www.biodicon.com Biological Diversity and Conservation

ISSN 1308-8084 Online; ISSN 1308-5301 Print 11/3 (2018) 141-144

Research article/Araştırma makalesi

Some additional notes on fruit fly (Diptera: Tephritidae) fauna and a new genera and species record from Turkey

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Abstract

The study was based on the fruit fly samples which were obtained different regions in Turkey between years of 2003 and 2016. Materials collected using insect net and killed in the jar. In the study, *Ictericodes zelleri* (Loew 1844) was recorded for the first time from Turkey. New localities reported for 12 species of fruit fly for fauna of Turkey. Also, wing figures and zoogeographic distribution of each species were presented in the paper.

Key words: *Ictericoides zelleri*, Fruit flies, Tephritidae, Fauna, Turkey

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Türkiye'den yeni bir cins ve tür kaydı ve meyve sinekleri (Diptera: Tephritidae) faunası üzerine bazı ilave notlar

Özet

Bu çalışma Türkiye'nin farklı bölgelerinden 2003 ve 2016 yılları arasında elde edilen meyve sineği örneklerine dayanmaktadır. Örnekler atrap kullanılarak toplandı ve öldürme şişesinde öldürüldü. Çalışmada, *Ictericodes zelleri* (Loew 1844) Türkiye'den ilk kez kaydedilmiştir. Türkiye meyve sineği faunası için 12 türün yeni lokaliteleri bildirildi. Ayrıca, makalede her bir türün zoocoğrafik yayılışları ve kanat resimleri sunulmuştur.

Anahtar kelimeler: *Ictericoides zelleri*, Meyve sinekleri, Tephritidae, Fauna, Türkiye

1. Introduction

The family Tephritidae, includes about 4792 described species in 497 genera. The larvae of most species develop in the seed-bearing organs of plants, including many commercially grown soft fruits and fruit-vegetables (*e.g.* cucumber, tomato) (White, 2006; Pape et al., 2011). According to Freidberg and Kugler (1989), species of subfamily Tephritinae larvae develop in family Asteraceae and some species cause serious damages on plants. Genus *Centaurea* L. is one of the largest genera of the family Asteraceae (Ranjbar et al., 2012). Some larvae of fruit flies develop in species of *Centaurea* and damage the plants.

Giray (1979) presented first checklist of fruit flies in Turkey. According to this checklist, 51 fruit flies species were distributed in our country. Up to date, many researchers described a lot of new species or new records from Turkey. Finally, Yaran and Kütük (2016) reported 160 species of fruit fly are distributed in Turkey.

Main purpose of this study is to provide new contributions to the fruit flies fauna of Turkey. Wing figures and zoogeographic distribution of each species presented in this paper.

2. Materials and methods

Samples of fruit flies were collected randomly from host plants using insect net. After the collection, materials killed in ethyl acetate killing jars in various locations of Turkey between 2003 and 2016. The obtained fruit flies were brought to the laboratory and preaparated standard museum methods. Thus all the specimens were made ready for the

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identification of the species. Samples were identified by using the keys of Freidberg and Kugler (1989), Hendel (1927), Merz (1994), Korneyev and White (1993 and 1999), Korneyev (2003, 2006), Kütük (2006) and White (1988). Species were stored in the insect laboratory of Gaziantep University.

3. Results

In the paper, 12 species of fruit flies have been given which were collected different region of Turkey. *Ictericodes zelleri* (Loew 1844) was recorded for the first time from Turkey. Species were given alphabetically order in the below.

3.1. *Acinia biflexa* (Loew 1844)

Specimens Examined: Iğdır, Tuzluca, 40° 03' N, 43° 39' E, 1122 m, 06.7.2009, 1 ♀, 2 ♂♂, (M. Kütük & M. Yaran).
Distribution : Albania, Austria, Czech Republic, Belgium, French mainland, Hungary, Germany, Moldova, Poland, Slovakia, Russia, Ukraine and East Palearctic (www.faunaeur.org).

3.2. *Ceratitis capitata* (Wiedemann 1824)

Specimens Examined: Gazianep, Şehitkamil, İbrahimli Village, 37° 07' N, 36° 62' E, 870 m, 07.05.2014, 2 ♀♀, 1 ♂; İslahiye, Türkbahçe Village, 37° 04' N, 36° 37' E, 519 m, 20.09.2016, 12 ♀♀, 15 ♂, (M. Kütük & M. Yaran).
Distribution: Most of Europe, Australian Region, Afro-Tropical Region, Near East, Neotropical Region, Nearctic Region, North Africa and Oriental Region (www.faunaeur.org).

