

Original article (Orijinal araştırma)

Tachinid (Diptera: Tachinidae) fauna of Manisa Province of Türkiye with new records¹

Manisa (Türkiye) İli'nin yeni kayıtlar ile Tachinid (Diptera: Tachinidae) faunası

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Abstract

This study was conducted between 2016-2020 to investigate the Tachinidae (Diptera) fauna of Manisa Province of Türkiye. For this purpose, Tachinidae samples were collected from the cultural and natural areas of five districts (Salihli, Sarıgöl, Selendi, Soma and Şehzadeler) selected to represent the province. Thirty-six species were determined and identified. These were four genera and five species in the subfamily Exoristinae, five genera and eight species in the subfamily Tachininae, three genera and four species in the subfamily Dexiinae, nine genera and 19 species in the subfamily Phasiinae. Among these, *Estheria cristata* (Meigen, 1826), *Cistogaster globosa* (Fabricius, 1775) and *Cylindromyia gemma* (Richter, 1972) (Diptera: Tachinidae) were recorded for the first time in Türkiye. The distributions and hosts in Türkiye of the identified species are given. In addition, the definitions of the species determined as new records for Türkiye are also included. This study is the first detailed study on the family Tachinidae in Manisa Province.

Keywords: Fauna, Manisa, new records, Tachinidae, Türkiye

Öz

Bu çalışma Manisa (Türkiye) İli'nin Tachinidae (Diptera) faunasını ortaya koymak için 2016-2020 yılları arasında gerçekleştirilmiştir. Bu amaçla ili temsil edecek şekilde seçilen 5 ilçenin (Salihli, Sarıgöl, Selendi, Soma ve Şehzadeler) kültür ve doğal alanlarından Tachinidae örnekleri toplanmıştır. Toplam 36 tür belirlenmiş ve tanımlanmıştır. Bunlar, Exoristinae alt familyasına ait 4 cins ve 5 tür, Tachininae alt familyasına ait 5 cins ve 8 tür, Dexiinae alt familyasına ait 3 cins ve 4 tür, Phasiinae alt familyasına ait 9 cins ve 19 türdür. Bunlar içerisinde *Estheria cristata* (Meigen, 1826), *Cistogaster globosa* (Fabricius, 1775) ve *Cylindromyia gemma* (Richter, 1972) (Diptera: Tachinidae) ülkemiz için yeni kayıt niteliğindedir. Tespit edilen türlerin konukçuları ve Türkiye'deki dağılımları hakkında bilgiler verilmiştir. Ayrıca ülkemiz için yeni kayıt olarak belirlenen türlerin tanımlarına da yer verilmiştir. Bu çalışma Tachinidae familyasına yönelik Manisa İli'nde yapılan ilk detaylı çalışmadır.

Anahtar sözcükler: Fauna, Manisa, yeni kayıtlar, Tachinidae, Türkiye

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Introduction

The Tachinidae are one of the largest families of the order Diptera, with around 8 600 known species globally and over 2 100 species in the Palearctic region (O'Hara et al., 2021). Türkiye has 341 species belonging to this family (Kara et al., 2020). All species identified in the family are parasitoids and most of their hosts are insect pests. Lepidopteran pests are common hosts. Others include members of the orders Coleoptera, Diptera, Hemiptera, Hymenoptera and Orthoptera. They provide important natural regulation of important insect pest populations (Grenier, 1988; Stireman et al., 2006; Tschorsnig, 2017). Kara & Tschorsnig (2003) and Tschorsnig (2017) provide detailed information on the Palearctic and Turkish hosts of tachinids, respectively.

Although there are some detailed studies conducted to reveal the species richness of the Tachinidae in Türkiye, the number of these studies is low given the size of the country (Doğanlar, 1975; Kara, 1998; Aksu, 2005; Korkmaz, 2007; Atay & Kara, 2014; Balkan et al., 2015; Lakin et al., 2016; Atay, 2017; Uysal & Atay, 2021). Nevertheless, Lutovinovas et al. (2018) published a list of 139 tachinid species from southern Türkiye, 52 of which are new records for the country.

Manisa Province has specific attributes in terms of soil and climate characteristics. The fact that the mountain ranges minimize the effect of the sea leads to the intermixing of Mediterranean and continental climate plant species. This increases insect and plant biodiversity. A detailed study of the Tachinidae has not been conducted in Manisa and only two species in the family have been reported (Kara, 2001a; Karsavuran & Kara, 2003). This paper reports an investigation of the Tachinidae fauna of Manisa Province, Türkiye.

Materials and Methods

Tachinid specimens were collected arbitrarily from a range of agricultural crops, weeds, forest trees and ornamental plants in districts of Manisa Province (Salihli, Sarıgöl, Selendi, Soma and Şehzadeler) from 2016 to 2020. Samples were collected in an insect net and the latitude and altitude of the field was recorded by GPS. After collecting the flies were killed in ethyl acetate and taken to the laboratory, where they were processed according to museum standards.

The keys of Mesnil (1944-1965), Zimin (1966), Herting (1983), Tschorsnig & Herting (1994), Tschorsnig & Richter (1998) and Gilasian et al. (2013) were used to identify the tachinids. Nomenclature and arrangement of tachinids are based on Herting & Dely-Draskovits (1993). Confirmation of some species were made by Dr. Hans-Peter Tschorsnig (Staatliches Museum für Naturkunde, Stuttgart, Germany). Images of the newly registered species were taken using a Leica M205 C stereoscopic microscope integrated with a Leica MC 170 digital camera and using the Leica Application Suite Software v4.13.0. The tachinid specimens are deposited at the Plant Protection Museum in Tokat Gaziosmanpaşa University, Agricultural Faculty, Tokat, Türkiye.

Results and Discussion

Thirty-six specimens were determined with three species being new to the Turkish fauna.

Subfamily: Exoristinae

Tribe: Eryciini

Erycia fasciata Villeneuve, 1924

Material examined. Selendi (Yıldız), 38°44'53" N, 28°53'06" E, 434 m, 22.05.2017, ♂.

Distribution in Türkiye. Ankara (Bayram & Kara, 1998), Eskişehir (Aksu, 2005), Kastamonu (Atay, 2017) and Muğla (Lutovinovas et al., 2018).

Hosts in Türkiye. *Melitaea didyma* (Esper, 1778) (Lepidoptera: Nymphalidae) (Bayram & Kara, 1998).

