

Tachinids (Diptera: Tachinidae) reared from lepidopterous and heteropterous hosts from some localities in the Kelkit Valley (Amasya, Tokat, Sivas) of Turkey

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Abstract: This study was carried out to determine the tachinid parasitoids of lepidopterous and heteropterous hosts from some localities in the Kelkit Valley (Amasya, Tokat, Sivas) of Turkey. Eleven species belonging to the subfamily Exoristinae and 9 species belonging to the subfamily Phasiinae were reared. *Eurygaster maura* L. (Heteroptera: Scutelleridae) for *Gymnosoma desertorum* Rohdendorf and *Corizus hyoscyami* (L.) (Rhopalidae) for *Elomyia lateralis* (Meig.) were recorded for the first time as tachinid/host-couples. Additionally, 6 tachinid/host-couples were recorded for the first time from Turkey.

Key words: Tachinidae, parasitoid, Kelkit Valley, Turkey

1. Introduction

The Tachinidae contains more than 8000 species (Ziegler, 1998). All species of Tachinidae are parasitoids of other arthropods, primarily insects (Stireman et al., 2006). The most common hosts of tachinids are larval Lepidoptera that feed on foliage. They also attack a range of other insects, especially Heteroptera (nymphs and adults), Coleoptera (larvae and adults), and Hymenoptera (Symphyta larvae) (Wood, 1987). However, the hosts of most tachinid species are still unknown. Detailed information on West Palearctic hosts can be found in the works of Herting (1960), Tschorsnig and Herting (1994), and Kara and Tschorsnig (2003).

The aim of this research was to determine the tachinid parasitoids reared from lepidopterous and heteropterous hosts in the regions belonging to Kelkit Valley of Amasya, Sivas, and Tokat provinces. This manuscript is a result of the PhD thesis of the first author (Atay, 2011).

2. Materials and methods

This study was performed in the regions belonging to Kelkit Valley of Amasya, Sivas, and Tokat provinces from 2008 to 2011. The adults and larvae of the potential hosts were collected from crop, forest, weed, and ornamental plants during the vegetative period. They were brought to the laboratory with their food-plants for rearing. They were transferred to separate cages (30 × 60 cm in size, with 5–7 cm of moist soil), kept at 25 ± 2 °C and 60%–70% relative humidity, and checked daily. Adult tachinids and hosts (not

parasitized by tachinids) were killed, pinned, and prepared for identification.

The tachinids were identified by the authors using the keys of Tschorsnig and Herting (1994) and Tschorsnig and Richter (1998). Determination of some tachinid species and confirmation of tachinid/host-couple records were carried out by Dr HP Tschorsnig (Staatliches Museum für Naturkunde, Stuttgart, Germany). Nomenclature and arrangement of tachinids follow Herting and Dely-Draskovits (1993) while nomenclature of lepidopterous and heteropterous hosts follows Karsholt and Razowski (1996) and Berend (2011), respectively.

3. Results and discussion

Subfamily: Exoristinae

Tribe: Exoristini

Exorista segregata (Rondani, 1859)

Material examined: 24 June 2008, 1♀. Host: *Simyra dentinosa* Frr. (Lep.: Noctuidae), collected on 28 May 2008, on *Euphorbia* sp., Tokat (Erbaa-Tepekışla), 40°40'41"N, 36°40'40"E, 237 m.

Hosts in Turkey: *Thaumetopoea pityocampa* (Den. & Schiff.) (Schimitschek, 1944), *Euproctis chrysorrhoea* L. (Gürses, 1975), *Leucoma salicis* L., *Malacosoma castrensis* L., *M. franconica* Esp., *Simyra* sp. (Herting, 1960; Doğanlar, 1975), *Euproctis* sp., *Phalera bucephala* L., *Simyra dentinosa* Frr. (Doğanlar, 1982a), *Shargacucullia thapsiphaga* Treit. (Mückstein et al., 2004), *Hyles centralasiae* (Staud.) (Bartsch and Tschorsnig, 2010), *Lymantria dispar* L.