3.3. *Heringina guttata* (Fallen 1814)

Specimens Examined: Gümüşhane, Centrum, 40° 21' N, 39° 23' E, 1857 m, 18.06.2003, 1 ♂; Trabzon, Çaykara, 40° 35' N, 40° 17' E, 2000 m, 17.06.2003, 1 ♀; Giresun, Şebinkarahisar, 40° 26' N, 38° 23' E, 2000 m, 18.06.2003, 1 ♀, (M. Kütük).
Distribution: Czech Republic, Danish mainland, Germany, Finland, Hungary, Sweden, Lithuania, Netherlands, Poland, The Ukraine, East Palearctic and Near East (www.faunaeur.org).

3.4. *Ictericoides zelleri* (Loew 1844)

Specimens Examined: Dissected material; Bayburt, Kop Mountain, 40° 01' N, 40° 30' E, 2400 m, 08.07.2009, 1 ♀; Bayburt, Kop Mountain, 40° 01' N, 40° 30' E, 2400 m, 08.07.2009, 1 ♂ (M. Kütük & M. Yaran).
Distribution: Austria, Czech Republic, Danish mainland, Germany, Hungary, French mainland, Italian mainland, Lithuania, Poland, Slovakia, Switzerland and Near East (www.faunaeur.org).

- The genus *Ictericoides* and *Icterioides zelleri* recorded from Turkey for the first time.

3.5. *Oxyna nebulosa* (Wiedemann 1817)

Specimens Examined: Gümüşhane, Centrum, 40° 23' N, 39° 38' E, 1311 m, 18.06.2003, 1 ♂, (M. Kütük).
Distribution: Most of Europe and Near East (www.faunaeur.org).

3.6. *Terellia* (*Cerajocera*) *ceratocera* (Hendel 1913)

Specimens Examined: Çankırı, Korgun, 40° 41' N, 33° 33' E, 835 m, 12.06.2003, 1 ♂, (M. Kütük).
Distribution: Most of Europe and East Palearctic (www.faunaeur.org).

3.7. *Terellia* (*Terellia*) *longicauda* (Meigen 1838)

Specimens Examined: Sivas, Koyulhisar, 40° 21' N, 37° 45' E, 1616 m, 12.06.2003, 2 ♂♂, (M. Kütük).
Distribution: Middle and West Europe, Near East (www.faunaeur.org).

3.8. *Terellia (Terellia) quadratula* (Loew 1869)

Specimens Examined: Giresun, Şebinkarahisar, 40° 20' N, 38° 26' E, 1280 m, 18.06.2003, 2 ♀♀, 3 ♂♂, (M. Kütük).
Distribution: Armenia, Azerbaijan, Iran, Israel, Jordan, Lebanon and Turkey (Korneyev, 2006).

3.9. *Terellia* (*Cerajocera*) *tussilaginis* (Fabricius 1775)

Specimens Examined: Bayburt, Kop Mountain, 40° 01' N, 40° 30' E, 2400 m, 08.07.2009, 1 ♀, 1 ♂; Erzurum, Narman, 40° 20' N, 41° 54' E, 1571 m, 07.07.2009, 1 ♀, 1 ♂, (M. Kütük & M. Yaran).
Distribution: Most of Europe, East Palearctic and Near East (www.faunaeur.org).

3.10. *Urophora stylata* (Fabricius 1775)

Specimens Examined: Artvin, Borçka, 41° 15' N, 41° 46' E, 223 m, 08.06.2009, 2 ♀♀, 3 ♂♂, (M. Kütük & M. Yaran).
Distribution: Most of Europe, Australian Region, East Palearctic and Near East (www.faunaeur.org).

3.11. *Urophora tenuis* Becker 1908

Specimens Examined: Artvin, Yusufeli, 40° 43' N, 41° 40' E, 700 m, 07.07.2009, 1 ♀, 1 ♂, (M. Kütük & M. Yaran).
Distribution: East Palearctic and South European Russia (www.faunaeur.org).

3.12. *Xyphosia miliaria* (Schrank 1781)

Specimens Examined: Kastamonu, Çatalzeytin, 41° 54' N, 34° 09' E, 635 m, 13.06.2003, 2 ♀♀, 3 ♂♂; Samsun, Vezirköprü, 41° 06' N, 35° 30' E, 500 m, 14.06.2003, 1 ♀, 2 ♂♂, (M. Kütük & M. Yaran).
Distribution: Most of Europe and East Palearctic (www.faunaeur.org).

4. Conclusions and discussion

Most of fruit flies distributed in Turkey feed flowerhead of the Asteraceae (Except a few species). As a result of this study, we determined 12 species of fruit flies from different region of Turkey. Obtained fruit flies in the study are common in Turkey and Palearctic region. *Ictericodes zelleri* (Loew 1844) was recorded for the first time from Turkey. Yaran and Kütük (2016) reported 160 species of fruit flies distributed in Turkey. Thus number of fruit flies species increases to 161 in Turkey. Present study gives new information to distribution of fruit fly fauna in Turkey.

