



Original article (Orijinal araştırma)

Fruit fly (Diptera: Tephritidae) fauna of Çorum and Sinop Provinces with two new records for Turkey¹

Türkiye için iki yeni kayıt ile birlikte Çorum ve Sinop illerinin meyve sineği (Diptera: Tephritidae) faunası

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Abstract

The fruit fly (Diptera: Tephritidae) fauna of Çorum and Sinop Provinces in Turkey were determined. Specimens were collected between 2015 and 2018 from possible host plants. The specimens were examined and diagnosed under stereo microscope after preparation of the collected materials in laboratory. Sixty-six species and 24 genera belonging to five subfamilies were determined for the fruit fly fauna of Çorum and Sinop Provinces. The genus *Acidia* Robineau-Desvoidy, 1830 as well as the species *Acidia cognata* (Wiedemann, 1817) and *Carpomya wiedemanni* (Meigen, 1826) are reported for the first time for the fruit fly fauna of Turkey. In addition to wing photographs and information on species determined from the research region, host plants, world distribution, body and female genitalia photographs of new records are also presented.

Keywords: Çorum, fauna, fruit flies, new record, Sinop, Turkey

Öz

Türkiye'de Çorum ve Sinop illerinin meyve sineği (Diptera: Tephritidae) faunası belirlenmiştir. Örnekler 2015 ve 2018 arasında muhtemel konukçu bitkilerden toplanmıştır. Toplanan örnekler laboratuvarda preparasyonları yapıldıktan sonra stereo mikroskopta incelendi ve teşhis edildi. Çorum ve Sinop illerinin meyve sineği faunası için beş alt familyaya ait 24 cins ve altmışaltı tür tespit edilmiştir. *Acidia* Robineau-Desvoidy, 1830 cinsinin yanı sıra *Acidia cognata* (Wiedemann, 1817) ve *Carpomya wiedemanni* (Meigen, 1826) türleri Türkiye'den ilk defa bildirilmiştir. Araştırma bölgesinden tespit edilen tüm türlerin kanat fotoğrafları ve incelenen materyal bilgilerine ek olarak yeni kayıtların konukçu bitkileri, dünya yayılışları vücut ve dişi genital fotoğrafları da sunulmuştur.

Anahtar sözcükler: Çorum, fauna, meyve sinekleri, yeni kayıt, Sinop, Türkiye

¹ This study is part of first Author's PhD studies. Some parts of it were presented as abstract papers at Ecology 2017 (11-13 May 2017, Kayseri, Turkey), Eurasianbiochem 2018 (26-27 April 2018, Ankara, Turkey), Ecology 2018 (19-23 June 2018, Kastamonu, Turkey) and 24. UBK (10-14 September 2018, Manisa, Turkey) congresses.

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Introduction

Tephritidae is one of the most important family of the order Diptera. It includes about 492 genera and 4716 species (Pape et al., 2011). Many species of Tephritidae, especially the subfamily Tephritinae, develop on the flower heads of Asteraceae species (Freidberg & Kugler, 1989). Currently, there are about 1500 fruit fly species associated with fruits, more than 250 species of which are of economic significance (Li et al., 2013).

Koçak & Kemal (2013) reported 156 species of fruit flies from Turkey. After the report of Koçak & Kemal (2013), four new species (*Urophora turkeyensis* Yaran & Kütük, 2014, *Heringina arezoana* Namin & Korneyev, 2015, *Carpomya liat* (Freidberg, 2016) and *Terellia akguli* Yaran et al., 2018) and seven new records (*Dacus ciliatus* Loew, 1862, *Dioxyna sororcula* (Wiedemann, 1830), *Hemilea dimidiata* (Costa, 1844), *Ictericoides zelleri* (Loew, 1844), *Terellia ivannikovi* Korneyev et al., 2013, *Terellia armeniaca* Korneyev, 1985 and *Urophora trinervii* Korneyev & White, 1996) of fruit flies have been published in Turkey (Yaran & Kütük, 2014, 2015, 2016; Korneyev & Kolcsar, 2015; Namin & Korneyev, 2015; Yaran et al., 2018a, b; Çalıřkan Keçe et al., 2019). Considering these references, 167 species of Tephritidae have now been reported in Turkey.

The main purpose of this study was to contribute to the fruit fly fauna of Turkey. In this paper, the genus *Acidia* Robineau-Desvoidy, 1830 as well as the species *Acidia cognata* (Wiedemann, 1817) and *Carpomya wiedemanni* (Meigen, 1826) are reported for the first time for the fruit fly fauna of Turkey.

Materials and Methods

A total of 1854 specimens of fruit flies (721 ♀♀ and 1133 ♂♂) were collected from Çorum and Sinop Provinces between 2015 and 2018. Adult fruit flies were obtained from possible host plants using a sweep net. After these specimens were killed in ethyl acetate killing jars, they were brought to the Gaziantep University Entomology Laboratory. Then, they were prepared as standard museum materials. Diagnosis of the fruit fly specimens followed Hendel (1927), White (1988), Freidberg & Kugler (1989), Korneyev & White (1993, 1999), Merz (1994), Korneyev (2003, 2006, 2013), Kütük (2003), Kütük & Yaran (2011), Korneyev et al. (2013, 2017) and Namin & Nowzari (2015).

Results

Sixty-six species and 24 genera belonging to five subfamilies (Aciurinae, Myopitinae, Tephritinae, Terellinae, Trypetinae) of Tephritidae were determined. The genus *Acidia* as well as the species *A. cognata* (Figure 2a-d) and *C. wiedemanni* (Figure 2e-g) were recorded for the first time for the fruit fly fauna in Turkey. Consequently, the number of fruit fly species in Turkey has increased to 169 species.

The identified species are reported in alphabetical order below.

***Acanthiophilus helianthi* (Rossi, 1794); Figure 1a**

Material examined: Çorum, Alaca, İsaahacı, 40°09' N, 34°55' E, 965 m, 27.VII.2015, 1♀; Bayat, Çerkeş, 40°45' N, 34°15' E, 1671 m, 26.VII.2017, 3♀♀, 2♂♂; Boğazkale, Yüksekayla, 40°00' N, 34°38' E, 1193 m, 13.VI.2017, 3♀♀, 1♂; Center, Çatak, 40°41' N, 34°50' E, 1185 m, 20.VIII.2017, 1♀; Center, Kadıkırı, 40°27' N, 34°51' E, 715 m, 27.VII.2015, 2♀♀, 2♂♂; Center, Seydim, 40°32' N, 34°44' E, 1216 m, 31.VII.2015, 3♀♀; Dodurga, Dikenli, 40°49' N, 34°41' E, 1019 m, 2.VII.2015, 1♀, 2♂♂; İskilip, Başmakçı, 40°43' N, 34°35' E, 857 m, 27.VII.2017, 8♀♀; Laçın, Kırkdilim, 40°43' N, 34°53' E, 1050 m, 1.VII.2015, 1♀, 2♂♂; Mecitözü, Beyözü, 40°34' N, 35°16' E, 985 m, 28.VII.2015, 1♀; Sungurlu, Kamışlı, 40°07' N, 34°28' E, 1000 m, 2.VII.2017, 7♀♀, 2♂♂; Sinop, Boyabat, Doğanburnu, 41°60' N, 34°86' E, 908 m, 28.VI.2016, 5♀♀, 2♂♂; Center, Ahmetyeri, 41°49' N, 35°02' E, 165 m, 1.VII.2015, 5♀♀, 4♂♂; Dikmen, Yenikent, 41°44' N, 35°13' E, 275 m, 1.VII.2015, 1♂; Durağan, Center, 41°23' N, 35°16' E, 1140 m, 28.VII.2017, 2♀♀, 3♂♂; Gerze, Belören, 41°49' N, 35°09' E, 84 m, 1.VII.2015, 1♀, 1♂.