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(Kara and Tschorsnig, 2003; Avcı, 2009), *Leucoma salicis* L. (Doğanlar, 1975; Kansu et al., 1986; Kılıç and Alaoğlu, 1996; Kara and Alaoğlu, 2001), *M. neustria* (L.) (Kara and Alaoğlu, 2001; Özbek and Çoruh, 2012), *Parocneria terebinthi* (Freyer) (Kara and Alaoğlu, 2001), *Aporia crataegi* (L.) (Kansu et al., 1986; Kara and Tschorsnig, 2003), *Thaumatopoea ispartaensis* (Doğanlar & Avcı) (Avcı and Kara, 2002), *Pieris* sp., *Inachis io* (L.), *Zygaena carniolica* (Scop.) (Kara and Tschorsnig, 2003).

Distribution in Turkey: Trakya (Gürses, 1975), Erzurum (Doğanlar, 1975; Doğanlar, 1982a; Kılıç and Alaoğlu, 1996), Ankara, Kırşehir, Niğde (Kansu et al., 1986), Tokat (Kara, 1998), Isparta (Avcı and Kara, 2002).

Distribution in the world: West Asia (Kugler, 1963, 1974), Australia, and West, South, and East Europe (Tschorsnig, 1992; Tschorsnig et al., 2004).

Tribe: Blondeliini

Blondelia nigripes (Fällen, 1810)

Material examined: 22 August 2009, 1♂. Host: *Vanessa* sp. (L.) (Lep.: Nymphalidae), collected on 19 July 2009, on *Centaurea calcitrapa* L., Tokat (Almus-Bakımlı), 40°22'15"N, 36°50'05"E, 365 m.

Hosts in Turkey: *Euproctis chrysorrhoea* L. (Doğanlar, 1982a), *Thaumatopoea ispartaensis* (Doğanlar & Avcı) (Avcı and Kara, 2002).

Distribution in Turkey: Erzurum (Doğanlar, 1982a), Isparta (Avcı and Kara, 2002).

Distribution in the world: East Asia, East Europe (Herting and Dely-Draskovits, 1993), and North, South, and West Europe (Tschorsnig et al., 2004).

Compsilura concinnata (Meigen, 1824)

Material examined: 12 June 2010, 4♀; 13 June 2010, 1♂, 1♀; 15 June 2010, 2♂. Host: *Thaumatopoea solitaria* Freyer (Lep.: Notodontidae), collected on 16 May 2010, on *Pistacia terebinthus* L., Tokat (Niksar-Gökçeoluk), 40°27'55"N, 37°02'06"E, 270 m.

Hosts in Turkey: *Euproctis* sp. (Tuatay et al., 1972), *Euproctis chrysorrhoea* L. (Öncüer et al., 1977; Soydanbay, 1978; Eroğlu, 1995; Kara, 1998), *Leucoma salicis* L. (Doğanlar, 1982a; Kansu et al., 1986; Kılıç and Alaoğlu, 1996), *Malacosoma neustria* (L.), *Lymantria dispar* (L.) (Kansu et al., 1986; Avcı, 2009), *Hyphantria cunea* Drury (Tuncer and Ecevit, 1996; Sullivan et al., 2012), *Parnassius apollo* L. (Kovancı et al., 1999), *Pieris brassicae* L. (Kara, 1998; Kaya and Kornoşor, 2008), *Yponomeuta padella* L. (Kara and Özdemir, 2000), *Thaumatopoea pityocampa* (Oğurlu, 2000), *Autographa gamma* L. (Kara and Tschorsnig, 2003), *Parocneria terebinthi* Freyer (Kara and Alaoğlu, 2001), *Thaumatopoea ispartaensis* (Doğanlar & Avcı) (Avcı and Kara, 2002), *Pieris daplidice* L., *Helicoverpa armigera* (Hübner) (Kaya and Kornoşor, 2008).