Tribe: Goniini***Pales processioneae*** Ratzeburg, 1840

Material examined. Şehzadeler (Ayvacık), 38°34'14" N, 27°26'59" E, 1421 m, 09.06.2019, ♀.

Distribution in Türkiye. Locality information is not provided (Herting & Dely-Draskowits, 1993), Isparta (Avcı & Kara, 2002), Kırklareli (Cerretti, 2005) and Çorum (Uysal, 2018; Uysal & Atay, 2021).

Hosts in Türkiye. *Lymantria dispar* (L., 1758) (Lepidoptera: Lymantriidae) (Dikyar, 1981) and *Thaumetopoea ispartaensis* Doğanlar & Avcı, 2001 (Lepidoptera: Notodontidae) (Kara & Tschorsnig, 2003).

Gonia bimaculata Widemann, 1819

Material examined. Şehzadeler (Ayvacık), 38°34'23" N, 27°26'55" E, 1415 m, 08.09.2017, ♂.

Distribution in Türkiye. Burdur (Tuatay et al., 1972), Balıkesir, Denizli, İzmir (Kavut et al., 1974), Ardahan, Erzurum, Kars (Doğanlar, 1982a), Şanlıurfa (Gözüaçık & Mart, 2009), Southeast Anatolia Region (Gözüaçık et al., 2009) and Muğla (Lutovinovas et al., 2018).

Host in Türkiye. *Agrotis ipsilon* (Hufnagel, 1766) (Lepidoptera: Noctuidae) (Kavut et al., 1974; Gözüaçık et al., 2009), *Agrotis* sp. (Tuatay et al., 1972; Gözüaçık et al., 2007) and *A. segetum* (Denis & Schiffermüller, 1775) (Gözüaçık & Mart, 2009).

Spallanzania hebes (Fallén, 1820)

Material examined. Selendi (Kurtuluş), 38°43'51" N, 28°51'21" E, 431 m, 12.07.2017, ♂; and 38°43'50" N, E 28°51'16", 427 m, 15.06.2019, ♂.

Distribution in Türkiye. Erzurum (Doğanlar, 1982a), Sakarya (Balkan, 2014; Balkan et al., 2015) and Burdur (Lutovinovas et al., 2018).

Hosts in Türkiye. *Agrotis* sp. (Lepidoptera: Noctuidae) (Tschorsnig, 2017).

Spallanzania griseiventris Herting, 1967

Material examined. Salihli (Allahdiyen), 38°24'24" N, 28°04'53" E, 1007 m, 01.08.2016, ♀; and Şehzadeler (Ayvacık), 38°34'23" N, 27°26'55" E, 1415 m, 08.09.2017, ♀.

Distribution in Türkiye. Eskişehir (Kara & Aksu, 2007).

Subfamily: Tachininae**Tribe: Tachinini*****Tachina fera*** (L., 1761)

Material examined. Sarıgöl (Alemşahlı), N 38°06'56", E 28°40'08", 619m, 19.06.2017, ♂.

Distribution in Türkiye. Bingöl, Erzurum (Doğanlar, 1982b), Tokat (Kara, 1999b; Lekin, 2014; Lekin et al., 2016), Kastamonu (Korkmaz, 2007; Atay, 2017), Bolu, (Atay, 2017), Muğla (Lutovinovas et al., 2018) and Çorum (Uysal, 2018; Uysal & Atay, 2021).

Tachina magnicornis (Zetterstedt, 1844)

Material examined. Soma (Küçükgüney), 39°15'05" N, 27°38'11" E, 332 m, 21.06.2017, ♀.

Distribution in Türkiye. Erzurum (Doğanlar, 1975), Balıkesir (Kavut et al., 1974), Bingöl, Hakkari (Doğanlar, 1982b), Tokat (Kara, 1999a; Gürkan, 2010; Lekin, 2014; Lekin et al., 2016), Ankara (Kara & Özdemir, 2000), Bursa (Kaya & Kovancı, 2000), Kastamonu (Korkmaz, 2007; Atay, 2017), Sakarya (Balkan, 2014; Balkan et al., 2015), Bartın, Bolu (Atay, 2017) and Muğla (Lutovinovas et al., 2018).

Hosts in Türkiye. *Spodoptera exigua* (Hübner, 1808) (Steiner, 1937), *Malacosoma castrensis* (L., 1758) (Lepidoptera: Lasiocampidae) (Doğanlar, 1975), *Agrotis segetum* (Dennis & Schiffmüller, 1775) (Lepidoptera: Noctuidae) (Kavut et al., 1974; Gürkan, 2010), *Agrotis* sp. (Kara & Özdemir, 2000) and *Helicoverpa armigera* (Hübner, 1808) (Lepidoptera: Noctuidae) (Kaya & Kovancı, 2000).

Tachina danilewskyi (Portschinsky, 1882)

Material examined. Sarıgöl (Alemşahlı), 38°06'48" N, 28°40'05" E, 614 m, 24.06.2016, ♀; and 38°06'52" N, 28°40'05" E, 609 m, 08.09.2016, ♀.

Distribution in Türkiye. Bursa (Herting & Dely-Draskovits, 1993) and Eskişehir (Kara & Aksu, 2007).

Peleteria rubescens (Robineau-Desvoidy, 1830)

