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Thrips (Thysanoptera) species within sweet cherry orchards in Honaz (Denizli) province of western Turkey

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A b s t r a c t : During the month of April-June 2013, in order to determine the species of Thysanoptera existing at important sweet cherry orchards in Honaz (Denizli) province of western Turkey this study was carried out. At the end of this study, sixteen species belonging to three families of Thysanoptera were determined. The most abundant species in this study were *Taeniothrips inconsequens* (UZEL, 1895), *Thrips meridionalis* (PRIESNER, 1926), *T. tabaci* (LINDEMAN, 1889), *Haplothrips reuteri* (AMYOT & SERVILLE, 1843) and *Frankliniella occidentalis* (PERGANDE, 1895).

K e y w o r d s : Thysanoptera, Thrips, Sweet cherry, *Prunus avium*, Denizli, Turkey.

Introduction

Sweet cherry is a fruit which has an important place in the Turkish economy. There are 17 922 171 sweet cherry trees in Turkey and annual production is 494 325 tons (ANONYMOUS 2013). Sweet cherries are widely grown in the Mediterranean, Marmara and Aegean regions of Turkey (ANONYMOUS 2013).

In the previous studies some species belonging to Thysanoptera reported from sweet cherry orchards by different researchers. In those studies, LODOS (1993) and ULUSOY et al. (1999) reported *Taeniothrips inconsequens* (UZEL, 1895); ÖZBEK et al. (1996) recorded *Haplothrips reuteri* (KARNY, 1907) and *Thrips meridionalis* (PRIESNER, 1926). TUNÇ (1989a, 1989b), TUNÇ et al. (2012) reported some thrips species from fruit production areas in different regions of Turkey. ŞAHIN & TEZCAN (2014) reported 21 species [*Aeolothrips collaris* PRIESNER, 1919, *A. fasciatus* (LINNAEUS, 1758), *A. gloriosus* BAGNALL, 1914, *A. intermedius* BAGNALL, 1934, *Melanthrips fuscus* (SULZER, 1776), *M. pallidior* PRIESNER, 1919, *M. rivnayi* PRIESNER, 1936 (Aeolothripidae); *Frankliniella occidentalis* (PERGANDE, 1895), *Oxythrips ajugae* UZEL, 1895, *Taeniothrips inconsequens* (UZEL, 1895), *Thrips angusticeps* UZEL, 1895, *T. major* UZEL, 1895, *T. meridionalis* (PRIESNER, 1926), *T. tabaci* LINDEMAN, 1889 (Thripidae); *Haplothrips aculeatus* (FABRICIUS, 1803), *H. andresi* PRIESNER, 1931, *H. bolacophilus* PRIESNER, 1938, *H. distinguendus* (UZEL, 1895), *H. globiceps* BAGNALL, 1934, *H. reuteri* (KARNY, 1907), *Neoheegeria verbasci* (OSBORN, 1896) (Phlaeothripidae)] from Kemalpaşa (Izmir) province and UZUN et al. (2015) cited 19 species [*A. collaris*, *A. intermedius*, *M. fuscus*, *M. pallidior*, *Orothrips priesneri* (MOULTON, 1907) (Aeolothripidae); *Chirothrips manicatus* (HALIDAY, 1836), *Frankliniella intonsa* (TRYBOM, 1895), *F. occidentalis*, *Mycterothrips albidicornis* (KNECHTEL, 1923), *Mycterothrips salicis* (REUTER, 1879), *T. inconsequens*, *Tenothrips frici* (UZEL, 1895), *T.*

angusticeps, *Thrips italicus* (BAGNALL, 1926), *T. meridionalis*, *Thrips minutissimus* (LINNAEUS, 1758), *T. tabaci* (Thripidae); *H. reuteri*, *Haplothrips tritici* (KURDJUMOV, 1912) (Phlaeothripidae)] from Isparta province of western Turkey. In order to give detailed information on this group of insects, this study was conducted at Honaz (Denizli) province, important sweet cherry production area of western Turkey, in 2013.

Material and Methods

This study was conducted in 151 sweet cherry orchards in 13 localities with sizes ranging between 1 to 10 decares during the months of April-June 2013. These localities and the number of orchards which were sampled were as follows: Aşağıdağdere (1), Aydınlar (6), Dereçiftlik (3), Emirazizli (16), Kaklık (1), Karaçay (5), Karateke (9), Kızılyer (15), Kocabaş (1), Central province (70), Menteşe (17), Ovacık (4), Sapaca (3). – 151 orchards in total.

In this study, 25 trees were chosen randomly by walking along the diagonals of each orchard. One flower, fruit and leaf was picked up from the four directions of each tree, totalling 100 flower, fruit and leaf samples.

The flower, fruit and leaf samples brought to the laboratory were brushed separately into white dishes using sable brushes. Those thrips which had fallen into dishes were collected back with sable brushes and they were labelled first and then prepared and identified. The confirmation and identification of the samples were done by Prof. Dr. Irfan Tunç (Akdeniz University, Faculty of Agriculture, Department of Plant Protection, Antalya, Turkey).

Results and Discussion

As a result of this study, a total of 16 species in 3 families were determined and they were indicated in Table 1.

Thrips samples have been recorded from 77.48% of orchards. Among those, the most collected species was *Taeniothrips inconsequens* (716 specimens). Other species were *Thrips meridionalis* (265 specimens), *T. tabaci* (206 specimens), *Haplothrips reuteri* (104 specimens), *Frankliniella occidentalis* (40 specimens), *Aeolothrips intermedius* (41 specimens), *A. linarius* (12 specimens), *H. aculeatus* (10 specimens), *T. italicus* (6 specimens), *H. bolacophilus* (5 specimens), *A. gloriosus*, *Melanthrips fuscus*, *Chirothrips manicatus*, *Neohydatothrips gracilicornis*, *T. atratus* and *Neoheegeria verbasci* (1 specimen).