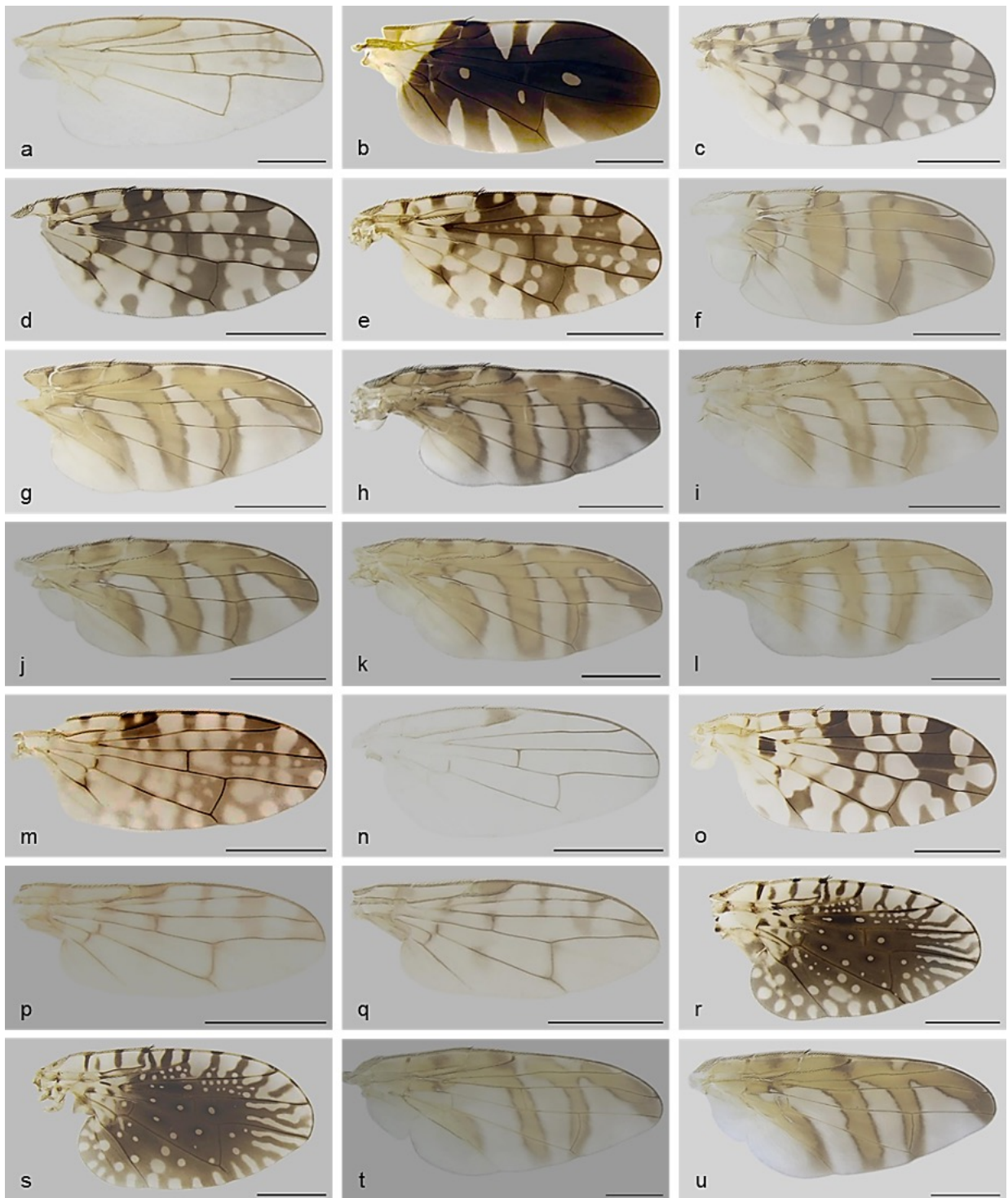


Figure 1. Wings of fruit fly species: a) *Acanthiophilus helianthi*, b) *Aciura coryli*, c) *Campiglossa absinthii*, d) *Campiglossa producta*, e) *Campiglossa tesellata*, f) *Carpomya schineri*, g) *Chaetorellia carthami*, h) *Chaetorellia conjuncta*, i) *Chaetorellia jaceae*, j) *Chaetorellia loricata*, k) *Chaetorellia succinae*, l) *Chaetostomella cylindrica*, m) *Dioxyna bidentis*, n) *Ensina sonchi*, o) *Euaresta bullans*, p) *Myopites apicatus*, q) *Myopites cypriacus*, r) *Noeeta bisetosa*, s) *Noeeta crepidis*, t) *Orellia falcata*, u) *Orellia stictica*, (Scale: 1 mm).

***Acidia cognata* (Wiedemann, 1817); Figure 2a-d**

Material examined: Çorum, Bayat, Kunduzlu, 40°45' N, 34°14' E, 1321 m, 31.VII.2017, 1♀, 3♂♂; Bayat, Kunduzlu, 40°45' N, 34°14' E, 1360 m, 26.VII.2017, 3♀♀, 6♂♂; Bayat, Kunduzlu, 40°76' N, 34°25' E, 1346 m, 25.VII.2018, 2♀♀, 3♂♂; İskilip, Ahlatçık, 40°74' N, 34°28' E, 1482 m, 25.VII.2018, 2♀♀, 6♂♂; Sinop, Ayancık, Gökçukur, 41°39' N, 34°40' E, 866 m, 17.VIII.2017, 4♂♂; Ayancık, Gökdere, 41°39' N, 34°40' E, 801 m, 21.VI.2018, 1♀, 9♂♂.

Host plant: *Adenostyles glabra* (Miller), *Homogyne alpina* Cass., *Petasites albus* (L.), *P. hybridus* (L.) and *Tussilago farfara* L. (Merz, 1994).

Distribution: Central Europe, Eastern Europe, Italy, Northern Europe, Ukraine and Yugoslavia (Merz, 1994).

This genus and species are new records for the fruit fly fauna of Turkey.

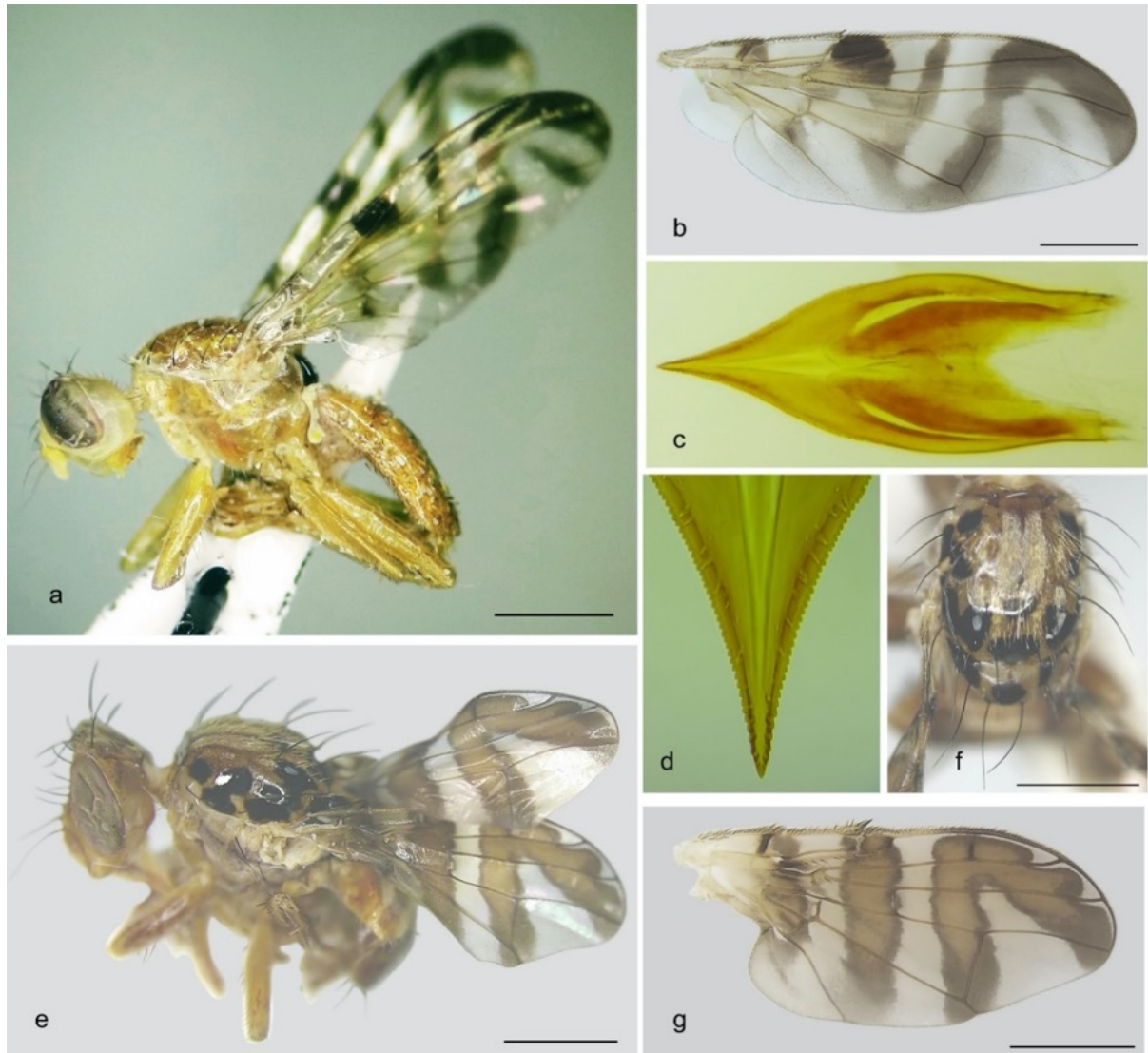


Figure 2. *Acidia cognata*, a) adult, b) wing, c) aculeus, and d) apex of aculeus (enlarged); and *Carpomya wiedemanni*, e) adult, f) thorax, and g) wing, (Scale: 1 mm).