Material examined. Salihli (Allahdiyen), 38°24'28" N, 28°04'55" E, 1004 m, 04.07.2016, 2 ♀♀; 38°24'44" N, 28°05'05" E, 970 m, 08.08.2016, ♀; 38°24'46" N, 28°05'08" E, 936 m, 18.06.2017, 2 ♀♀; 38°24'24" N, 28°04'53" E, 1007 m, 05.09.2017, 2 ♀♀; 38°24'48" N, 28°05'02" E, 971 m, 08.06.2019, ♀; 38°24'54" N, 28°05'03" E, 937 m, 06.07.2019, ♀; Sarıgöl (Alemşahlı), 38°06'52" N, 28°40'05" E, 609 m, 08.09.2016, ♀; 38°06'37" N, 28°40'16" E, 623 m, 19.08.2017, 2 ♀♀; Selendi (Yıldız), 38°44'55" N, 28°53'12" E, 435 m, 12.06.2017, 2 ♀♀; Selendi (Kurtuluş), 38°43'47" N, 28°49'54" E, 413 m, 11.08.2017, ♀; 38°43'47" N, 28°51'15" E, 431 m, 10.09.2017, 2 ♀♀; Soma (Küçükgüney), 39°15'01" N, 27°38'10" E, 324 m, 10.09.2016, 3 ♀♀; 39°15'03" N, 27°38'10" E, 328 m, 27.05.2017, ♀; Soma (Zafer), 39°12'19" N, 27°41'13" E, 328 m, 22.07.2017, ♀; Soma (Yırca), 39°12'15", 27°41'10", 335 m, 11.08.2017, 4 ♀♀; 39°12'12" N, 27°41'08" E, 333 m, 15.07.2019, ♀; Şehzadeler (Ayvacık), 38°34'16" N, 27°26'58" E, 1416 m, 13.09.2016, ♀; 38°33'31" N, 27°26'56" E, 1255 m, 22.07.2016, ♀; 38°33'42" N, 27°26'51" E, 1290 m, 10.06.2017, ♀ and 38°33'28" N, 27°26'52" E, 1244 m, 25.08.2017, 2 ♀♀.

Distribution in Türkiye. Erzurum (Doğanlar, 1975), Tokat (Kara, 1999a; Lekin et al., 2016), Ankara (Khan & Özer, 1984; Kansu et al., 1986; Kara & Özdemir, 2000), Zonguldak (Korkmaz, 2007), Sakarya (Balkan, 2014; Balkan et al., 2015) and Çorum (Uysal, 2018; Uysal & Atay, 2021).

Hosts in Türkiye. *Malacosoma castrensis* (L., 1758) (Lepidoptera: Lasiocampidae) (Doğanlar, 1975) and *Agrotis* sp. (Lepidoptera: Noctuidae) (Khan & Özer, 1984; Kansu et al., 1986; Kara & Özdemir, 2000).

Peleteria iavana (Wiedemann, 1819)

Material examined. Sarıgöl (Alemşahlı), 38°06'53" N, 28°40'09" E, 617 m, 19.08.2018, ♀.

Distribution in Türkiye. Amasya (Kara, 2001b), Tokat (Lekin, 2014; Lekin et al., 2016) and Çorum (Uysal, 2018; Uysal & Atay, 2021).

Tribe: Macquartiini

Macquartia chalconota (Meigen, 1824)

Material examined. Şehzadeler (Ayvacık), 38°33'23" N, 27°26'44" E, 1242 m, 10.07.2017, ♀.

Distribution in Türkiye. Amasya (Kara, 2001b), Kayseri (Sahebari et al., 2013), Tokat (Lekin, 2014; Lekin et al., 2016) and Kastamonu (Atay, 2017).

Tribe: Siphonini

Siphona pauciseta Rondani, 1865

Material examined. Sarıgöl (Afşar), 38°13'54" N, 28°38'19" E, 488 m, 10.10.2020, ♀.

Distribution in Türkiye. Aydın, Muğla (Lutovinovas et al., 2018).

Tribe: Leskiini***Bithia immaculata*** (Herting, 1971)

Material examined. Şehzadeler (Ayvacık), 38°33'21" N, 27°26'40" E, 1243 m, 13.09.2016, ♀.

Distribution in Türkiye. Erzurum (Doğanlar, 1982b), Tokat (Kara, 1999a) and Zonguldak (Korkmaz, 2007).

Subfamily: Dexiinae**Tribe: Dexiini*****Estheria cristata*** (Meigen, 1826)

Material examined. Selendi (Kurtuluş), 38°43'51" N, 28°51'21" E, 431 m, 12.07.2017, ♀.

Distribution in Türkiye. Recorded for the first time from Türkiye.

Identification. Parafacial with five short hair-like setae just below the first frontal seta. There are four bristles on the humeral callus, the strongest three of which are arranged more or less in a straight line. Three dorsocentral hairs are located behind the suture on the thorax. The petiole of the R5 vein is shorter than the r-m vein and at most 0.13 times as long as postangular section of M. The scutellum is reddish. Lower calypter has long hairs only at the base, and the remaining marginal hairs are shorter or at most as long as the marginal hairs of the upper calypter (Figure 1).

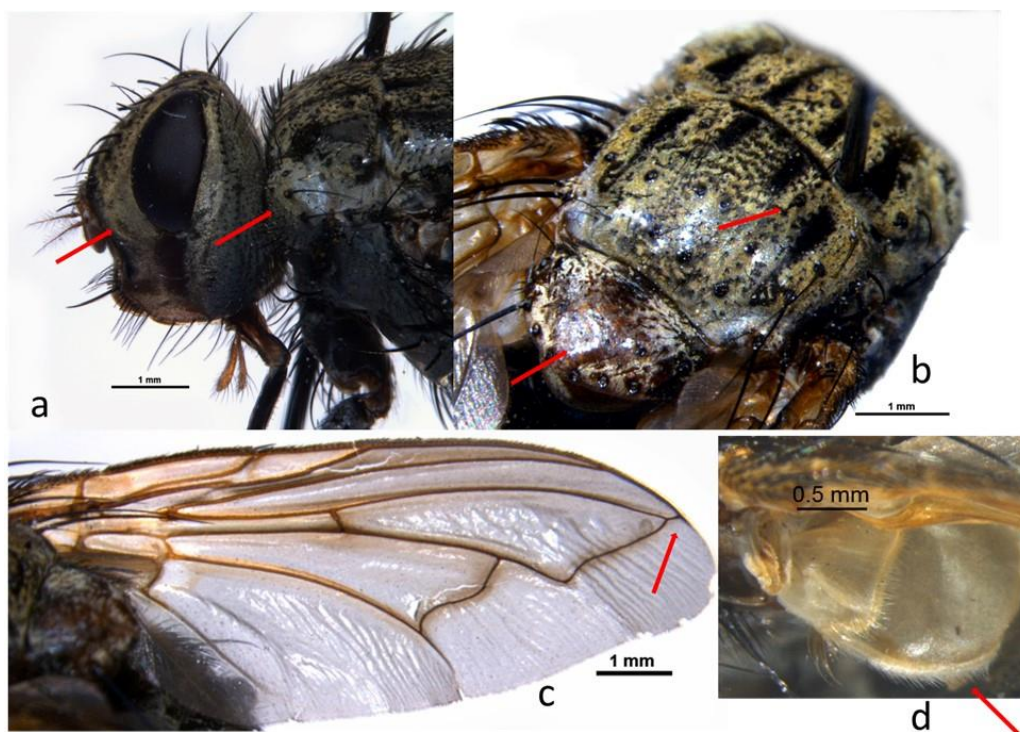


Figure 1. *Estheria cristata* ♀, a) head (lateral view), b) thorax (dorsal view), c) wing, and d) calypter.