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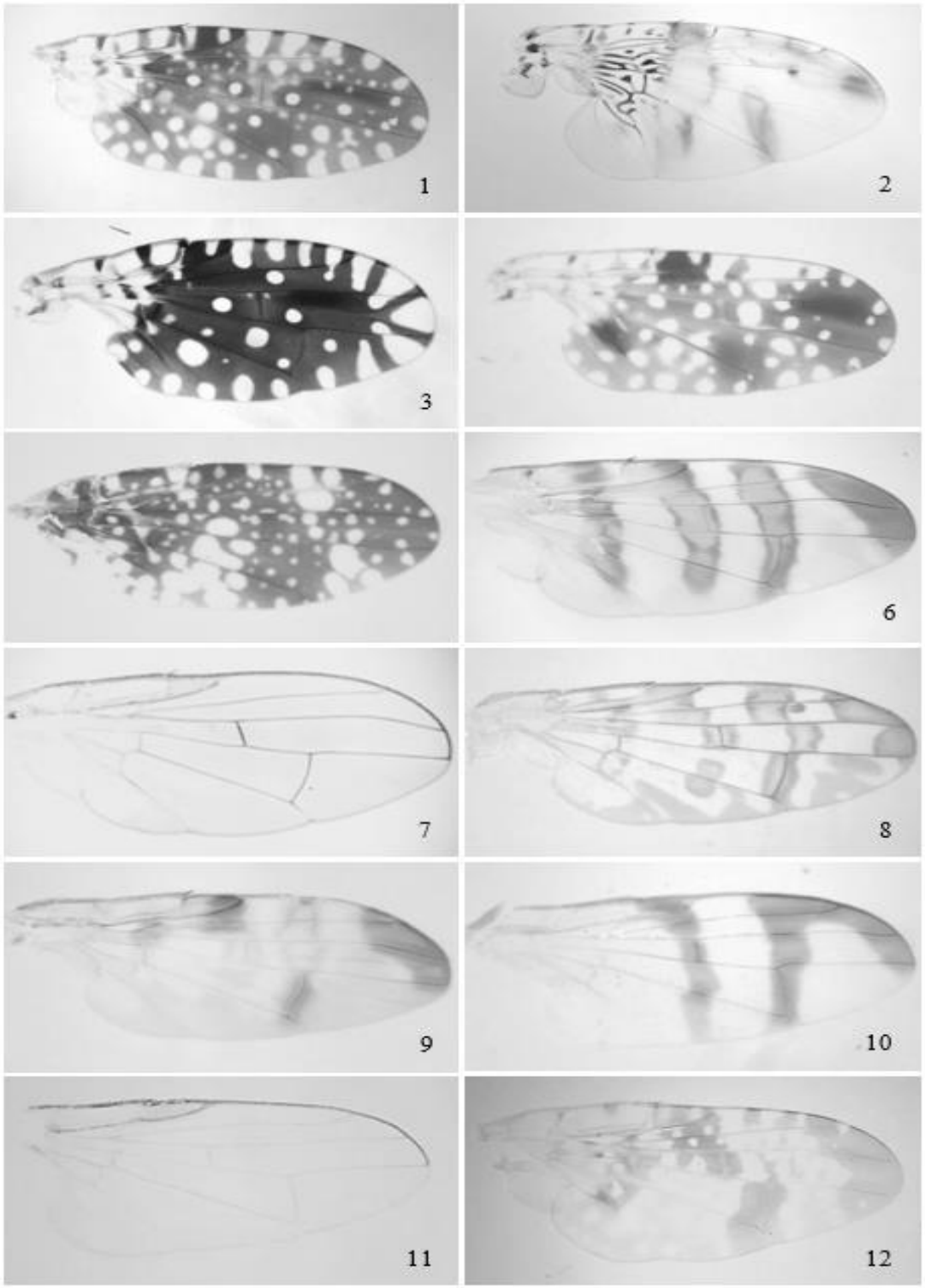

Figures: Wing figures of fruit flies; 1) *Acinia biflexa,* 2) *Ceratitis capitata*, 3) *Heringina guttata*, 4) *Ictericoides zelleri*, 5) *Oxyna nebulosa,* 6) *Terellia ceratocera,* 7) *Terellia longicauda*, 8) *Terellia quadratula,* 9) *Terellia tussialginis*, 10) *Urophora stylata*, 11) *Urophora tenuis*, 12) *Xyphosia miliaria*

(Received for publication 24 May 2018; The date of publication 15 December 2018)