

Some new records for Diptera fauna of Turkey and additional notes on the dipterous fauna of cherry orchards

Hasan Sungur CİVELEK*

Serdar TEZCAN**

Summary

This study was carried out in cherry orchards in Izmir and Manisa provinces of Turkey in 1998. Five species namely, *Pollenia labialis* Robineau-Desvoidy, 1863 (Calliphoridae), *Elachiptera bimaculata* (Loew, 1845) (Chloropidae), *Eudasyphora cyanella* (Meigen, 1826) (Muscidae), *Sarcophaga lasiostyla* Macquart, 1843 (Sarcophagidae) and *Physiphora demandata* (Fabricius, 1798) (Ulidiidae) belonging to Diptera were collected by bait traps, pitfall traps and sweeping of undergrowth in cherry orchards and those are new records for the Turkish fauna.

Key words: Diptera, new records, cherry, Turkey

Anahtar sözcükler: Diptera, yeni kayıtlar, kiraz, Türkiye

Introduction

The Diptera is one of the most abundant orders, consisting of approximately 120.000 species belonging to 4 suborders and 188 families (Thompson & Fairman, 1999). These insects are a major component of virtually all non-marine ecosystems; only the arctic and antarctic ice caps are without flies. In addition to being a large order, flies are also of great economic importance. Some studies on the Turkish Diptera fauna have been carried out by Giray (1966, 1979, 1981), Hayat & Alaoğlu (1990), Kılıç (1992, 1996, 2004), Hayat & Özbek (1994),

* Wood Entomology Laboratory, Faculty of Technical Education, Mugla University, 48000 Kötekli, Mugla, Turkey
e-mail: chasan@mu.edu.tr

** Department of Plant Protection, Faculty of Agriculture, Ege University, 35100, Bornova, Izmir, Turkey
e-mail: tezcans@ziraat.ege.edu.tr
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Campobasso et al. (1999), Çıkman & Uygun (2003), Kara (1999 a, b), Civelek et al. (2000), Kütük & Özgür (2003), Civelek (2004).

In recent studies (Ulu et al., 1995; Özbek et al., 1996; Ulusoy et al., 1999 and Özder, 1999) the insect fauna of Turkish cherry orchards has been evaluated. Among those *Rhagoletis cerasi* (Linnaeus) (Diptera: Tephritidae) is a common and key pest in Turkish cherry orchards and there is not any detailed study for other species of Diptera in Turkey.

The aim of this study is to give some additional data for both Turkish Diptera fauna and also for the fauna of cherry orchards.

Material and Methods

Material was collected in two ecologically managed orchards in Muradiye (Manisa, 38°39' N / 27°20' E) and Ören (İzmir-Kemalpaşa, 38°28' N / 27°36' E) mainly by bait traps (BT) in 1998.

In each orchard a total of nine bait traps containing 100 ml wine, 900 ml water, 25 gr sugar and 25 ml vinegar per liter (Ulu et al., 1995) were hung and the traps were emptied at two-week intervals from the mid April to the end of December 1998.

Material were also collected by pitfall traps (PT). Pitfall traps consisted of 250 ml cups buried in the soil in such a way that the lip of the trap was at ground level. They were half filled with ethylene glycol and water mixture as 1:1 ratio. Three traps were used in each orchard during the period between April and December 1998. The traps were cleared in two weeks intervals.

Sweeping of the undergrowth vegetation by sweeping net (SN) (the whole area of each orchard, 50 sweeping movements) is the third method for collecting insects and was repeated at one-week intervals.

All the material collected in this work was determined by Dr. John Deeming (National Museum and Galleries of Wales, Cardiff, UK) and is deposited in the collection of Lodos Entomological Museum, Izmir, Turkey (LEMT) and Wood Entomology Laboratory of Technical Education Faculty of Muğla University, Turkey.

Results

In this study, 5 species belonging to five families of Diptera were recorded as new record for Turkish fauna.

Calliphoridae

Pollenia labialis Robineau-Desvoidy, 1863

Host: The larvae are predators of earthworms (Annelida: Lumbricidae) (Byers, 1992).

Distrubition: Widely distributed in Europe (Denmark, Finland, Germany, UK, Russia, Sweden) and Washington (USA) (Hackman, 1980; Szpila, 2003).

Material examined: Muradiye: 13.VI.1998, BT, (157); PT, (1); 17.VII.1998, BT, (49); PT, (1); 31.VII.1998, BT, (18); PT, (1); 14.VIII.1998, BT, (58); 28.VIII.1998, BT, (39); 09.XI.1998, SN, (1). **Ören:** 13.VI.1998, BT, (19); 17.VII.1998, BT, (33); PT, (1); 31.VII.1998, BT, (34); 14.VIII.1998, BT, (19); PT, (1); 28.VIII.1998, BT, (52); PT, (1). Totally 485 specimens.

Chloropidae

Elachiptera bimaculata (Loew, 1845)

Host: Grass-feeding fly (Beschovski & Krusteva, 1998).

Distribution: Palaearctic. Widespread in the Mediterranean and extending into Arabia (Meier et al., 2002).