***Aciura coryli* (Rossi, 1794); Figure 1b**

Material examined: Çorum, Alaca, Fakılar, 40°09' N, 34°50' E, 955 m, 23.VI.2018, 1♂.

***Campiglossa abshinthii* (Fabricius, 1805); Figure 1c**

Material examined: Çorum, Mecitözü, Emirbağı, 40°24' N, 35°13' E, 640 m, 28.VII.2015, 1♀; Sungurlu, Çadırhöyük, 40°17' N, 34°05' E, 614 m, 26.VII.2017, 1♂.

***Campiglossa producta* (Loew, 1844); Figure 1d**

Material examined: Çorum, Bayat, Kunduzlu, 40°45' N, 34°14' E, 1321 m, 31.VII.2017, 1♀; Boğazkale, Yazılıkaya, 40°01' N, 34°36' E, 1010 m, 2.VII.2017, 1♀, 1♂; Center, İnalözü, 40°28' N, 34°34' E, 972 m, 31.VII.2015, 1♂; Center, Konaklı, 40°38' N, 35°12' E, 963 m, 31.VII.2015, 1♂; Laçın, Kırkdilim, 40°43' N, 34°53' E, 1050 m, 1.VII.2015, 1♀; Sungurlu, Çadırhöyük, 40°17' N, 34°05' E, 614 m, 26.VII.2017, 1♂; Sinop, Erfelek, Hasandere, 41°52' N, 34°56' E, 305 m, 30.VII.2015, 2♂♂.

***Campiglossa tesellata* (Loew, 1844); Figure 1e**

Material examined: Çorum, Boğazkale, Hattuşa, 40°01' N, 34°37' E, 1019 m, 16.VIII.2017, 1♂; Osmancık, Çayırköy, 40°59' N, 37°57' E, 540 m, 15.VI.2017, 1♂.

***Carpomya schineri* (Loew, 1856); Figure 1f**

Material examined: Çorum, Center, Konaklı, 40°38' N, 35°12' E, 963 m, 31.VII.2015, 1♀, 1♂.

***Carpomya wiedemanni* (Meigen, 1826); Figure 2e-g**

Material examined: Çorum, Boğazkale, Yüksekayla, 40°00' N, 34°38' E, 1193 m, 13.VI.2017, 1♂.

Host plant: *Bryonia cretica* L., *B. dioica* Jacq., *B. syriaca* Boiss. (Merz, 1994; Smith & Bush, 1999).

Distribution: Armenia, Austria, Belgium, Britain, European Russia, France, Germany, Hungary, Italy, Spain, Switzerland, Netherlands and Ukraine (Korneyev et al., 2017).

This species is new record for the fruit fly fauna of Turkey.

***Chaetorellia carthami* Stackelberg, 1929; Figure 1g**

Material examined: Çorum, Alaca, Çevreli, 40°13' N, 34°45' E, 1190 m, 28.VI.2017, 1♂; Alaca, İsaahacı, 40°09' N, 34°55' E, 965 m, 27.VII.2015, 4♀♀, 2♂♂; Boğazkale, Yüksekayla, 40°00' N, 34°38' E, 1193 m, 13.VI.2017, 2♀♀, 1♂; Center, Büyükçayır, 40°34' N, 35°24' E, 713 m, 29.V.2016, 1♂; Center, Seydim, 40°32' N, 34°44' E, 1216 m, 31.VII.2015, 2♂♂; Laçın, Kırkdilim, 40°43' N, 34°53' E, 1050 m, 1.VII.2015, 1♀; Mecitözü, Beyözü, 40°34' N, 35°16' E, 985 m, 28.VII.2015, 1♀, 3♂♂; Ortaköy, Totali, 40°25' N, 35°23' E, 973 m, 1.VII.2017, 1♂; Sungurlu, Yörüklü, 40°18' N, 34°13' E, 652 m, 26.VII.2017, 2♀♀, 2♂♂.

***Chaetorellia conjuncta* (Becker, 1913); Figure 1h**

Material examined: Çorum, Alaca, Çevreli, 40°13' N, 34°45' E, 1190 m, 28.VI.2017, 1♀; Boğazkale, Yüksekayla, 40°00' N, 34°38' E, 1193 m, 13.VI.2017, 1♀, 2♂♂; Dodurga, Kirenci, 40°49' N, 34°43' E, 968 m, 27.VII.2017, 10♀♀, 13♂♂; İskilip, Elmalı, 40°46' N, 34°21' E, 1044 m, 26.VII.2017, 1♂; Laçın, Kavaklıçiftlik, 40°47' N, 34°53' E, 504 m, 2.VII.2015, 1♂; Osmancık, Çayırköy, 40°59' N, 37°57' E, 540 m, 15.VI.2017, 2♀♀, 3♂♂; Sungurlu, Turgutlu, 40°10' N, 34°09' E, 635 m, 13.VI.2017, 3♀♀, 12♂♂; Sinop, Boyabat, Gökçeagaçsakızı, 41°36' N, 34°35' E, 462 m, 14.VI.2017, 5♀♀, 6♂♂; Center, 42°01' N, 35°08' E, 20 m, 30.VII.2015, 1♀, 3♂♂; Durağan, Aşağıkaracaören, 41°24' N, 35°05' E, 200 m, 14.VI.2017, 9♀♀, 20♂♂; Erfelek, Gökçebel, 41°52' N, 34°46' E, 678 m, 30.VII.2015, 1♀, 2♂♂.

***Chaetorellia jaceae* (Robineau-Desvoidy, 1830); Figure 1i**

Material examined: Çorum, Alaca, İshacı, 40°09' N, 34°55' E, 965 m, 27.VII.2015, 1♀; Center, Çatak, 40°41' N, 34°50' E, 1185 m, 20.VIII.2017, 1♀, 1♂; Center, Seydim, 40°32' N, 34°44' E, 1216 m, 31.VII.2015, 1♀, 2♂♂; Laçın, Obruk, 40°47' N, 34°48' E, 483 m, 2.VII.2015, 1♀, 1♂; Mecitözü, Beyözü, 40°34' N, 35°16' E, 985 m, 28.VII.2015, 3♂♂; Ortaköy, Totali, 40°25' N, 35°23' E, 973 m, 1.VII.2017, 1♀, 1♂; Osmancık, Ardiç, 41°03' N, 34°60' E, 398 m, 28.VI.2016, 2♀♀; Sungurlu, Yörüklü, 40°18' N, 34°15' E, 695 m, 13.VI.2017, 3♀♀, 5♂♂; Uğurludağ, Kumçeltiği, 40°34' N, 34°30' E, 784 m, 1.VII.2017, 1♂; Sinop, Boyabat, Kuzveren, 41°26' N, 34°49' E, 403 m, 1.VII.2015, 1♂; Center, Melekşah, 41°52' N, 35°03' E, 171 m, 31.V.2016, 2♂♂; Erfelek, İnesökü, 41°54' N, 34°54' E, 228 m, 31.V.2016, 1♀, 4♂♂.

***Chaetorellia loricata* (Rondani, 1870); Figure 1j**

Material examined: Çorum, Alaca, Karatepe, 40°01' N, 34°57' E, 1080 m, 27.VII.2015, 2♀♀, 3♂♂; Boğazkale, Yazılıkaya, 40°01' N, 34°36' E, 1010 m, 2.VII.2017, 1♀; Mecitözü, İbek, 40°20' N, 35°14' E, 680 m, 28.VII.2015, 1♀, 2♂♂; Sinop, Durağan, Erduası, 41°22' N, 35°03' E, 667 m, 31.VII.2015, 1♀.

***Chaetorellia succinae* (Costa, 1844); Figure 1k**

Material examined: Çorum, Alaca, İshacı, 40°09' N, 34°55' E, 965 m, 27.VII.2015, 1♀; Center, İnalözü, 40°28' N, 34°34' E, 972 m, 31.VII.2015, 3♀♀; Center, Kadıkırı, 40°27' N, 34°51' E, 715 m, 27.VII.2015, 5♀♀, 6♂♂; Laçın, Gökgözler, 40°48' N, 34°50' E, 460 m, 2.VII.2015, 1♀; Laçın, Kırkdilim, 40°43' N, 34°53' E, 1050 m, 1.VII.2015, 1♀; Mecitözü, Emirbağı, 40°24' N, 35°13' E, 640 m, 28.VII.2015, 1♀; Sinop, Boyabat, Kuzveren, 41°26' N, 34°49' E, 403 m, 1.VII.2015, 3♀♀, 3♂♂; Center, Ahmetyeri, 41°49' N, 35°02' E, 165 m, 1.VII.2015, 3♀♀, 2♂♂; Durağan, Dağdelen, 41°26' N, 34°55' E, 247 m, 31.V.2016, 1♂; Gerze, Belören, 41°49' N, 35°09' E, 84 m, 1.VII.2015, 1♀.