Distribution in Turkey: Ankara (Tuatay et al., 1972), Uşak, Denizli (Öncüer et al., 1977), Erzurum (Doğanlar,

1982a; Kılıç and Alaoğlu, 1996), Ankara, Kırşehir, Niğde (Kansu et al., 1986), Artvin, Erzurum, Gümüşhane, Trabzon (Eroğlu, 1995), Samsun (Tuncer and Ecevit, 1996; Sullivan et al., 2012), Tokat (Kara, 1998), Bursa (Kovancı et al., 1999), Eskişehir (Kara and Özdemir, 2000), Isparta (Avcı and Kara, 2002), Eskişehir (Aksu, 2005), Hatay (Kaya and Kornoşor, 2008).

Distribution in the world: West Asia (Kugler, 1974), North America (Arnaud, 1978), East Asia (Zimin et al., 1988), East Europe (Draber-Monko et al., 1991; Hubenov, 1992), South Europe (Tschorsnig, 1992), North Europe (Belshaw, 1993), West Europe (Tschorsnig et al., 2004).

Tribe: Eryciini

Phryxe caudata (Rondani, 1859)

Material examined: 18 May 2010, 1♂. Host: *Thaumatopoea pityocampa* (Den. & Schiff.) (Lep.: Thaumatopoeidae), collected on 4 April 2010, on *Pinus* sp., Tokat (Niksar-Musapınarı), 40°31'51"N, 36°52'52"E, 656 m.

Hosts in Turkey: *Thaumatopoea ispartaensis* Doğanlar & Avcı (Avcı and Kara, 2002), *Thaumatopoea pityocampa* (Soydanbay, 1978; Kara and Tschorsnig, 2003; Özçankaya and Can, 2004).

Distribution in Turkey: İzmir (Soydanbay, 1978), Muğla (Özçankaya and Can, 2004).

Distribution in the world: South and West Europe, West Asia (Tschorsnig et al., 2004).

Phryxe vulgaris (Fallén, 1810)

Material examined: 27 May 2010, 1♀; 29 May 2010, 1♀. Host: *Euproctis chrysorrhoea* (L.) (Lep.: Lymantriidae), collected on 8 May 2010, on *Malus* sp., Tokat (Almus-Kınık), 40°22'23"N, 36°52'16"E, 985 m.

Hosts in Turkey: *Pieris rapae* (L.) (Avcı and Özbek, 1990), *Euproctis chrysorrhoea* L. (Öncüer et al., 1977), *Pieris brassicae* L. (Tuatay et al., 1972; Uzun, 1987; Kara and Tschorsnig, 2003), *Aglais urticae* (L.) (Kara, 1998).

Distribution in Turkey: Ankara (Tuatay et al., 1972), Uşak, Denizli (Öncüer et al., 1977), İzmir (Uzun, 1987), Erzurum (Avcı and Özbek, 1990), Tokat (Kara, 1998), Nevşehir (Kara and Özdemir, 2000).

Distribution in the world: West Asia (Kugler, 1963), East Asia (Herting, 1984), East Europe (Draber-Monko et al., 1991; Hubenov, 1992; Tschorsnig et al., 2004), South Europe (Tschorsnig, 1992; Tschorsnig et al., 2004), Central Europe (Roznosky and Vanhara, 1993), North Europe (Belshaw, 1993; Tschorsnig et al., 2004), West Europe (Tschorsnig et al., 2004).

Senometopia separata (Rondani, 1859)

Material examined: 24 June 2010, 1♀. Host: *Lymantria dispar* L. (Lep.: Lymantriidae), collected on 12 June 2010, Tokat (Niksar-Osmaniye), 40°27'00"N, 37°04'12"E, 375 m.