Zeuxia cinerea Meigen, 1826

Material examined. Soma (Zafer), 39°12'19" N, 27°41'13" E, 328 m, 22.07.2017, ♂; Şehzadeler (Ayvacık), 38°33'23" N, 27°26'52" E, 1243 m, 19.05.2019, ♂; and N38°33'27" N, 27°26'48" E, 1243 m, 12.08.2019, ♀.

Distribution in Türkiye. Tokat (Kara, 1998; 1999b; Lekin, 2014; Lekin et al., 2016), Erzurum (Richter et al., 2002), Eskişehir (Kara & Aksu, 2007), Kastamonu (Korkmaz, 2007; Atay, 2017), Muğla (Lutovinovas et al., 2018) and İğdır (Gültekin et al., 2020).

Hosts in Türkiye. *Larinus aeruginosus* (Hochhuth, 1851), *L. jaceae* (Fabricius, 1775), *Larinus* sp., *Rhinocyllus conicus* (Frölich, 1792) (Coleoptera: Curculionidae) (Richter et al., 2002), *Temnorhinus hololeucus* (Pallas, 1781) and *Maximus strabus* (Gyllenhal, 1834) (Coleoptera: Curculionidae) (Gültekin et al., 2020).

Zeuxia tricolor (Portschinsky, 1881)

Material examined. Salihli (Allahdiyen), 38°24'24" N, 28°04'53" E, 1007 m, 01.06.2019, 2 ♂♂; Sarıgöl (Alemşahlı), 38°06'41" N, 28°40'18" E, 634 m, 04.08.2016, 2 ♂♂; 38°06'37" N, 28°40'16" E, 623 m, 019.08.2017, ♂; Selendi (Yıldız), 38°44'51" N, 28°53'05" E, 434 m, 15.08.2016, ♂; 38°44'55" N, 28°53'12" E, 435 m, 12.06.2017, ♂; Selendi (Kurtuluş), 38°43'47" N, 28°49'54" E, 413 m, 11.08.2017, ♂; Selendi (Karabeyler), 38°45'06" N, 28°54'17" E, 489 m, 14.08.2019, ♀; Soma (Beyce), N 39°15'25", E 27°37'18", 326 m, 28.08.2016, 3 ♂♂; 39°15'30" N, 27°37'21" E, 331 m, 14.09.2017, 3 ♂♂, ♀; Şehzadeler (Ayvacic), 38°33'31" N, 27°26'56" E, 1255 m, 22.06.2016, 2 ♂♂, 2 ♀♀; and 38°33'31" N, 27°26'56" E, 1255 m 22.08.2016, 2 ♂♂, ♀.

Distribution in Türkiye. Konya (Herting, 1984), Tokat (Kara, 1999b; Lekin, 2014; Lekin et al., 2016) Amasya (Kara, 2001b) and Eskişehir (Kara & Aksu, 2007).

Tribe: Voriini

Voria ruralis (Fallén, 1810)

Material examined. Salihli (Allahdiyen), 38°24'51" N, 28°05'05" E, 942 m, 18.08.2017, ♀.

Distribution in Türkiye. İzmir (Kavut et al., 1974), Erzurum (Avcı & Özbek, 1990), Tokat (Kara, 1999b), Adana (Anay, 2000), Niğde (Kara & Özdemir, 2000), Amasya (Kara, 2001b), Karabük (Korkmaz, 2007), Hatay (Kaya & Kornoşor, 2008), Tokat (Lekin, 2014; Lekin et al., 2016), Çorum (Uysal, 2018; Uysal & Atay, 2021), Aydın and Muğla (Lutovinovas et al., 2018).

Hosts in Türkiye. *Spodoptera exigua* (Hübner, 1808) (Lepidoptera: Noctuidae) (Steiner, 1937), *Autographa gamma* (L., 1758) (Lepidoptera: Noctuidae) (Kavut et al., 1974; Avcı & Özbek, 1990; Anay, 2000; Kara & Özdemir, 2000), *Helicoverpa armigera* (Hübner, 1808) (Lepidoptera: Noctuidae) (Anay, 2000), and Plusiinae (Lepidoptera: Noctuidae) species (Kaya & Kornoşor, 2008).

Subfamily: Phasiinae

Tribe: Phasiini

Clytiomya dupuisi Kugler, 1971

Material examined. Salihli (Allahdiyen), 38°24'59" N, 28°05'12" E, 869 m, 18.05.2019, ♂; Sarıgöl (Alemşahlı), 38°06'48" N, 28°40'05" E, 614 m, 12.05.2019, ♂; and Selendi (Kurtuluş), 38°43'50" N, 28°51'16" E, 427 m, 15.06.2019, ♂.

Distribution in Türkiye. Tokat (Kara, 1998; Kara & Alaoğlu, 1999), Aydın, İzmir (Karsavuran & Kara, 2003), Burdur and Muğla (Lutovinovas et al., 2018).

Hosts in Türkiye. *Ancyrosoma leucogrammes* (Gmelin, 1790) (Hemiptera: Pentatomidae) (Karsavuran & Kara, 2003).

Clytiomya sola (Rondani, 1861)

Material examined. Salihli (Allahdiyen), 38°24'59" N, 28°05'12" E, 869 m, 18.05.2019, ♂; Selendi (Kurtuluş), 38°43'45" N, 28°50'54" E, 425 m, 11.05.2019, ♂; and Soma (Yırca), 39°12'12" N, 27°41'08" E, 333 m, 15.07.2019, ♂.

Distribution in Türkiye. Konya (Tuatay et al., 1972), Manisa, İzmir (Karsavuran & Kara, 2003), Çorum (Uysal, 2018; Uysal & Atay, 2021) and Muğla (Lutovinovas et al., 2018).

