum mostly bare except for one strong bristle on posterodorsal corner along with few setulae behind the suture. Katepisternum with two big katepisternal bristles. Wing with spiky costa, subcostal break present. Subcostal vein complete, ending near first longitudinal vein. Cross-veins well developed. All legs bearing well developed dorsal preapical bristle on each tibia. Male terminalia with prominent anus and small cerci, and a pair of postgonostyli. Aedeagal apodeme not linked to short hypandrium. VIIth tergite and sternite in female postabdomen fused or closely attached, so ring of the segment often clearly visible. Sternite VIIIth bears lateral setulose lobes.

ANNOTATED SPECIES LIST

Trixoscelis approximata (Loew, 1865)

Material examined: Malta, Verdala Palace, N 35,86198E°14,401622°, 220m, 12–24.vi.2014, 1 ♀, Malaise trap, leg. G. Marianacci & D. Mifsud.

Description: Body length (without antennae): 2.5 mm. Antenna: Scape yellowish, pedicel pale brown, first flagellomere elongated and more yellowish-gray in males than in females (based on additional material from Spain). Female with scape and first flagellomere totally gray dusted on the outside. Arista brownish, with rather indistinct pubescence. Head (Fig. 1a): One row of small and scarce genal setae. Central cheek bristles well developed. Face dirty yellow in color. Frons up to the second orbital and the genal areas yellow. Palpus pale yellow. Ocellar triangle dark brown. Anterior orbital seta ca. 0.7 times the length of the second orbital bristle in lateral view. Cheek-eye ratio: ca 0.40. Occiput covered with dark grey dusting, reaching the lower hind part of the eye margin. Thorax: Prosternum pale yellow with a pair of setulae in upper lateral corner. Four rows of acrostichal bristles present. Mesonotum gray dusted, without stripes. Postpronotum and notopleural areas more or less yellowish in color. A pair of short prescutellar bristles present. Scutellum and postscutellum gray dusted. Proepisternal bristle absent. Anepisternum with one big bristle and 5–6 small black setulae. Wing (Fig. 1b): Veins yellowish-brown, membrane yellow infumated, cross-veins areas darkened, especially the posterior one. Halter white. Wing length: 2.3 mm. Wing width: 0.87 mm. Medial vein ratio (Mv): ca 1.85. Legs: All coxae and femora yellow. Tibiae and tarsi of mid and hind legs yellow. All tarsomeres of foreleg totally darkened. Two-three dorsal subapical bristles on mid tibia present. Dorsal subapical bristles on hind femur absent. Abdomen: Basic color pale brown, partially more or less gray-dusted. In female the 6th and 7th segment darkened. Sixth sternite slightly convex medially, 7th sternite flattened and slightly narrowed distally. Three well sclerotized dark brown spermathecae present, all of them cup-shaped laterally (Fig. 1c).

Distribution: *Trixoscelis approximata* was described from southern Italy and is common in southern Europe, Tunisia and Turkey (WOŹNICA, 2007; 2014). It is a typical Mediterranean species.

Trixoscelis flagellata Carles-Tolra & Ventura, 2001

Material examined: Malta, Verdala Palace, N 35,86198E°14,401622°, 220m, 12–24.vi.2014, 1 ♂ & 2 ♀♀, Malaise trap, leg. G. Marianacci & D. Mifsud.

Description: Body length (without antennae): 1.9 (male); 2.0–2.6 mm (females). Antenna: Scape yellowish-brown, pedicel brown in color. First flagellomere elongated and dark brown, except for the arista insertion and the upper marginal hind area. Arista dark brown, with exception of first and third segments, and with rather minute pubescence. Head (Fig. 2a): Face and frons up to the

second orbital bristle as well as the genal area dirty yellow, palpus yellowish. One row of 4–6 regular placed genal setae. Cheek-eye ratio: 0.2 (male); 0.23–0.32 (females). Anterior orbital bristle slightly shorter than the second orbital bristle (ca. 0.9x) seen in lateral view. Both orbital bristles emerging from brown spots. Ocellar triangle, occiput and postgenal part dark gray dusted. Thorax: Prosternum brown with two pairs of setulae. Mesonotum, scutellum and postscutellum dark brown and gray dusted. Mesonotum with two regular rows of acrostichal bristles and with narrow but regular dark brown stripes inside of the line of dorsocentral bristles. Prescutellar bristles absent. Pleural part, especially in female, lighter and more brownish in color. One small proepisternal bristle present. Anepisternum with one strong bristle and a few (7–8) small black setulae. Wing (Fig. 2b): Costal cell yellow, sparsely covered with short black spines. Membrane pale yellow infumated. Longitudinal and cross veins yellowish. Wing length: 1.85 mm (male) and 1.85–2.15 mm (females). Wing width: 0.7–0.8 mm. Mv ratio: 1.76–1.95. Legs: Coxa and trochanter of fore leg whitish in both sexes, remaining coxae brown. Femur, tibia and all tarsomeres of fore leg in both sexes totally dark brown. In female mid and hind legs yellow except for last tarsomere (brown in color). Male mid leg as in female. Male with hind leg as follows: femur yellowish-brown, tibia yellow, first tarsomere dilated and dark brown, last tarsomere totally brown. Second to fourth tarsomeres of hind leg dirty yellow but externally brownish. Dorsal subapical bristles on hind femur absent. Abdomen: Dark brown and gray dusted, except for the first two segments, which are paler in color. Female abdomen as in the original description. Sixth sternite dark, forming regular ring and VIIth sternite with brownish triangular area. Spermathecae as in figure 2c.