***Chaetostomella cylindrica* (Robineau-Desvoidy, 1830); Figure 1l**

Material examined: Çorum, Alaca, Çevreli, 40°13' N, 34°45' E, 1190 m, 28.VI.2017, 1♀, 9♂♂; Boğazkale, Yazılıkaya, 40°01' N, 34°36' E, 1010 m, 2.VII.2017, 1♀, 4♂♂; Center, İnalözü, 40°28' N, 34°34' E, 972 m, 31.VII.2015, 1♀, 1♂; Sungurlu, Kamışlı, 40°07' N, 34°28' E, 1000 m, 2.VII.2017, 5♀♀, 7♂♂; Uğurludağ, Kumçeltiği, 40°34' N, 34°30' E, 784 m, 1.VII.2017, 1♀, 2♂♂.

***Dioxya bidentis* (Robineau-Desvoidy, 1830); Figure 1m**

Material examined: Çorum, Boğazkale, Hattuşa, 40°10' N, 34°37' E, 1070 m, 25.VII.2017, 1♂.

***Ensina sonchi* (Linnaeus, 1767); Figure 1n**

Material examined: Çorum, Kargı, Asarcıkkazaklı, 41°11' N, 34°36' E, 1468 m, 17.VIII.2017, 1♀; Sungurlu, Çadırhöyük, 40°17' N, 34°05' E, 614 m, 26.VII.2017, 4♀♀, 8♂♂.

***Euaresta bullans* (Wiedemann, 1830); Figure 1o**

Material examined: Çorum, Boğazkale, Yüksekayla, 40°00' N, 34°38' E, 1193 m, 13.VI.2017, 1♂; Center, Altınbaş, 40°39' N, 34°49' E, 899 m, 1.VII.2017, 3♀♀, 2♂♂; Dodurga, Dikenli, 40°49' N, 34°41' E, 1019 m, 2.VII.2015, 1♂; İskilip, Başmakçı, 40°43' N, 34°35' E, 857 m, 27.VII.2017, 3♀♀, 2♂♂; Mecitözü, İbek, 40°20' N, 35°14' E, 680 m, 28.VII.2015, 2♀♀; Sungurlu, Yörüklü, 40°18' N, 34°15' E, 695 m, 13.VI.2017, 38♀♀, 27♂♂; Uğurludağ, Boztepe, 40°41' N, 34°28' E, 636 m, 13.VI.2017, 1♀; Sinop, Boyabat, Gökçeagaçsakızı, 41°36' N, 34°35' E, 462 m, 14.VI.2017, 6♀♀, 1♂♂; Durağan, Aşağıkaracaören, 41°24' N, 35°05' E, 200 m, 14.VI.2017, 6♀♀, 3♂♂.

***Myopites apicatus* Freidberg, 1980; Figure 1p**

Material examined: Sinop, Ayancık, Kovanlık, 41°51' N, 34°44' E, 681 m, 17.VIII.2017, 2♂♂; Erfelek, Hasandere, 41°52' N, 34°56' E, 305 m, 30.VII.2015, 1♂; Erfelek, Hasandere, 41°52' N, 34°56' E, 346 m, 17.VIII.2017, 4♀♀, 2♂♂.

***Myopites cypriacus* Hering, 1938; Figure 1q**

Material examined: Sinop, Ayancık, Kovanlık, 41°51' N, 34°44' E, 681 m, 17.VIII.2017, 1♀; Erfelek, Hasandere, 41°52' N, 34°56' E, 305 m, 30.VII.2015, 1♂; Erfelek, Hasandere, 41°52' N, 34°56' E, 346 m, 17.VIII.2017, 3♀♀, 5♂♂.

***Noeeta bisetosa* Merz, 1992; Figure 1r**

Material examined: Çorum, Bayat, Kunduzlu, 40°45' N, 34°14' E, 1321 m, 31.VII.2017, 4♀♀, 1♂; Sinop, Ayancık, Kovanlık, 41°51' N, 34°44' E, 681 m, 17.VIII.2017, 1♀; Erfelek, Hasandere, 41°52' N, 34°56' E, 305 m, 30.VII.2015, 1♂.

***Noeeta crepidis* Hering, 1936; Figure 1s**

Material examined: Çorum, Bayat, Kunduzlu, 40°45' N, 34°15' E, 1605 m, 31.VII.2017, 1♂.

***Orellia falcata* (Scopoli, 1763); Figure 1t**

Material examined: Çorum, Boğazkale, Yazılıkaya, 40°01' N, 34°36' E, 1010 m, 2.VII.2017, 1♀, 1♂; Osmancık, Ardiç, 41°03' N, 34°60' E, 398 m, 28.VI.2016, 1♂; Sungurlu, Kamışlı, 40°07' N, 34°28' E, 1000 m, 2.VII.2017, 1♀.

***Orellia stictica* (Gmelin, 1790); Figure 1u**

Material examined: Çorum, Dodurga, Center, 40°48' N, 34°50' E, 983 m, 2.VII.2015, 1♂; Mecitözü, Emirbağı, 40°24' N, 35°13' E, 640 m, 28.VII.2015, 2♀♀, 1♂; Sungurlu, Çavuş, 40°19' N, 34°48' E, 863 m, 27.VI.2016, 1♂; Sinop, Saraydüzü, Çalpinar, 41°18' N, 34°59' E, 1440 m, 28.VI.2016, 1♀.

***Oxyna flavipennis* (Loew, 1844); Figure 3a**

Material examined: Çorum, Mecitözü, Elvançelebi, 40°35' N, 35°09' E, 1025 m, 29.VI.2015, 3♂♂.

***Oxyna nebulosa* (Wiedemann, 1817); Figure 3b**

Material examined: Sinop, Erfelek, Hasandere, 41°52' N, 34°56' E, 305 m, 31.V.2016, 1♀.

***Rhagoletis berberidis* Jermy, 1961; Figure 3c**

Material examined: Çorum, Boğazkale, Yüksekayla, 40°00' N, 34°38' E, 1193 m, 13.VI.2017, 1♀.

***Sphenella marginata* (Fallen, 1814); Figure 3d**

Material examined: Çorum, Bayat, Kunduzlu, 40°45' N, 34°14' E, 1360 m, 26.VII.2017, 1♂; Boğazkale, Yüksekayla, 40°00' N, 34°38' E, 1193 m, 13.VI.2017, 1♂; Center, İnalözü, 40°28' N, 34°34' E, 972 m, 31.VII.2015, 1♀, 1♂; İskilip, Başmakçı, 40°43' N, 34°35' E, 857 m, 27.VII.2017, 1♂; Laçın, Kırkdilim, 40°43' N, 34°53' E, 1050 m, 1.VII.2015, 1♀; Mecitözü, Emirbağı, 40°24' N, 35°13' E, 640 m, 28.VII.2015, 1♀; Sinop, Erfelek, Hasandere, 41°52' N, 34°56' E, 305 m, 30.VII.2015, 3♀♀, 3♂♂.

***Tephritis bardanae* (Schrank, 1803); Figure 3e**

Material examined: Çorum, Dodurga, Yeniköy, 40°82' N, 34°69' E, 1011 m, 28.VI.2016, 2♀♀, 2♂♂.