Hosts in Türkiye. *Ancyrosoma leucogrammes* (Gmelin, 1790) (Hemiptera: Pentatomidae) (Karsavuran & Kara, 2003), *Carpocoris* sp. (Hemiptera: Pentatomidae) (Tuatay et al., 1972) and *Graphosoma lineatum* (L., 1758) (Hemiptera: Pentatomidae) (Kara & Tschorsnig, 2003).

***Ectophasia crassipennis* (Fabricius, 1794)**

Material examined. Salihli (Allahdiyen), 38°26'04" N, 28°05'34" E, 721 m, 18.05.2017, ♀; 38°26'04" N, 28°05'34" E, 721 m, 18.08.2017, 2 ♂♂; 38°26'09" N, 28°05'36" E, 723 m, 18.08.2018, ♂; 38°24'48" N, 28°05'02" E, 971 m, 08.06.2019, 2 ♂♂; 38°24'54" N, 28°05'03" E, 937 m, 06.07.2019, ♂; 38°26'48" N, 28°06'36" E, 320 m, 11.08.2019, ♂, ♀; 38°26'42" N, 28°06'34" E, 354 m, 07.09.2019, ♂; 38°26'47" N, 28°06'34" E, 331 m, 14.09.2016, ♀; Sarıgöl (Alemşahlı), 38°06'59" N, 28°40'07" E, 611 m, 04.07.2016, ♀; Sarıgöl (Afşar), 38°13'40" N, 28°38'24" E, 299 m, 13.07.2019, 3 ♂♂, 2 ♀♀; Selendi (Yıldız), 38°44'53" N, 28°53'06" E, 434 m, 22.05.2017, ♀; 38°44'55" N, 28°53'12" E, 435 m, 12.06.2017, ♂; Selendi (Kurtuluş), 38°43'51" N, 28°51'21" E, 431 m, 12.07.2017, ♂, 2 ♀♀; Selendi (Eskicami), 38°44'45" N, 28°53'01" E, 435 m, 13.07.2019, ♂, ♀; Selendi (Karabeyler), 38°45'05" N, 28°54'13" E, 486 m, 13.08.2019, ♀; 38°45'06" N, 28°54'17" E, 489 m, 14.08.2019, ♀; Şehzadeler (Ayvacic), 38°33'28" N, 27°26'52" E, 1244 m, 20.05.2017, ♀; 38°33'27" N, 27°26'48" E, 1243 m, 12.08.2019, ♀; 38°33'21" N, 27°26'56" E, 1239 m, 08.09.2019, 2 ♂♂; Soma (Küçükgüney), 39°15'03" N, 27°38'10" E, 328 m, 27.05.2017, ♀; 39°15'05" N, 27°38'11" E, 332 m, 21.06.2017, 2 ♂♂; Soma (Beyce), 39°15'28" N, 27°37'23" E, 316 m, 27.06.2017, ♂; Soma (Zafer), 39°12'19" N, 27°41'13" E, 328 m, 22.07.2017, ♀; Soma (Beyce), 39°15'30" N, 27°37'21" E, 331 m, 14.09.2017, ♀; and Soma (Heciz), 39°15'35" N, 27°37'22" E, 343 m, 15.08.2019, ♀.

Distribution in Türkiye. Kilis (Zwölfer, 1932); South and Southeast Anatolia Region (Yüksel, 1968), Diyarbakır (Lodos, 1953, 1961; Duman & Sertkaya, 2015, 2016), Adana (Şimşek et al., 1994), Tokat (Atay, 2011; Atay & Kara, 2014; Lekin, 2014; Lekin et al., 2016), Şanlıurfa (Duman et al., 2015), Bartın, Karabük, Kastamonu (Atay, 2017), Çorum (Uysal, 2018; Uysal & Atay, 2021) and Muğla (Lutovinovas et al., 2018).

Hosts in Türkiye. *Eurygaster integriceps* Puton, 1881 (Hemiptera: Scutelleridae), (Zwölfer, 1932; Lodos, 1953, 1961, 1986; Şimşek et al., 1994; Duman & Sertkaya, 2015, 2016; Duman et al., 2015), *Eurydema ornata* (L., 1758), *Carpocoris pudicus* (Poda, 1761) (Hemiptera: Pentatomidae) and *Coreus marginatus* (L., 1758) (Hemiptera: Coreidae) (Atay & Kara, 2014).

***Ectophasia oblonga* (Robineau-Desvoidy, 1830)**

Material examined. Sarıgöl (Alemşahlı), 38°06'59" N, 28°40'07" E, 611 m, 04.07.2016, ♂; and 38°06'37" N, 28°40'16" E, 623 m, 19.08.2017, ♂.

Distribution in Türkiye. Diyarbakır (Dupuis, 1963), Adana (Herting & Tschorsnig, 1993), Ankara (Memişoğlu & Özer, 1994), Tekirdağ (Öncüer & Kivan, 1995; Kivan, 1996), Tokat (Kara, 1998; Atay, 2011; Atay & Kara, 2014; Lekin, 2014; Lekin et al., 2016), Gaziantep, Kahramanmaraş, Kilis (İslamoğlu & Kornoşor, 2003, 2007), Eskişehir (Aksu, 2005), Bartın, Karabük, Kastamonu, Zonguldak (Korkmaz, 2007), Adıyaman, Batman, Diyarbakır, Mardin, Siirt, Şanlıurfa (Gözüaçık et al., 2010), Kastamonu (Atay, 2017), Çorum (Uysal, 2018; Uysal & Atay, 2021), Burdur and Muğla (Lutovinovas et al., 2018).

Hosts in Türkiye. *Eurygaster integriceps* Puton, 1881 (Hemiptera: Scutelleridae), (Dupuis, 1963; Yüksel, 1968; Öncüer & Kivan, 1995; Kivan, 1996; İslamoğlu & Kornoşor, 2003, 2007; Gözüaçık et al., 2010; Herting & Tschorsnig, 1993), *Eurygaster maura* (L., 1758) (Memişoğlu & Özer, 1994), *Lygaeus equestris* (L., 1758) (Hemiptera: Lygaeidae) (Kara & Alaoğlu, 1999), *Aelia* sp., *Dolycoris baccarum* (L., 1758) (Kara & Tschorsnig, 2003) and *E. ornata* (Kara & Tschorsnig, 2003; Atay & Kara, 2014).