Hosts in Turkey: *Acronicta aceris* L., *A. megacephala* (Den. & Schiff.), *Acronicta* sp. (Doğanlar, 1975, 1982a),

Lymantria dispar L. (Kansu, 1955; Doğanlar, 1982a; Kara, 1998).

Distribution in Turkey: Bingöl, Erzurum (Doğanlar, 1975, 1982a), Tokat (Kara, 1998).

Distribution in the world: East Europe (Draber-Monko et al., 1991; Hubenov, 1992; Tschorsnig et al., 2004), South Europe (Tschorsnig, 1992; Tschorsnig et al., 2004), North and West Europe (Tschorsnig et al., 2004).

Townsendiellomyia nidicola (Townsend, 1908)

Material examined: 5 July 2008, 1♀; 22 June 2010, 2♂. Host: *Euproctis chrysorrhoea* (L.) (Lep.: Lymantriidae), collected on 26 June 2008, on *Quercus* sp., Sivas (Koyulhisar-Gökdere), 40°18'49"N, 37°38'59"E, 616 m; collected on 8 May 2010, on *Malus* sp., Tokat (Almus-Kınık), 40°22'23"N, 36°52'16"E, 985 m.

Hosts in Turkey: *Euproctis chrysorrhoea* L. (Gürses, 1975; Öncüer et al., 1977, 1978; Soydanbay, 1978; Doğanlar, 1982a; Kansu et al., 1986; Kara, 1998).

Distribution in Turkey: Trakya (Gürses, 1975), Aegean Region (Öncüer et al., 1977, 1978), Bitlis, Erzurum (Doğanlar, 1982a), Kırşehir, Nevşehir, Niğde (Kansu et al., 1986), Tokat (Kara, 1998).

Distribution in the world: North America (Arnaud, 1978), South Europe (Tschorsnig, 1992; Tschorsnig et al., 2004), East Europe (Hubenov, 1992; Tschorsnig et al., 2004), North Europe (Belshaw, 1993; Tschorsnig et al., 2004), West Europe (Tschorsnig et al., 2004).

Tribe: Goniini

Pales pavida (Meigen, 1824)

Material examined: 24 June 2008, 1♀; 8 June 2009, 2♀; 22 June 2009, 1♂, 1♀. Hosts: *Simyra dentinosa* Frr. (Lep.: Noctuidae), collected on 28 May 2008, on *Euphorbia* sp., Tokat (Erbaa-Tepekişla), N 40°40'41.5"N, 36°40'40"E, 237 m; *Malacosoma neustria* (L.) (Lep.: Lasiocampidae), collected on 24 May 2009, on *Quercus* sp., Erbaa-Yakınca, 40°37'18.8"N, 36°46'38.2"E, 354 m.

Hosts in Turkey: *Lymantria dispar* L. (Acatay, 1959; Haeselbarth, 1983; Avcı, 2009), *Malacosoma franconica* Esp. and *M. castrensis kirghisica* Stgr. (Doğanlar, 1975, 1982a), *Hyphantria cunea* (Drury) (Tuncer and Ecevit, 1996; Kara and Tschorsnig, 2003), *Aglais urticae* L., *Leucoma salicis* (L.) (Kara, 1998), *Yponomeuta* sp. (Kara and Özdemir, 2000), *Malacosoma neustria* L. (Kara and Tschorsnig, 2003; Özbek and Çoruh, 2012), *Abraxas pantaria* L. (Özbek and Çalmaşur, 2010), *Antitype chi* L., *Calophasia lunula* Hufn., *Orthosia incerta* Hufn., and *Simyra dentinosa* Frr. (Robertson and Shaw, 2012).

Distribution in Turkey: Erzurum, Kars (Doğanlar, 1975, 1982a), Kırklareli (Haeselbarth, 1983), Samsun (Tuncer and Ecevit, 1996), Tokat (Kara, 1998), Ankara (Kara and Özdemir, 2000).