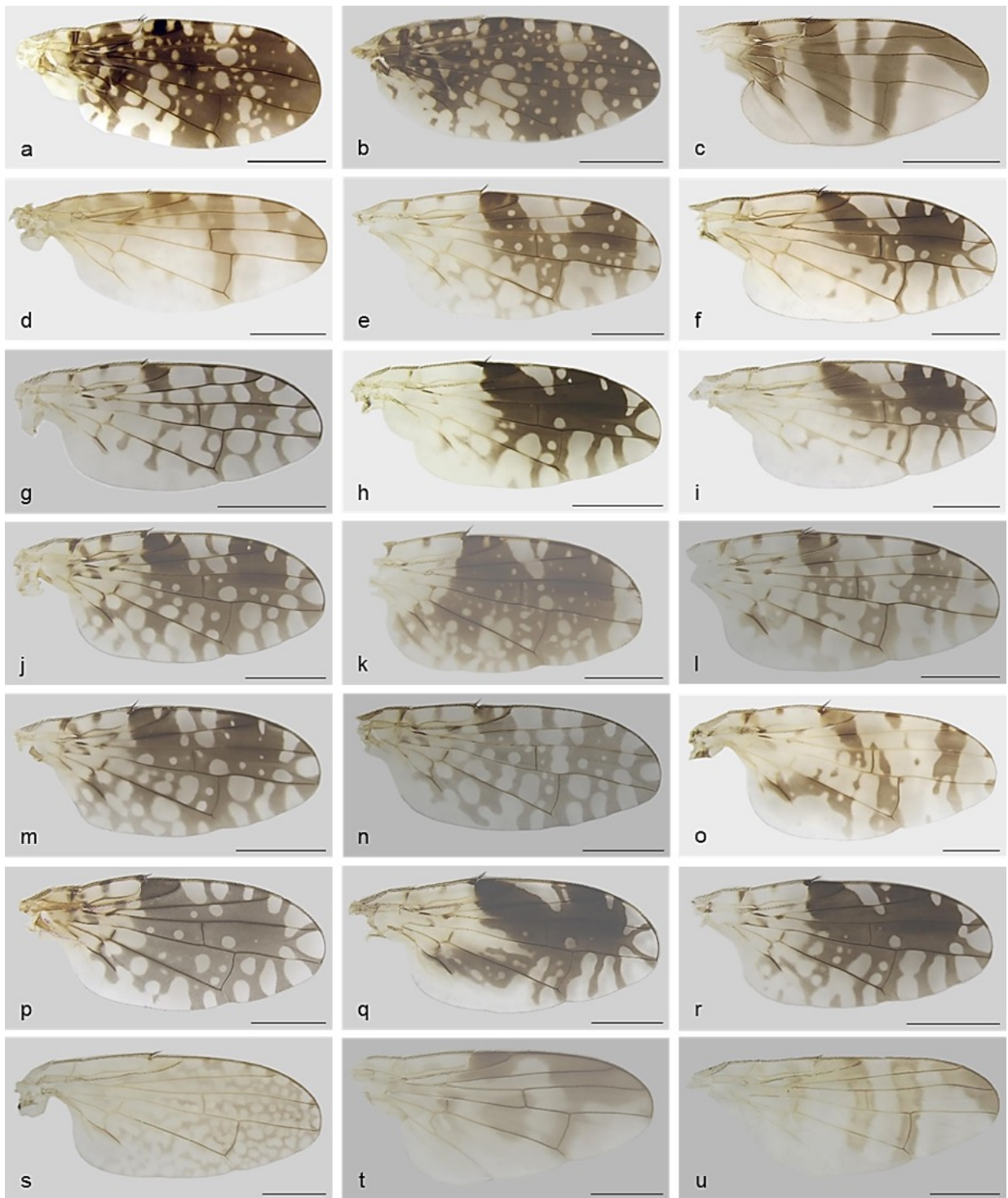


Figure 3. Wings of fruit fly species: a) *Oxyna flavipennis*, b) *Oxyna nebulosa*, c) *Rhagoletis berberidis*, d) *Sphenella marginata*, e) *Tephritis bardanae*, f) *Tephritis cometa*, g) *Tephritis dioscurea*, h) *Tephritis divisa*, i) *Tephritis erdemlii*, j) *Tephritis fallax*, k) *Tephritis formosa*, l) *Tephritis hyoscyami*, m) *Tephritis. matricariae*, n) *Tephritis nigricauda*, o) *Tephritis postica*, p) *Tephritis pulchra*, q) *Tephritis recurrens*, r) *Tephritis seperata*, s) *Tephritomyia lauta*, t) *Terellia colon*, u) *Terellia gynaecochochroma*, (Scale: 1 mm).

***Tephritis cometa* (Loew, 1840); Figure 3f**

Material examined: Çorum, Bayat, Çerkeş, 40°45' N, 34°15' E, 1671 m, 26.VII.2017, 1♀, 3♂♂; Dodurga, Center, 40°48' N, 34°50' E, 983 m, 2.VII.2015, 2♂♂; İskilip, Ahlatçık, 40°46' N, 34°18' E, 1374 m, 31.VII.2017, 1♂; Kargı, Asarcıkkazıklı, 41°12' N, 34°37' E, 1458 m, 1.VII.2015, 1♀, 5♂♂; Mecitözü, Elvançelebi, 40°35' N, 35°09' E, 1025 m, 29.VI.2015, 1♂; Osmancık, Ovacıksuyu, 40°59' N, 34°40' E, 414 m, 1.VII.2015, 1♂; Sungurlu, Kamışlı, 40°07' N, 34°28' E, 1000 m, 2.VII.2017, 3♀♀.

***Tephritis dioscurea* (Loew, 1856); Figure 3g**

Material examined: Çorum, Mecitözü, Elvançelebi, 40°35' N, 35°09' E, 1025 m, 29.VI.2015, 1♀, 2♂♂.

***Tephritis divisa* Rondani, 1871; Figure 3h**

Material examined: Çorum, Center, İnalözü, 40°28' N, 34°34' E, 972 m, 31.VII.2015, 1♀, 2♂♂; Mecitözü, İbek, 40°22' N, 35°03' E, 870 m, 1.VII.2017, 1♂.

***Tephritis erdemlii* Kütük, 2008; Figure 3i**

Material examined: Çorum, Bayat, Çerkeş, 40°45' N, 34°15' E, 1671 m, 26.VII.2017, 2♂♂; Center, Konak, 40°38' N, 35°11' E, 980 m, 28.VII.2017, 4♀♀, 2♂♂; Dodurga, Kirenci, 40°49' N, 34°43' E, 968 m, 27.VII.2017, 1♂; Sinop, Durağan, Center, 41°23' N, 35°16' E, 1140 m, 28.VII.2017, 4♀♀, 1♂.

***Tephritis fallax* (Loew, 1844); Figure 3j**

Material examined: Çorum, Osmancık, Çayırköy, 40°59' N, 37°57' E, 540 m, 15.VI.2017, 5♀♀, 3♂♂; Sinop, Durağan, Aşağıkaracaören, 41°24' N, 35°05' E, 200 m, 14.VI.2017, 1♀, 1♂.

***Tephritis formosa* (Loew, 1844); Figure 3k**

Material examined: Çorum, Bayat, Kunduzlu, 40°45' N, 34°15' E, 1605 m, 26.VII.2017, 1♂; Center, Konak, 40°38' N, 35°11' E, 980 m, 28.VII.2017, 1♂.

***Tephritis hyoscyami* (Linnaeus, 1758); Figure 3l**

Material examined: Çorum, Mecitözü, İbek, 40°22' N, 35°03' E, 870 m, 1.VII.2017, 1♀, 2♂♂.

***Tephritis matricariae* (Loew, 1844); Figure 3m**

Material examined: Çorum, Center, Kadıkırı, 40°27' N, 34°51' E, 715 m, 27.VII.2015, 1♂.

***Tephritis nigricauda* (Loew, 1856); Figure 3n**

Material examined: Sinop, Durağan, Çerçiler, 41°24' N, 35°12' E, 634 m, 31.V.2016, 1♀.

***Tephritis postica* (Loew, 1844); Figure 3o**

Material examined: Çorum, Alaca, Çevreli, 40°13' N, 34°45' E, 1190 m, 28.VI.2017, 1♀; Boğazkale, Yüksekayla, 40°00' N, 34°38' E, 1193 m, 13.VI.2017, 1♀, 4♂♂; Çorum, Center, Altınbaş, 40°39' N, 34°49' E, 899 m, 1.VII.2017, 1♀; Osmancık, Çayırköy, 40°59' N, 37°57' E, 540 m, 15.VI.2017, 4♂♂; Sungurlu, Kamışlı, 40°07' N, 34°28' E, 1000 m, 2.VII.2017, 1♀, 3♂♂; Sinop, Durağan, Dağdelen, 41°26' N, 34°55' E, 247 m, 31.V.2016, 2♀♀, 4♂♂.

***Tephritis pulchra* (Loew, 1844); Figure 3p**

Material examined: Çorum, Dodurga, Center, 40°48' N, 34°50' E, 983 m, 2.VII.2015, 1♂.

***Tephritis recurrens* Loew, 1869; Figure 3q**

Material examined: Çorum, Boğazkale, Yazılıkaya, 40°01' N, 34°36' E, 1010 m, 2.VII.2017, 2♀♀, 2♂♂.

***Tephritis separata* Rondani, 1871; Figure 3r**

Material examined: Çorum, Bayat, Kunduzlu, 40°45' N, 34°14' E, 1360 m, 26.VII.2017, 1♂.

***Tephritomyia lauta* (Loew, 1869); Figure 3s**

Material examined: Çorum, Alaca, Karatepe, 40°01' N, 34°57' E, 1080 m, 27.VII.2015, 1♀; Boğazkale, Center, 40°00' N, 34°38' E, 1190 m, 25.VII.2017, 1♀, 1♂; Center, İnalözü, 40°28' N, 34°34' E, 972 m, 31.VII.2015, 1♂; Laçın, Gökgözler, 40°48' N, 34°50' E, 460 m, 2.VII.2015, 1♀; Mecitözü, İbek, 40°20' N, 35°14' E, 680 m, 28.VII.2015, 1♂; Osmancık, Çayırköy, 40°59' N, 37°57' E, 540 m, 15.VI.2017, 1♀; Sinop, Boyabat, Gökçeagaçsakızı, 41°36' N, 34°35' E, 462 m, 14.VI.2017, 2♀♀; Durağan, Dağdelen, 41°26' N, 34°55' E, 247 m, 31.V.2016, 3♀♀, 4♂♂.