Ectophasia leucoptera (Rondani, 1865)

Material examined. Sarıgöl (Alemşahlı), N 38°06'41", E 28°40'18", 634 m, 04.08.2016, ♀.

Distribution in Türkiye. Locality information is not provided (Herting & Dely-Draskovits, 1993).

Gymnosoma clavata (Rohdendorf, 1947)

Material examined. Salihli (Allahdiyen), 38°24'24" N, 28°04'53" E, 1007 m, 01.06.2016, ♂; 38°24'44" N, 28°05'05" E, 970 m, 08.08.2016, ♂; 38°26'04" N, 28°05'34" E, 721 m, 18.05.2017, ♂; 38°26'48" N, 28°06'36" E, 320 m, 11.08.2019, ♂; Sarıgöl (Alemşahlı), 38°06'42" N, 28°40'10" E, 620 m, 25.05.2017, ♂; 38°06'50" N, 28°40'03" E, 611 m, 12.09.2017, ♀; 38°06'48" N, 28°40'05" E, 614 m, 12.05.2019, ♂; Selendi (Yıldız), 38°44'51" N, 28°53'05" E, 434 m, 22.05.2017, ♂, ♀; Selendi (Karabeyler), 38°45'06" N, 28°54'17" E, 489 m, 14.08.2019, ♂; Şehzadeler (Ayvacık), 38°33'31" N, 27°26'56" E, 1255 m, 22.06.2016, ♀; 38°33'28" N, 27°26'52" E, 1244 m, 20.05.2017, ♂; Soma (Küçüküney), 39°15'03" N, 27°38'10" E, 328 m, 27.05.2017, ♂; and Soma (Yırca), 39°12'12" N, 27°41'08" E, 333 m, 15.07.2019, ♀.

Distribution in Türkiye. Erzurum (Doğanlar 1982b), İzmir (Karsavuran, 1986; Karsavuran & Kara, 2003; Herting & Tschorsnig, 1993), Tokat (Kara, 1998; Atay, 2011; Atay & Kara, 2014; Lekin, 2014; Lekin et al., 2016), Eskişehir (Aksu, 2005), Antalya, Burdur (Keçeci et al., 2007), Karabük (Korkmaz, 2007; Atay, 2017), Kastamonu (Atay, 2017), Sakarya (Balkan, 2014; Balkan et al., 2015), Çorum (Uysal, 2018; Uysal & Atay, 2021) and Muğla (Lutovinovas et al., 2018).

Hosts in Türkiye. *Dolycoris baccarum* (L., 1758) (Karsavuran, 1986; Herting & Tschorsnig, 1993; Kara & Tschorsnig, 2003; Keçeci et al., 2007), *Carpocoris* sp. (Herting & Tschorsnig, 1993), *Ancyrosoma leucogrammes* (Gmelin, 1790) (Karsavuran & Kara, 2003) and *Carpocoris fuscispinus* (Boheman, 1850) (Hemiptera: Pentatomidae) (Atay, 2011; Atay & Kara, 2014).

Gymnosoma rotundata (L., 1758)

Material examined. Salihli (Allahdiyen), 38°26'04" N, 28°05'34" E, 721 m, 18.05.2017, ♀, Sarıgöl (Alemşahlı), 38°06'50" N, 28°40'03" E, 611 m, 12.09.2017, ♂; Soma (Heciz), 39°15'34" N, 27°37'21" E, 343 m, 22.06.2019, ♂; and Soma (Beyce) 39°15'30" N, 27°37'21" E, 331 m, 14.09.2017, ♀.

Distribution in Türkiye. Eastern Black Sea Region (Kurt, 1975), Tokat (Kara, 1998; Lekin, 2014; Lekin et al., 2016), Karabük, Kastamonu, Zonguldak (Korkmaz, 2007; Atay, 2017), Sakarya (Balkan, 2014; Balkan et al., 2015) and Çorum (Uysal, 2018; Atay & Uysal, 2021).

Hosts in Türkiye. *Aelia rostrata* Boheman, 1852 (Dikyar, 1981) and *Palomena prasina* (L., 1761) (Hemiptera: Pentatomidae) (Kurt, 1975).

Cistogaster globosa (Fabricius, 1775)

Material examined. Şehzadeler (Ayvacık), 38°33'28" N, 27°26'52" E, 1244 m, 25.08.2017, ♀.

Distribution in Türkiye. Recorded for the first time from Türkiye.

Identification. The antennae are brownish-black and half the length of the face. The length of the third antennal segment is about the same as its width. The cerci are triangular in shape. The light pruinescence part on the humeral callus protrudes a quadrate macula into the prescutum. The shiny black part on the parafrenal area starts at the back of the head and ends in a straight-cut form before reaching the anterior frontal line. The scutellum and abdomen are completely black and the ventral side of the abdomen is yellowish. Body length is 4 mm (Figure 2).

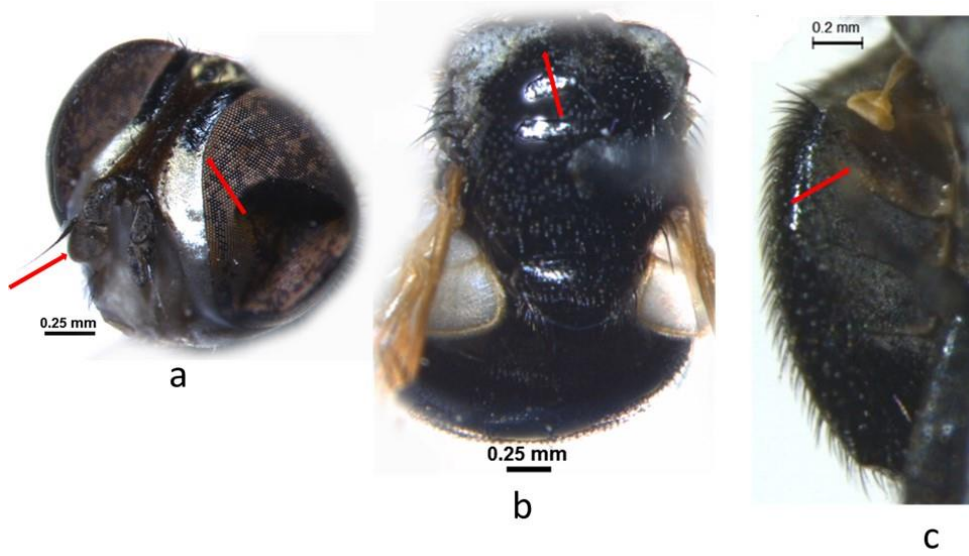


Figure 2. *Cistogaster globosa* ♀, a) head (lateral and dorsal view), b) thorax and abdomen (dorsal view), and c) abdomen (ventral view).