Material examined: Muradiye: 13.VI.1998, BT, (4); 26.VI.1998, SN, (1); 03.VII.1998, SN, (2); 17.VII.1998, BT, (3); 23.XI.1998, SN, (2). **Ören:** 17.VII.1998, BT, (4); SN, (1); 31.VII.1998, BT, (1). Totally 18 specimens.

Muscidae

Eudasyphora cyanella (Meigen, 1826)

Host: Breeds in cattle dung. Adults overwinter and are among those flies which sometimes come indoors to do so and are collectively known as “cluster flies” (Rozkošni et al., 2002).

Distribution: Widespread in Europe (Czech Republic, Sweden, Greece, UK) (Rozkošni et al., 2002).

Material examined: Muradiye: 13.VI.1998, BT, (71); 17.VII.1998, BT, (18); 31.VII.1998, BT, (24); 14.VIII.1998, BT, (12); 28.VIII.1998, BT, (12). **Ören:** 13.VI.1998, BT, (6); 17.VII.1998, BT, (10); 31.VII.1998, BT, (6); 14.VIII.1998, BT, (6); 28.VIII.1998, BT, (17). Totally 182 specimens.

Sarcophagidae

Sarcophaga lasiostyla Macquart, 1843

Host: The larvae are predators of earthworms (Annelida: Lumbricidae) (Pape, 1987).

Distrubition: Widely distributed in Europe, North Africa, Central Asia and Saudi Arabia (Amoudi, 1993).

Material examined: Muradiye: 13.VI.1998, BT, (155); 17.VII.1998, BT, (90); 31.VII.1998, BT, (201); 14.VIII.1998, BT, (87); 21.VIII.1998, BT, (34); 28.VIII.1998, BT, (155). **Ören:** 13.VI.1998, BT, (29); 17.VII.1998, BT, (78);

31.VII.1998, BT, (47); 14.VIII.1998, BT, (36); 28.VIII.1998, BT, (74). Totally 986 specimens.

Ulidiidae

Physiphora demandata (Fabricius, 1798)

Host: This species has been reared from wounds in date palm and feedlots and dairies. ***P. demandata*** has been observed coaxing honeydew from aphids on burdock with its forelegs (Sivinski, 1997).

Distribution: Widespread in Eurasia, Africa, Arabia, Italy, UK and also Colorado, Hawaii, Wisconsin, Nearctic region (Sivinski, 1997).

Material examined: Muradiye: 13.VI.1998, BT, (68); 10.VII.1998, BT, (112); 31.VII.1998, BT, (32); 14.VIII.1998, BT, (10). **Ören:** 10.VII.1998, BT, (5); 31.VII.1998, BT, (1); 14.VIII.1998, BT, (7); 21.VIII.1998, SN, (1). Totally 236 specimens.

Discussion

A total of 1907 specimens of 5 new record species for the Turkish fauna was collected in this study. Using bait traps (BT) 1893 specimens (99.27%) belonging to 5 species were collected, 8 specimens (0.42%) belonging to 3 species (***Pollenia labialis***, ***Elachiptera bimaculata***, ***Physiphora demandata***) were collected by sweeping net (SN) and 6 specimens (0.32 %) belonging to 1 species (***Pollenia labialis***) were collected by pitfall traps (PT). Bait traps were the most effective method for collecting the dipterous insects in cherry orchards. The number of species found only at Muradiye was 2 and the number found at both Muradiye and Ören was 5. The dominant species were ***Sarcophaga lasiostyla*** (986) and ***Pollenia labialis*** (485); and ***Elachiptera bimaculata*** (18) was more rare than the others. Most of the species were of predaceous habit, while a few species were saprophagous or phytophagous.

In addition to the above mentioned five species, another five species, namely, ***Chrysomya albiceps*** (Wiedemann, 1819) (Calliphoridae) (63 specimens), ***Thaumatomyia notata*** (Meigen, 1830) (Chloropidae) (4 specimens), ***Coenosia attenuata*** Stein, 1902 (5 specimens) (Muscidae) and ***Fannia canicularis*** (Linnaeus, 1761) (22 specimens) (Fanniidae) and ***Eupeodes (=Metasyrphus) corollae*** (Fabricius, 1794) (Syrphidae) (8 specimens) have been determined in this study, but they were known previously from the Turkish fauna. In the light of these results, some observations and the role of dipterous insects in cherry orchards should be planned in further studies.

Özet

Türkiye Diptera faunası için bazı yeni kayıtlar ve kiraz bahçelerinin Diptera faunası üzerine ek notlar

Bu çalışma 1998 yılında İzmir ve Manisa İllerinde ekolojik kiraz bahçelerinde gerçekleştirilmiş ve ***Pollenia labialis*** Robineau-Desvoidy, 1863 (Calliphoridae), ***Elachiptera***

bimaculata (Loew, 1845) (Chloropidae), *Eudasyphora cyanella* (Meigen, 1826) (Muscidae), *Sarcophaga lasiostyla* Macquart, 1843 (Sarcophagidae) ve *Physiphora demandata* (Fabricius, 1798) (Ulidiidae) türlerinin Türkiye faunası için yeni kayıt olduğu ortaya konmuştur.

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