***Terellia colon* (Meigen, 1826); Figure 3t**

Material examined: Çorum, Alaca, Çevreli, 40°13' N, 34°45' E, 1190 m, 28.VI.2017, 1♂.

***Terellia gynaecochroma* (Hering, 1937); Figure 3u**

Material examined: Çorum, Boğazkale, Yazılıkaya, 40°01' N, 34°36' E, 1010 m, 2.VII.2017, 2♀♀; İskilip, Elmalı, 40°46' N, 34°21' E, 1044 m, 26.VII.2017, 15♀♀, 29♂♂; Sungurlu, Çavuş, 40°19' N, 34°48' E, 863 m, 27.VI.2016, 3♀♀, 5♂♂; Sinop, Dikmen, Center, 41°40' N, 35°17' E, 140 m, 1.VII.2015, 1♀.

***Terellia ivannikovi* Korneyev et al., 2013; Figure 4a**

Material examined: Çorum, Bayat, Karatepe, 40°74' N, 34°28' E, 1681 m, 25.VII.2018, 3♀♀, 3♂♂.

***Terellia luteola* (Wiedemann, 1830); Figure 4b**

Material examined: Çorum, Alaca, Çevreli, 40°13' N, 34°45' E, 1190 m, 28.VI.2017, 6♀♀, 5♂♂; Boğazkale, Yazılıkaya, 40°01' N, 34°36' E, 1010 m, 2.VII.2017, 7♀♀, 3♂♂; Center, Seydim, 40°32' N, 34°44' E, 1216 m, 31.VII.2015, 1♂; Dodurga, Dikenli, 40°49' N, 34°41' E, 1019 m, 2.VII.2015, 1♂; Laçın, Berk, 40°48' N, 34°50' E, 438 m, 2.VII.2015, 6♀♀, 11♂♂; Osmancık, Ovacıksuyu, 40°59' N, 34°40' E, 414 m, 1.VII.2015, 4♀♀, 4♂♂; Sungurlu, Kamışlı, 40°07' N, 34°28' E, 1000 m, 2.VII.2017, 21♀♀, 16♂♂; Sinop, Durağan, Dağdelen, 41°26' N, 34°55' E, 247 m, 31.V.2016, 4♀♀, 2♂♂.

***Terellia nigripalpis* Hendel, 1927; Figure 4c**

Material examined: Sinop, Center, Ada, 42°02' N, 35°10' E, 81 m, 1.VII.2015, 2♀♀, 2♂♂.

***Terellia ruficauda* (Fabricius, 1794); Figure 4d**

Material examined: Çorum, Boğazkale, Yazılıkaya, 40°01' N, 34°36' E, 1010 m, 2.VII.2017, 2♀♀; Boğazkale, Yüksekayla, 40°00' N, 34°38' E, 1193 m, 13.VI.2017, 3♀♀, 3♂♂; Center, Sıklık, 40°34' N, 35°00' E, 960 m, 29.VI.2015, 2♀♀, 2♂♂; Sungurlu, Kamışlı, 40°07' N, 34°28' E, 1000 m, 2.VII.2017, 37♀♀, 43♂♂; Sinop, Boyabat, Doğanburnu, 41°60' N, 34°86' E, 908 m, 28.VI.2016, 3♀♀, 2♂♂.

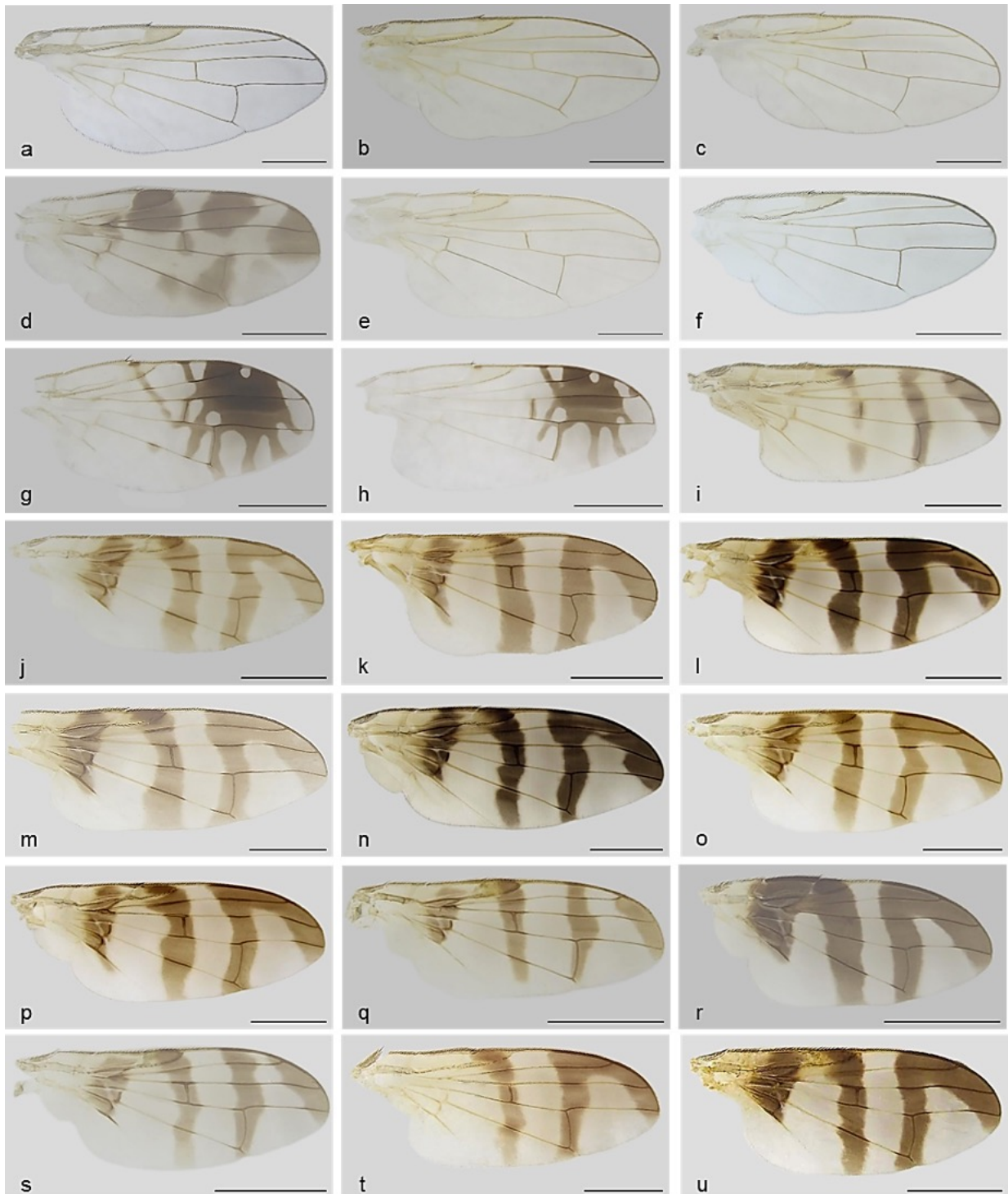


Figure 4. Wings of fruit fly species: a) *Terellia ivannikovi*, b) *Terellia luteola*, c) *Terellia nigripalpis*, d) *Terellia ruficauda*, e) *Terellia serratulae*, f) *Terellia virens*, g) *Trupanea amoena*, h) *Trupanea stellata*, i) *Urophora affinis*, j) *Urophora aprica*, k) *Urophora congrua*, l) *Urophora cuspidata*, m) *Urophora eriolepidis*, n) *Urophora jaceana*, o) *Urophora macrura*, p) *Urophora mauritanica*, q) *Urophora phalolepidis*, r) *Urophora quadrifasciata*, s) *Urophora solstitialis*, t) *Urophora stylata*, u) *Urophora terebrans*, (Scale: 1 mm).