Distribution in the world: West Asia (Kugler, 1963), East Europe (Draber-Monko et al., 1991; Hubenov, 1992;

Tschorsnig et al., 2004), South Europe (Tschorsnig, 1992; Tschorsnig et al., 2004), Central Europe (Roznosky and Vanhara, 1993), North Europe (Belshaw, 1993; Tschorsnig et al., 2004), West Europe (Tschorsnig et al., 2004).

Masicera sphingivora (Robineau-Desvoidy, 1830)

Material examined: 7 July 2008, 1♀; 10 July 2008, 1♀. Host: *Malacosoma neustria* (L.) (Lep.: Lasiocampidae), collected on 13 June 2008, on *Quercus* sp., Sivas (Koyulhisar-Gökdere), 40°18'48"N, 37°39'01"E, 612 m.

Hosts in Turkey: *Celerio euphorbiae* L., *Dicallomera fascelina* L., *Leucoma salicis* L. (Doğanlar, 1982a; Kara, 1998; Kara and Özdemir, 2000), *Malacosoma* sp. (Tuatay et al., 1972; Kara and Özdemir, 2000), *Euproctis chrysorrhoea* L. (Gürses, 1975; Kara, 1998; Kara and Özdemir, 2000), *Cucullia* sp., *Hyles centralasiae* (Staudinger), *Malacosoma franconica* (Den. & Schiff.) (Kara and Tschorsnig, 2003), *Malacosoma neustria* (L.) (Kara, 1998; Özbek and Çoruh, 2012).

Distribution in Turkey: Ankara (Tuatay et al., 1972), Trakya (Gürses, 1975), Erzurum (Doğanlar, 1975, 1982a), Tokat (Kara, 1998), Ankara, Niğde (Kara and Özdemir, 2000).

Distribution in the world: East Europe (Zimin et al., 1988; Draber-Monko et al., 1991; Hubenov, 1992; Tschorsnig et al., 2004), South Europe (Tschorsnig, 1992; Tschorsnig et al., 2004), West Europe (Tschorsnig et al., 2004).

Palesisa nudiculata Villeneuve, 1929

Material examined: 5 July 2008, 4♂, 4♀; 10 July 2008, 4♂, 1♀. Host: *Euproctis chrysorrhoea* (L.) (Lep.: Lymantriidae), collected on 26 June 2008, on *Quercus* sp., Sivas (Koyulhisar-Gökdere), 40°18'49"N, 37°38'59"E, 616 m.

Hosts in Turkey: *Malacosoma franconica* (Den. & Schiff.) (Doğanlar, 1982a), *Malacosoma neustria* (L.) (Kara and Tschorsnig, 2003; Özbek and Çoruh, 2012), *Euproctis chrysorrhoea* (L.) (Gürses, 1975; Kara and Özdemir, 2000; Öncüer et al., 1977, 1978; Soydanbay, 1978), *Leucoma salicis* (L.) (Kara and Özdemir, 2000).

Distribution in Turkey: Trakya (Gürses, 1975), Denizli, Uşak (Öncüer et al., 1977, 1978), Çanakkale (Soydanbay, 1978), Erzurum (Doğanlar, 1982a).

Distribution in the world: Macedonia, Sicily, Spain (Tschorsnig et al., 2004), Italy (Cerretti and Tschorsnig, 2010).

Thelymorpha marmorata (Fabricius, 1805)

Material examined: 8 July 2010, 4♀; 9 July 2010, 1♀. Host: *Simyra dentinosa* Freyer (Lep.: Noctuidae), collected on 19 June 2010, on *Euphorbia* sp., Sivas (Akıncılar-Göllüce), 40°05'16"N, 38°28'55"E, 1116 m.

Hosts in Turkey: *Arctia hebe* (L.), *Malacosoma castrensis kirghisica* (Staudinger), *M. franconica* (Den. & Schiff.), *Simyra dentinosa* Freyer (Doğanlar, 1982a), *Arctia caja* (L.) (Doğanlar, 1975).