Phasia obesa (Fabricius, 1798)

Material examined. Şehzadeler (Ayvacık), 38°33'21" N, 27°26'40" E, 1243 m, 13.09.2016, ♂.

Distribution in Türkiye. Tokat (Kara, 1998; Kara & Alaoğlu, 1999; Lekin, 2014; Lekin et al., 2016), Bolu, Kastamonu (Atay, 2017) and Muğla (Lutovinovas et al., 2018).

Tribe: Leucostomatini

Leucostoma abbreviatum Herting, 1971

Material examined. Salihli (Allahdiyen), 38°26'42" N, 28°06'34" E, 354 m, 07.09.2019, ♀.

Distribution in Türkiye. Tokat (Kara, 1998; Kara & Alaoğlu, 1999), Kastamonu (Korkmaz, 2007), and Sakarya (Balkan, 2014; Balkan et al., 2015).

Leucostoma anthracinum (Meigen, 1824)

Material examined. Salihli (Allahdiyen), 38°24'54" N, 28°05'03" E, 937 m, 06.07.2019, ♂.

Distribution in Türkiye. Tokat (Kara, 1998), Kastamonu, Karabük (Atay, 2017) and Muğla (Lutovinovas et al., 2018).

Clairvilia biguttata (Meigen, 1824)

Material examined. Salihli (Allahdiyen), 38°26'04" N, 28°05'34" E, 721 m, 18.05.2017, ♀.

Distribution in Türkiye. Tokat (Kara, 1998; Kara & Alaoğlu, 1999), Eskişehir (Aksu, 2005) and Muğla (Lutovinovas et al., 2018).

Labigastera nitidula (Meigen, 1824)

Material examined. Salihli (Allahdiyen), 38°26'04" N, 28°05'34" E, 721 m, 18.05.2017, ♂; Sarıgöl (Afşar), 38°13'47" N, 28°38'17" E, 287 m, 25.05.2017, ♂; and Şehzadeler (Ayvacık), 38°33'28" E, 27°26'52" E, 1244 m, 20.05.2017, ♂.

Distribution in Türkiye. Tokat (Kara, 2002).

Tribe: Cylindromyiini

***Cylindromyia gemma* (Richter, 1972)**

Material examined. Sarıgöl (Afşar), 38°13'56" N, 28°38'14" E, 264 m, 24.06.2016, ♂; Sarıgöl (Alemşahlı), 38°06'41" N, 28°40'18" E, 634 m, 04.08.2016, ♂; 38°06'52" N, 28°40'05" E, 609 m, 08.09.2016, ♂; Selendi (Yıldız), 38°44'51" N, 28°53'05" E, 434 m, 15.08.2016, 2 ♂♂; and Selendi (Karabeyler), 38°45'07" N, 28°54'19" E, 492 m, 12.09.2016, ♂.

Distribution in Türkiye. Recorded for the first time from Türkiye.

Identification. Antenna is as long as the face, postpedicel is 5.0–5.7 times as long as its width. There are 8-10 pairs of black setae on the posterodorsal part of the head. The vibrissa is 0.35-0.4 times the length of the face. Frontal vitta black. Palpus 3–5 times as long as their width and easily visible. The hairs on the edge of the lower calypter at most as long as width of its thickened margin. Proepisternum bare. Posteroventral setae is absent on the hind tibia. The middle tibia has two anterodorsal setae. Scutellum black. Apical scutellar setae are 0.5 times the length of the subapical scutellar setae, posterior supra-alar seta present. The wing is widely infuscated, and the basicosta is black. Tergite 3 has a median longitudinal black stripe on its dorsal part. Syntergite 1+2 has median submarginal setae. Male sternite 5 is as in Figure 3.

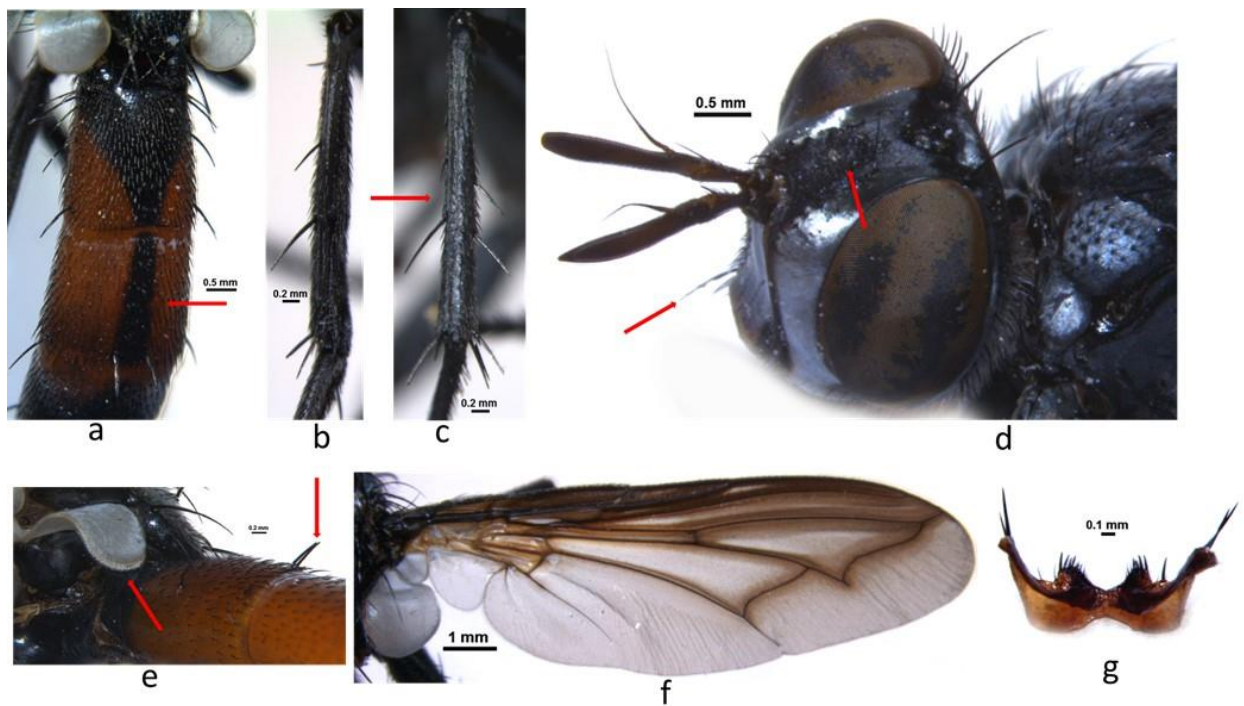


Figure 3. *Cylindromyia gemma* ♂, a) abdomen (dorsal view), b) hind tibia c) middle tibia, d) head (lateral view), e) syntergite 1+2, f) wing, and g) sternite 5.