***Terellia serratulae* (Linnaeus, 1758); Figure 4e**

Material examined: Çorum, Alaca, İshacı, 40°09' N, 34°55' E, 965 m, 27.VII.2015, 6♀♀, 7♂♂; Bayat, Çerkeş, 40°45' N, 34°15' E, 1671 m, 26.VII.2017, 4♀♀, 12♂♂; Boğazkale, Yüksekayla, 40°00' N, 34°38' E, 1193 m, 13.VI.2017, 34♀♀, 45♂♂; Center, Çatak, 40°41' N, 34°50' E, 1185 m, 20.VIII.2017, 25♀♀, 33♂♂; Dodurga, Kirenci, 40°49' N, 34°43' E, 968 m, 27.VII.2017, 3♀♀, 9♂♂; İskilip, Ahlatçık, 40°46' N, 34°18' E, 1374 m, 31.VII.2017, 2♀♀, 1♂; Kargı, Asarcıkazıklı, 41°11' N, 34°36' E, 1468 m, 17.VIII.2017, 7♀♀, 5♂♂; Laçın, Kırkdilim, 40°43' N, 34°53' E, 1050 m, 1.VII.2015, 2♀♀, 6♂♂; Mecitözü, İbek, 40°20' N, 35°14' E, 680 m, 28.VII.2015, 9♀♀, 13♂♂; Osmancık, Çayırköy, 40°59' N, 37°57' E, 540 m, 15.VI.2017, 2♀♀, 4♂♂; Sinop, Ayancık, Gökçukur, 41°39' N, 34°40' E, 866 m, 17.VIII.2017, 2♀♀, 2♂♂; Boyabat, Doğanburnu, 41°60' N, 34°86' E, 908 m, 28.VI.2016, 6♀♀, 4♂♂; Dikmen, Yenikent, 41°44' N, 35°13' E, 275 m, 1.VII.2015, 7♀♀, 12♂♂; Durağan, Center, 41°23' N, 35°16' E, 1140 m, 28.VII.2017, 44♀♀, 67♂♂; Erfelek, Gökçebel, 41°52' N, 34°46' E, 678 m, 30.VII.2015, 1♀, 4♂♂; Saraydüzü, Bahçeköy, 41°20' N, 34°48' E, 492 m, 17.VIII.2017, 1♀, 2♂♂.

***Terellia virens* (Loew, 1846); Figure 4f**

Material examined: Çorum, Boğazkale, Yüksekayla, 40°00' N, 34°38' E, 1193 m, 13.VI.2017, 7♀♀, 10♂♂; Center, Çatak, 40°41' N, 34°50' E, 1185 m, 20.VIII.2017, 2♀♀, 3♂♂; Kargı, Asarcıkazıklı, 41°11' N, 34°36' E, 1468 m, 17.VIII.2017, 2♀♀, 1♂; Sinop, Ayancık, Gökçukur, 41°39' N, 34°40' E, 866 m, 17.VIII.2017, 1♂; Durağan, Center, 41°23' N, 35°16' E, 1140 m, 28.VII.2017, 8♀♀, 11♂♂.

***Trupanea amoena* (Frauenfeld, 1857); Figure 4g**

Material examined: Çorum, Center, İnalözü, 40°28' N, 34°34' E, 972 m, 31.VII.2015, 1♀, 1♂; Sungurlu, Kula, 40°28' N, 34°08' E, 526 m, 26.VII.2017, 1♂; Sinop, Center, Ahmetyeri, 41°49' N, 35°02' E, 165 m, 1.VII.2015, 1♂.

***Trupanea stellata* (Fuesslin, 1775); Figure 4h**

Material examined: Çorum, Center, Seydim, 40°32' N, 34°44' E, 1216 m, 31.VII.2015, 2♀♀; Sungurlu, Kamışlı, 40°07' N, 34°28' E, 1000 m, 2.VII.2017, 1♀.

***Urophora affinis* (Frauenfeld, 1857); Figure 4i**

Material examined: Çorum, Alaca, Çevreli, 40°13' N, 34°45' E, 1190 m, 28.VI.2017, 2♂♂; Boğazkale, Yüksekayla, 40°00' N, 34°38' E, 1193 m, 13.VI.2017, 1♀; Center, Kadıkırı, 40°27' N, 34°51' E, 715 m, 27.VII.2015, 1♀; Dodurga, Dikenli, 40°49' N, 34°41' E, 1019 m, 2.VII.2015, 3♂♂; Laçın, Berk, 40°48' N, 34°50' E, 438 m, 2.VII.2015, 1♀; Mecitözü, Emirbağı, 40°24' N, 35°13' E, 640 m, 28.VII.2015, 3♀♀, 2♂♂; Ortaköy, Totali, 40°25' N, 35°23' E, 973 m, 1.VII.2017, 1♀, 1♂; Osmancık, Çayırköy, 40°59' N, 37°57' E, 540 m, 15.VI.2017, 2♀♀, 4♂♂; Sungurlu, Turgutlu, 40°10' N, 34°09' E, 635 m, 13.VI.2017, 18♀♀, 44♂♂; Uğurludağ, Boztepe, 40°41' N, 34°28' E, 636 m, 13.VI.2017, 5♂♂; Sinop, Boyabat, Gökçeağaçsakızı, 41°36' N, 34°35' E, 462 m, 14.VI.2017, 4♀♀, 8♂♂; Center, Melekşah, 41°52' N, 35°03' E, 171 m, 31.V.2016, 3♀♀, 2♂♂; Dikmen, Hacıselli, 41°41' N, 35°17' E, 331 m, 1.VII.2015, 4♂♂; Durağan, Aşağıkaracaören, 41°24' N, 35°05' E, 200 m, 14.VI.2017, 2♀♀, 3♂♂; Erfelek, İnesökü, 41°54' N, 34°54' E, 228 m, 31.V.2016, 3♂♂; Erfelek, Veysel, 41°54' N, 34°57' E, 83 m, 1.VII.2015, 1♀; Gerze, Belören, 41°49' N, 35°09' E, 84 m, 1.VII.2015, 2♂♂.

***Urophora aprica* (Fallen, 1814); Figure 4j**

Material examined: Çorum, Alaca, Çevreli, 40°13' N, 34°45' E, 1190 m, 28.VI.2017, 2♀♀, 4♂♂; Bayat, Çerkeş, 40°45' N, 34°15' E, 1671 m, 26.VII.2017, 1♂; Boğazkale, Yazılıkaya, 40°01' N, 34°36' E, 1010 m, 2.VII.2017, 5♀♀, 7♂♂; İskilip, Ahlatçık, 40°46' N, 34°18' E, 1374 m, 31.VII.2017, 3♂♂; Laçın, Çamlıca, 40°43' N, 34°55' E, 470 m, 1.VI.2016, 1♀; Mecitözü, İbek, 40°22' N, 35°03' E, 870 m, 1.VII.2017,

1♂; Sungurlu, Kamışlı, 40°07' N, 34°28' E, 1000 m, 2.VII.2017, 3♀♀, 3♂♂; Sinop, Durağan, Center, 41°23' N, 35°16' E, 1140 m, 28.VII.2017, 5♀♀, 29♂♂.

***Urophora congrua* Loew, 1862; Figure 4k**

Material examined: Sinop, Durağan, Center, 41°23' N, 35°16' E, 1140 m, 28.VII.2017, 3♀♀.

***Urophora cuspidata* (Meigen, 1826); Figure 4l**

Material examined: Çorum, Alaca, İsaahacı, 40°09' N, 34°55' E, 965 m, 27.VII.2015, 2♀♀, 2♂♂; Bayat, Çerkeş, 40°45' N, 34°15' E, 1671 m, 26.VII.2017, 2♂♂; Boğazkale, Yüksekayla, 40°00' N, 34°38' E, 1193 m, 13.VI.2017, 2♀♀, 4♂♂; Center, Büyükçayır, 40°34' N, 35°24' E, 713 m, 29.V.2016, 4♀♀, 7♂♂; Dodurga, Kirenci, 40°49' N, 34°43' E, 968 m, 27.VII.2017, 1♂; İskilip, Ahlatçık, 40°46' N, 34°18' E, 1374 m, 31.VII.2017, 1♀, 3♂♂; Laçın, Çamlıca, 40°43' N, 34°55' E, 470 m, 1.VI.2016, 4♀♀, 3♂♂; Mecitözü, Beyözü, 40°34' N, 35°16' E, 985 m, 28.VII.2015, 5♀♀, 4♂♂; Ortaköy, Totali, 40°25' N, 35°23' E, 973 m, 1.VII.2017, 1♀, 2♂♂; Osmancık, Çayırköy, 40°59' N, 37°57' E, 540 m, 15.VI.2017, 1♂; Sungurlu, Kamışlı, 40°07' N, 34°28' E, 1000 m, 2.VII.2017, 2♀♀, 1♂; Sinop, Boyabat, Koçak, 41°36' N, 34°38' E, 350 m, 16.VI.2017, 1♀, 5♂♂; Dikmen, Center, 41°40' N, 35°17' E, 140 m, 1.VII.2015, 1♂; Durağan, Center, 41°23' N, 35°16' E, 1140 m, 28.VII.2017, 14♀♀, 23♂♂; Gerze, Belören, 41°49' N, 35°09' E, 84 m, 1.VII.2015, 1♀, 5♂♂.

***Urophora eriolepidis* (Loew, 1856); Figure 4m**

Material examined: Çorum, Sungurlu, Şekerhacılı, 40°09' N, 34°34' E, 1430 m, 28.VI.2017, 1♂.