Distribution in Turkey: Erzurum (Doğanlar, 1975), Kars (Haeselbarth, 1983).

Distribution in the world: East, North, South, and West Europe (Tschorsnig et al., 2004).

Subfamily: Phasiinae

Tribe: Phasiini

Clytiomya continua (Panzer, 1798)

Material examined: 17 August 2009, 1♀; 10 May 2010, 1♀; 19 May 2010, 1♂, 1♀; 22 May 2010, 1♂. Host: *Eurydema ornata* (L.) (Hem.: Pentatomidae), collected on 1 August 2009, 24 April 2010, Tokat (Erbaa-Tepekışla), 40°40'41"N, 36°40'40"E, 237 m.

Hosts in Turkey: This species was reared for the first time from a host in Turkey.

Distribution in Turkey: Tokat (Kara and Alaoğlu, 1999).

Distribution in the world: West Asia (Kugler, 1963), East and Central Asia (Herting, 1984), East Europe (Draber-Monko et al., 1991; Hubenov, 1992; Tschorsnig et al., 2004), South Europe (Tschorsnig, 1992; Tschorsnig et al., 2004), West and North Europe (Tschorsnig et al., 2004).

Ectophasia crassipennis (Fabricius, 1794)

Material examined: 17 May 2010, 1♂, 2♀; 19 May 2010, 1♀; 9 July 2010, 1♂. Host: *Eurydema ornata* (L.) (Hem.: Pentatomidae) and *Coreus marginatus* (L.) (Hem.: Coreidae), collected on 24 April 2010, Tokat (Almus-Bakımlı), 40°22'12"N, 36°46'44"E, 997 m; *Carpocoris pudicus* (Poda) (Hem.: Pentatomidae), collected on 26 June 2010, Almus-Ataköy, 40°25'06"N, 36°54'21"E, 848 m.

Hosts in Turkey: *Eurygaster integriceps* Put. (Lodos, 1961).

Eurydema ornata (L.), *Coreus marginatus* (L.), and *Carpocoris pudicus* (Poda) are new host records for Turkey.

Distribution in Turkey: Adana, Diyarbakır (Lodos, 1961).

Distribution in the world: East Asia (O'Hara et al., 2009) and East, North, South, and West Europe (Tschorsnig et al., 2004).

Ectophasia oblonga (Robineau-Desvoidy, 1830)

Material examined: 12 May 2010, 2♂. Host: *Eurydema ornata* (L.) (Hem.: Pentatomidae), collected on 24 April 2010, Tokat (Almus-Bakımlı), 40°22'12"N, 36°46'44"E, 997 m.

Hosts in Turkey: *Eurygaster integriceps* Put. (Dupuis, 1963; Yüksel, 1968; Öncüer and Kıvan, 1995; Kıvan, 1996; İslamoğlu and Kornoşor, 2003, 2007; Gözüaçık et al., 2010), *Eurygaster maura* L. (Memişoğlu and Özer, 1994), *Lygaeus equestris* L. (Kara and Alaoğlu, 1999), *Aelia* sp., *Dolycoris baccarum* L., *Eurydema ornatum* L. (Kara and Tschorsnig, 2003).

Distribution in Turkey: Ankara (Memişoğlu and Özer, 1994), Tekirdağ (Öncüer and Kıvan, 1995; Kıvan, 1996), Tokat (Kara and Alaoğlu, 1999), Gaziantep,

Kahramanmaraş, Kilis (İslamoğlu and Kornoşor, 2003, 2007), Adıyaman, Batman, Diyarbakır, Mardin, Siirt, Şanlıurfa (Gözüaçık et al., 2010).