Distribution: *Trixoscelis flagellata* was originally described from Menorca (Balearic Islands) and so far, it is only known from four localities in the Mediterranean basin (CARLES-TOLRA & VENTURA, 2001).

KEY TO THE SPECIES OF *TRIXOSCELIS* RECORDED FROM THE MALTESE ISLAND

1. Wing membrane with anterior and posterior cross-vein areas distinctly clouded; mesonotum pale grey, without distinct dark stripes placed outwards of the dorsocentral rows of bristles *Trixoscelis approximata*
- Wing membrane clear with unmarked cross-veins areas; mesonotum with a pair of narrow but distinct dark brown stripes between acrostichal and dorsocentral rows of bristles *Trixoscelis flagellata*

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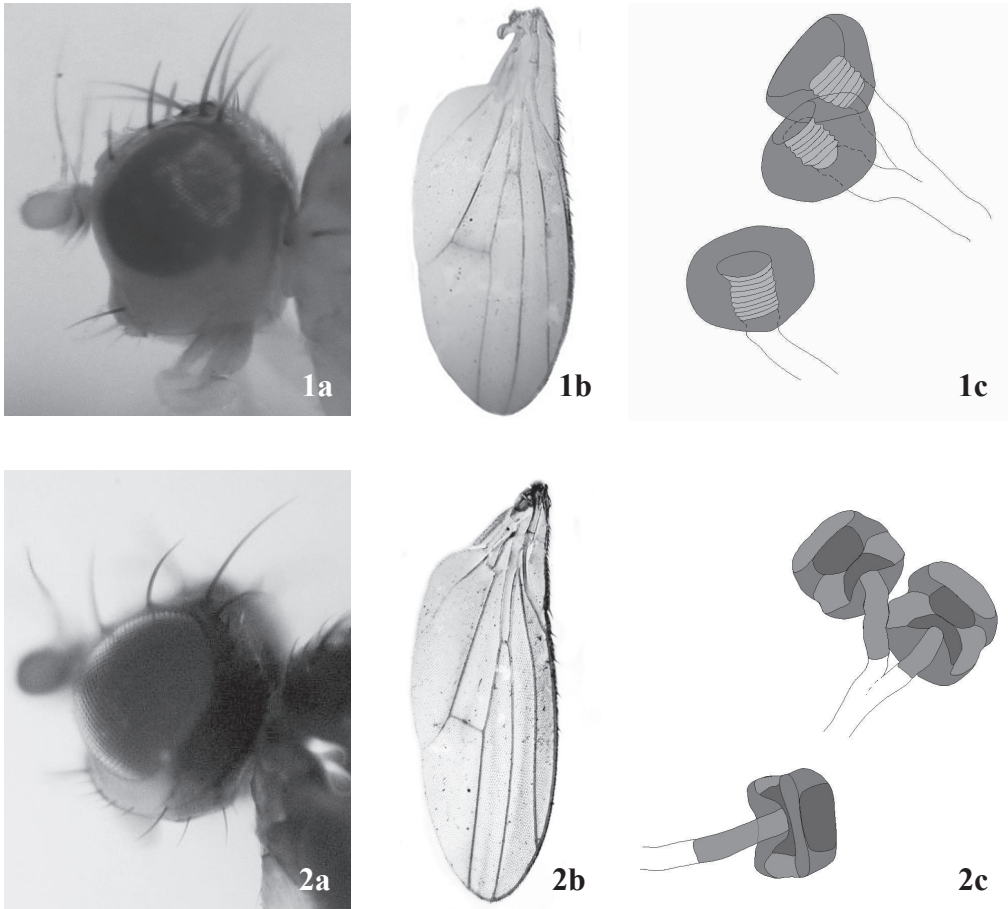


Figure 1: *Trixoscelis approximata* (♀). **a:** head in lateral view; **b:** wing; **c:** spermathecae. **Figure 2:** *Trixoscelis flagellata* (a–b: ♂; c: ♀). **a:** head in lateral view; **b:** wing; **c:** spermathecae.

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