***Urophora jaceana* (Hering, 1935); Figure 4n**

Material examined: Çorum, Alaca, Çevreli, 40°13' N, 34°45' E, 1190 m, 28.VI.2017, 1♀, 2♂♂; Boğazkale, Yüksekayla, 40°00' N, 34°38' E, 1193 m, 13.VI.2017, 4♀♀, 8♂♂; Center, Büyükçayır, 40°34' N, 35°24' E, 713 m, 29.V.2016, 3♀♀, 2♂♂; İskilip, Ahlatçık, 40°46' N, 34°18' E, 1374 m, 31.VII.2017, 1♀; Laçın, Çamlıca, 40°43' N, 34°55' E, 470 m, 1.VI.2016, 4♂♂; Mecitözü, Center, 40°31' N, 35°17' E, 810 m, 29.VI.2015, 1♀, 1♂; Osmancık, Öbektaş, 41°03' N, 34°59' E, 1154 m, 15.VI.2017, 1♂; Sungurlu, Kamışlı, 40°07' N, 34°28' E, 1000 m, 2.VII.2017, 1♀, 3♂♂; Sinop, Durağan, Center, 41°23' N, 35°16' E, 1140 m, 28.VII.2017, 1♀, 1♂.

***Urophora macrura* (Loew, 1855); Figure 4o**

Material examined: Sinop, Center, 42°01' N, 35°08' E, 20 m, 30.VII.2015, 1♂.

***Urophora mauritanica* Macquart, 1851; Figure 4p**

Material examined: Sinop, Durağan, Center, 41°23' N, 35°16' E, 1140 m, 28.VII.2017, 1♂.

***Urophora phalolepidis* Merz & White, 1991; Figure 4q**

Material examined: Çorum, Alaca, Çevreli, 40°13' N, 34°45' E, 1190 m, 28.VI.2017, 1♀; Boğazkale, Yüksekayla, 40°00' N, 34°38' E, 1193 m, 13.VI.2017, 5♂♂; Center, Büyükçayır, 40°34' N, 35°24' E, 713 m, 29.V.2016, 2♂♂; Mecitözü, Koloğlu, 40°34' N, 35°26' E, 625 m, 2.V.2016, 2♂♂; Osmancık, Çayırköy, 40°59' N, 37°57' E, 540 m, 15.VI.2017, 2♂♂; Sinop, Durağan, Center, 41°23' N, 35°16' E, 1140 m, 28.VII.2017, 1♀, 1♂.

***Urophora quadrifasciata* (Meigen, 1826); Figure 4r**

Material examined: Çorum, Alaca, İsaahacı, 40°09' N, 34°55' E, 965 m, 27.VII.2015, 1♀; Center, Seydim, 40°32' N, 34°44' E, 1216 m, 31.VII.2015, 1♂; Laçın, Kavaklıçiftlik, 40°47' N, 34°53' E, 504 m, 2.VII.2015, 1♂; Mecitözü, Emirbağı, 40°24' N, 35°13' E, 640 m, 28.VII.2015, 4♀♀, 5♂♂; Sungurlu, Kamışlı, 40°07' N, 34°28' E, 1000 m, 2.VII.2017, 1♂; Sinop, Durağan, Center, 41°23' N, 35°16' E, 1140 m, 28.VII.2017, 2♂♂.

***Urophora solstitialis* (Linnaeus, 1758); Figure 4s**

Material examined: Çorum, Boğazkale, Yüksekayla, 40°00' N, 34°38' E, 1193 m, 13.VI.2017, 1♀, 10♂♂; Center, Büyükçayır, 40°34' N, 35°24' E, 713 m, 29.V.2016, 4♂♂; Uğurludağ, Boztepe, 40°41' N, 34°28' E, 636 m, 13.VI.2017, 1♂; Sinop, Boyabat, Koçak, 41°36' N, 34°38' E, 350 m, 16.VI.2017, 2♂♂; Center, Melekşah, 41°52' N, 35°03' E, 171 m, 31.V.2016, 1♂; Dikmen, Yenikent, 41°44' N, 35°13' E, 275 m, 1.VII.2015, 1♂; Durağan, Dağdelen, 41°26' N, 34°55' E, 247 m, 31.V.2016, 1♀, 1♂.

***Urophora stylata* (Fabricius, 1775); Figure 4t**

Material examined: Çorum, Alaca, Çevreli, 40°13' N, 34°45' E, 1190 m, 28.VI.2017, 2♀♀; Boğazkale, Hattuşa, 40°01' N, 34°37' E, 1019 m, 16.VIII.2017, 7♂♂; Center, Konak, 40°38' N, 35°11' E, 980 m, 28.VII.2017, 4♀♀, 10♂♂; Dodurga, Kirenci, 40°49' N, 34°43' E, 968 m, 27.VII.2017, 5♂♂; İskilip, Ahlatçık, 40°46' N, 34°18' E, 1374 m, 31.VII.2017, 2♀♀, 1♂; Kargı, Asarcıkazıklı, 41°12' N, 34°37' E, 1458 m, 1.VII.2015, 3♂♂; Laçın, Çamlıca, 40°43' N, 34°55' E, 470 m, 1.VI.2016, 1♂; Mecitözü, Koloğlu, 40°34' N, 35°26' E, 625 m, 2.V.2016, 2♀♀, 8♂♂; Osmancık, Öbektası, 41°03' N, 34°59' E, 1154 m, 15.VI.2017, 1♀, 4♂♂; Sungurlu, Kula, 40°28' N, 34°08' E, 526 m, 26.VII.2017, 1♀, 4♂♂; Sinop, Boyabat, Kuzveren, 41°26' N, 34°49' E, 403 m, 1.VII.2015, 2♂♂; Center, Melekşah, 41°52' N, 35°03' E, 171 m, 31.V.2016, 1♀, 1♂; Dikmen, Yenikent, 41°44' N, 35°13' E, 275 m, 1.VII.2015, 1♀; Durağan, Aşağıkaracaören, 41°24' N, 35°05' E, 200 m, 14.VI.2017, 1♀; Erfelek, Hasandere, 41°52' N, 34°56' E, 305 m, 30.VII.2015, 2♀♀, 13♂♂.

***Urophora terebrans* (Loew, 1850); Figure 4u**

Material examined: Çorum, Bayat, Çerkeş, 40°45' N, 34°15' E, 1671 m, 26.VII.2017, 1♂; Boğazkale, Yüksekayla, 40°00' N, 34°38' E, 1193 m, 13.VI.2017, 3♂♂; Mecitözü, İbek, 40°20' N, 35°14' E, 680 m, 28.VII.2015, 1♂; Sungurlu, Yörüklü, 40°18' N, 34°15' E, 695 m, 13.VI.2017, 1♀; Sinop, Center, Demirciköy, 41°55' N, 35°04' E, 12 m, 1.VII.2015, 1♀, 4♂♂; Durağan, Center, 41°23' N, 35°16' E, 1140 m, 28.VII.2017, 2♀♀, 1♂.

***Xyphosia miliaria* (Schrank, 1781); Figure 5**

Material examined: Çorum, Bayat, Kunduzlu, 40°45' N, 34°14' E, 1360 m, 26.VII.2017, 2♀♀, 9♂♂; Boğazkale, Hattuşa, 40°10' N, 34°37' E, 1070 m, 25.VII.2017, 8♂♂; Center, Konak, 40°38' N, 35°11' E, 980 m, 28.VII.2017, 2♀♀, 13♂♂; Dodurga, Kirenci, 40°49' N, 34°43' E, 968 m, 27.VII.2017, 1♂; İskilip, Elmalı, 40°46' N, 34°21' E, 1044 m, 26.VII.2017, 1♂; Kargı, Asarcıkazıklı, 41°11' N, 34°36' E, 1468 m, 17.VIII.2017, 7♂♂; Sungurlu, Kula, 40°28' N, 34°08' E, 526 m, 26.VII.2017, 1♀, 1♂; Sinop, Ayancık, Gökçukur, 41°39' N, 34°40' E, 866 m, 17.VIII.2017, 2♂♂; Durağan, Dağdelen, 41°26' N, 34°55' E, 247 m, 31.V.2016, 1♂; Erfelek, Hasandere, 41°52' N, 34°56' E, 305 m, 30.VII.2015, 1♂.



Figure 5. Wing of *Xyphosia miliaria*, (Scale: 1 mm).

Discussion

Fruit flies, Tephritidae, are one of the most important families of the Diptera including 4716 species (Pape et al., 2011). Some species of fruit flies damage fruits and have economic importance. In this study, we determined the fruit fly fauna of Çorum and Sinop Provinces based on specimens collected between 2015 and 2018. As a result of the study, 66 species belonging to 24 genera from five subfamilies of

Tephritidae were determined. The genus *Acidia* as well as the species *A. cognata* and *C. wiedemanni* were determined as new records for the fauna of Turkey. Consequently, the number of fruit flies in Turkey has increased to 38 genera and 169 species.

Çorum and Sinop are adjacent provinces located between the Black Sea Region and Central Anatolia Region of Turkey. Fifty-nine fruit fly species were identified from Çorum Province and 39 from Sinop Province. Çorum Province is richer in species diversity than Sinop Province, possibly because Çorum is under the influence of the Black Sea climate in north and the Central Anatolia climate in south, while Sinop is only under the influence of the Black Sea climate.

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