Distribution in the world: East Europe (Hubenov, 1992; Tschorsnig et al., 2004), South Europe (Tschorsnig, 1992; Tschorsnig et al., 2004), East Europe and the South Caucasus (Herting, 1984), West Europe (Tschorsnig et al., 2004).

Gymnosoma clavata (Rohdendorf, 1947)

Material examined: 14 July 2010, 2♂; 15 July 2010, 1♀; 16 July 2010, 2♂. Host: *Carpocoris mediterraneus* Tam. (Hem.: Pentatomidae), collected on 4 July 2010, Tokat (Reşadiye-Çayırpınarı), 40°27'10"N, 37°03'58"E, 365 m.

Hosts in Turkey: *Dolycoris baccarum* (L.) (Karsavuran, 1986; Kara and Tschorsnig, 2003; Keçeci et al., 2007), *Carpocoris* sp. (Kara and Tschorsnig, 2003), *Ancyrosoma leucogrammes* (Gmelin) (Karsavuran and Kara, 2003).

Carpocoris mediterraneus Tam. is a new host record for Turkey.

Distribution in Turkey: Erzurum (Doğanlar 1982b), İzmir (Karsavuran, 1986).

Distribution in the world: West Asia (Kugler, 1963; Kugler, 1974), North Europe, the Middle East, East Europe, Soviet Central Asia (Herting, 1984; Zimin et al., 1988), East Europe (Draber-Monko et al., 1991; Tschorsnig et al., 2004), South Europe (Tschorsnig, 1992; Tschorsnig et al., 2004), East Asia (O'Hara et al., 2009), West Europe (Tschorsnig et al., 2004).

Gymnosoma desertorum (Rohdendorf, 1947)

Material examined: 11 July 2011, 1♀. Host: *Eurygaster maura* L., collected on 26 June 2011, on *Triticum* sp., Tokat (Erbaa-Bölücek), 40°39'14"N, 36°37'35"E, 291 m.

Host in Turkey: *Eurygaster integriceps* Put. (Lodos, 1986), *Aelia rostrata* Boh., *Dolycoris baccarum* (L.) (Kara and Tschorsnig, 2003).

Eurygaster maura is a new host species for this tachinid.

Distribution in Turkey: South and Central Anatolian Region (Lodos, 1986), Tokat (Kara and Alaoğlu, 1999).

Distribution in the world: Central, East, and West Asia and East Europe (Herting and Dely-Draskovits, 1993; Tschorsnig et al., 2004).

Elomyia lateralis (Meigen, 1824)

Material examined: 1 August 2010, 1♂. Host: *Corizus hyoscyami* (L.) (Hem.: Rhopalidae), collected on 18 July 2010, Tokat (Almus-Kınık), 40°22'24"N, 36°50'05"E, 1171 m.

Hosts in Turkey: *Aelia rostrata* Boh. (Brown, 1962; Dikyar, 1981; Memişoğlu et al., 1994), *Dolycoris baccarum* (L.), *Eurydema ornatum* (L.) (Kara and Tschorsnig, 2003), *Eurygaster integriceps* Put. (Lodos, 1961, 1986; Yüksel, 1968; Öncüer and Kıvan, 1995; Kıvan, 1996; İslamoğlu and Kornoşor, 2007), *Eurygaster maura* L. (Memişoğlu and Özer, 1994; Kara and Tschorsnig, 2003), *Ceraleptus gracilicornis* (Herrich-Schaeffer) (Kara and Alaoğlu, 1999).

Corizus hyoscyami (L.) is a new host species for this tachinid.

Distribution in Turkey: Ankara (Memişoğlu and Özer, 1994), South and Central Anatolian Region (Lodos, 1986), Tekirdağ (Öncüer and Kıvan, 1995; Kıvan, 1996), Adıyaman, Diyarbakır, Mardin, Siirt, Şanlıurfa (Gözüaçık et al., 2010), Gaziantep, Kilis (İslamoğlu and Kornoşor, 2003), Kahramanmaraş (İslamoğlu and Kornoşor, 2007), Tokat (Kara and Alaoğlu, 1999).