***Cylindromyia bicolor* (Oliver, 1812)**

Material examined. Selendi (Karabeyler), 38°45'07" N, 28°54'19" E, 492 m, 12.09.2016, ♂; 38°45'08" N, 28°54'19" E, 492 m, 10.09.2017, ♂; and Şehzadeler (Ayvacık), 38°34'14" N, 27°26'59" E, 1421 m, 09.06.2019, ♀.

Distribution in Türkiye. Samsun (Herting, 1983), Karadeniz Bölgesi (Işık et al., 1987), Tokat (Kara, 1998; Kara & Alaoğlu, 1999; Lekin, 2014; Lekin et al., 2016), Zonguldak (Korkmaz, 2007), Bartın, Karabük (Atay, 2017), Çorum (Uysal, 2018; Uysal & Atay, 2021), Aydın and Muğla (Lutovinovas et al., 2018).

Hosts in Türkiye. *Rhaphigaster nebulosa* (Poda, 1761) (Hemiptera: Pentatomidae) (Herting, 1983).

Cylindromyia brassicaria (Fabricius, 1775)

Material examined. Salihli (Allahdiyen), 38°24'54" N, 28°05'03" E, 937 m, 06.07.2019, ♂; Selendi (Halılar), 38°45'05" N, 28°54'14" E, 482 m, 12.07.2015, ♂; and Soma (Beyce), 39°15'30" N, 27°37'21" E, 331 m, 14.09.2017, ♂.

Distribution in Türkiye. Erzurum (Doğanlar, 1982b), İzmir (Karsavuran, 1986), Tokat (Kara, 1998; Kara & Alaoğlu, 1999; Atay, 2011; Atay & Kara, 2014; Lekin, 2014; Lekin et al., 2016), Eskişehir (Aksu, 2005), Antalya, Burdur (Keçeci et al., 2007); Kastamonu (Atay, 2017); Çorum (Uysal, 2018; Uysal & Atay, 2021); Aydın and Muğla (Lutovinovas et al., 2018).

Hosts in Türkiye. *Dolycoris baccarum* (L., 1758) (Hemiptera: Pentatomidae) (Karsavuran, 1986; Kara & Tschorsnig, 2003; Keçeci et al., 2007; Atay, 2011; Atay & Kara, 2014) and *Holcostethus vernalis* (Wolff, 1804) (Hemiptera: Pentatomidae) (Kara & Alaoğlu, 1999).

Cylindromyia pusilla (Meigen, 1824)

Material examined. Soma (Yırca), 39°12'12" N, 27°41'08" E, 333 m, 15.07.2019, ♂.

Distribution in Türkiye. Locality information is not provided (Herting & Dely-Draskovits, 1993), Zonguldak (Korkmaz, 2007), Karabük (Atay, 2017) and Muğla (Lutovinovas et al., 2018).

Cylindromyia intermedia (Meigen, 1824)

Material examined. Salihli (Allahdiyen), N 38°26'48", E 28°06'36", 320 m, 11.08.2019, ♂.

Distribution in Türkiye. Erzurum (Doğanlar, 1982b) and Kastamonu (Atay, 2017).

Cylindromyia auriceps (Meigen, 1838)

Material examined. Salihli (Allahdiyen), 38°24'44" N, 28°05'05", 970 m, 08.08.2016, ♂; Selendi (Kurtuluş), 38°43'45" N, 28°50'54" E, 425 m, 02.06.2016, 2 ♂♂; Selendi (Halılar), 38°45'05" N, 28°54'14" E, 482 m, 12.07.2016, 2 ♂♂; 38°45'05" N, 28°54'13" E, 486 m, 13.08.2019, ♂; Selendi (Karabeyler), 38°45'07" N, 28°54'19" E, 492 m, 12.09.2016, ♂; 38°45'06" N, 28°54'17" E, 489 m, 14.08.2019, ♂; Soma (Küçükğüney), 39°15'05" N, 27°38'11" E, 332 m, 21.07.2017, ♀; and Soma (Heciz), 39°15'35" N, 27°37'22" E, 343 m, 15.08.2019, ♂.

Distribution in Türkiye. Tokat (Kara, 1998; Kara & Alaoğlu, 1999; Lekin, 2014; Lekin et al., 2016), Eskişehir (Aksu, 2005), Kastamonu (Korkmaz, 2007; Atay, 2017), Zonguldak (Korkmaz, 2007), Sakarya (Balkan, 2014; Balkan et al., 2015), Aydın and Muğla (Lutovinovas et al., 2018).

Hosts in Türkiye. *Aelia acuminata* (L., 1758) (Hemiptera: Pentatomidae) (Kara & Tschorsnig, 2003).

Thirty-six species in the Tachinidae were determined in this study of the Tachinidae fauna of Manisa Province. Three of the identified species are new records for Türkiye and 35 for Manisa fauna. Information on the distribution of the majority of the determined species in Türkiye is quite limited. Considering the occurrences in Manisa, Phasiinae is most common, followed by Tachininae, Exoristinae and Dexiinae. However, for the country as a whole, the order is Exoristinae, Tachininae, Phasiinae and Dexiinae (Kara et al., 2020). The number of known species in the Tachinidae in Manisa has increased to 37 as a result of this study.

Tachinids parasitize a wide variety of hosts, the majority of which are plant pests, and thus these insects are important in natural regulation of pests in agriculture and forest areas. Therefore, it is essential to determine species diversity, habitat and host complexes of these beneficial insects so as to understand and protect their populations in nature.

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