Distribution in the world: West Asia (Kugler, 1967), Central and West Europe, North Africa (Zimin et al., 1988; Tschorsnig et al., 2004), East Europe (Draber-Monko et al., 1991; Hubenov, 1992; Tschorsnig et al., 2004), South Europe (Tschorsnig, 1992; Tschorsnig et al., 2004), Central, East, and South Asia (Draber-Monko, 1993).

Phasia subcoleoprata (Linnaeus, 1767)

Material examined: 2 July 2011, 1♂, 14 July 2011, 1♀; 15 July 2011, 1♀. Host: *Eurygaster maura* L. (Hem.: Scutelleridae), collected on 14 June 2011, Sivas (Suşehri-Akçağıl), 40°12'17"N, 38°04'00"E, 814 m; collected on 26 June 2011, Tokat (Erbaa-Bölücek), 40°39'14"N, 36°37'35"E, 291 m.

Hosts in Turkey: *Eurygaster integriceps* Put. (Lodos, 1961; Brown, 1962; Yüksel, 1968; Soydanbay, 1978; Öncüer and Kıvan, 1995; Kıvan, 1996; İslamoğlu and Kornoşor, 2003, 2007; Keçeci et al., 2007; Gözüaçık et al., 2010), *Eurygaster maura* L. (Tuatay et al., 1972).

Distribution in Turkey: Diyarbakır (Lodos, 1961; Yüksel, 1968; Soydanbay, 1978), Tekirdağ (Öncüer and Kıvan, 1995), Antalya, Burdur (Keçeci et al., 2007), Gaziantep, Kilis (İslamoğlu and Kornoşor, 2003), Kahramanmaraş (İslamoğlu and Kornoşor, 2007), Adıyaman, Batman, Siirt, Şanlıurfa, Şırnak (Gözüaçık et al., 2010).

Distribution in the world: East, North, South, and West Europe (Tschorsnig et al., 2004).

Tribe: Leucostomatini

Eulabidogaster setifacies (Rondani, 1861)

Material examined: 1 August 2010, 1♂. Host: *Corizus hyoscyami* (L.) (Hem.: Rhopalidae), collected on 18 July 2010, Tokat (Almus-Kınık), 40°22'24"N, 36°50'05"E, 1171 m.

Hosts in Turkey: This is the second breeding of

Eulabidogaster setifacies from this host [the first one was reported from Israel by Kugler (1963)]. Other host species are unknown.

Distribution in Turkey: Tokat (Kara and Alaoğlu, 1999).

Distribution in the world: West Europe, Central Asia (Herting, 1984; Tschorsnig et al., 2004), East Europe (Draber-Monko et al., 1991; Hubenov, 1992; Tschorsnig et al., 2004).

Tribe: Cylindromyiini

Cylindromyia brassicaria (Fabricius, 1775)

Material examined: 7 August 2009, 1♂. Host: *Dolycoris baccarum* (L.) (Hem.: Pentatomidae), collected on 18 July 2009, Tokat (Reşadiye-Cemel), 40°23'47"N, 37°17'50"E, 491 m.

Hosts in Turkey: *Dolycoris baccarum* (L.) (Karsavuran, 1986; Kara and Tschorsnig, 2003; Keçeci et al., 2007), *Holcostethus vernalis* (W.) (Kara and Alaoğlu, 1999).

Distribution in Turkey: Erzurum (Doğanlar, 1982b), İzmir (Karsavuran, 1986), Tokat (Kara and Alaoğlu, 1999).

Distribution in the world: The Palearctic region from England to Japan (Herting, 1960), East and South Asia, North Africa, (Ziegler, 1991), East Europe (Hubenov, 1992; Draber-Monko, 1993), South Europe (Tschorsnig, 1992), North Europe, South of England (Belshaw, 1993).

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