Among those *F. occidentalis*, *T. atratus*, *H. aculeatus*, *H. bolacophilus* and *N. verbasci* are the first record for local fauna of Denizli. All species were sampled in flower samples. The species of *A. linarius*, *F. occidentalis*, *H. aculeatus* and *H. reuteri* were sampled on fruits while *A. linarius* on leaves.

Among those species *A. intermedius*, *M. fuscus*, *F. occidentalis*, *T. inconsequens*, *T. meridionalis*, *T. tabaci* and *H. reuteri* were sampled in three different sweet cherry production areas of western Turkey. The species of *A. gloriosus*, *H. aculeatus*, *H. bolacophilus* and *N. verbasci* were recorded from Kemalpaşa and Honaz, while *C. manicatus* and *T. italicus* were recorded from Isparta and Honaz. The species of *A. linarius*, *N. gracilicornis* and *T. atratus* are recorded for the first time in sweet cherry orchards of western Turkey.

Table 1: List of species according to the families (attention please to the following colums)

Species	Number of surveyed orchards	Number and rate of orchards occurring thrips specimens		Number and rate of collected specimens						
				Flower		Leaf		Fruit		Total
		Number	Rate (%)	Number	Rate (%)	Number	Rate (%)	Number	Rate (%)	
Aeolothripidae										
Aeolothrips gloriosus BAGNALL, 1914	151	1	0,662	1	0,002	0	0,000	0	0,000	1
Aeolothrips intermedius (BAGNALL, 1934)	151	28	18,543	41	0,090	0	0,000	0	0,000	41
Aeolothrips linarius (PRIESNER, 1948)	151	9	5,960	9	0,019	1	0,006	2	0,004	12
Melanthrips fuscus (SULZER, 1776)	151	1	0,662	1	0,002	0	0,000	0	0,000	1
Thripidae										
Chirothrips manicatus (HALIDAY, 1836)	151	1	0,662	1	0,002	0	0,000	0	0,000	1
Frankliniella occidentalis (PERGANDE, 1895)	151	14	9,271	36	0,079	0	0,000	4	0,008	40
Neohydatothrips gracilicornis (WILLIAMS, 1916)	151	1	0,662	1	0,002	0	0,000	0	0,000	1
Taeniothrips inconsequens (UZEL, 1895)	151	61	40,397	716	1,580	0	0,000	0	0,000	716
Thrips atratus (HALIDAY, 1836)	151	1	0,662	1	0,002	0	0,000	0	0,000	1
Thrips italicus (BAGNALL, 1926)	151	6	3,973	6	0,013	0	0,000	0	0,000	6
Thrips meridionalis (PRIESNER, 1926)	151	44	29,139	265	0,584	0	0,000	0	0,000	265
Thrips tabaci (LINDEMAN, 1889)	151	23	15,231	206	0,454	0	0,000	0	0,000	206
Phlaeothripidae										
Haplothrips aculeatus (FABRICIUS, 1803)	151	5	3,311	9	0,019	0	0,000	1	0,002	10
Haplothrips bolacophilus PRIESNER, 1938	151	5	3,311	5	0,011	0	0,000	0	0,000	5
Haplothrips reuteri (KARNY, 1907)	151	21	13,907	103	0,227	0	0,000	1	0,002	104
Neoheegeria verbasci (OSBORN, 1896)	151	1	0,662	1	0,002	0	0,000	0	0,000	1
Total				**1 402**		**1**		**8**		**1 411**

It is hoped that conducting similar studies in the future in the other parts of Turkey will contribute to the increase of accumulation of information in this field.

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Zusammenfassung

Vorliegende Arbeit basiert auf Aufsammlungen von Thysanoptera Arten auf Kirschbaumkulturen in der Provinz Honaz (Denizli) im Westen der Türkei im Zeitraum April bis Juni 2013. Als Untersuchungsergebnis konnten 16 Arten aus drei Familien nachgewiesen werden. Die am häufigsten nachgewiesenen Arten waren *Taeniothrips inconsequens* (UZEL, 1895), *Thrips meridionalis* (PRIESNER, 1926), *T. tabaci* (LINDEMAN, 1889), *Haplothrips reuteri* (AMYOT & SERVILLE, 1843) und *Frankliniella occidentalis* (PERGANDE, 1895).

References

ANONYMOUS (2013): Bitkisel üretim istatistikleri. — http://tuikapp.tuik.gov.tr/bitkiselapp/bitkisel.zul (Access date: February 2014).

LODOS N. (1993): Türkiye Entomolojisi III (Genel, Uygulamalı ve Faunistik). — Ege Üniversitesi Ziraat Fakültesi Yayınları No 456, Ofset Basımevi, Bornova, İzmir, 1-150.

ÖZBEK H., GÜÇLÜ Ş. & R. HAYAT (1996): Kuzeydoğu tarım bölgesinde taş çekirdekli meyve ağaçlarında bulunan fitofag ve predatör böcek türleri. — Turkish Journal of Agriculture and Forestry **20**: 267-282.

ŞAHIN B. & S. TEZCAN (2014): Investigation on thrips (Thysanoptera) species occurring flowers of cherry trees in Kemalpaşa (Izmir) province of western Turkey. — Linzer biol. Beiträge **46** (1): 889-893.

TUNÇ I. (1989a): Thysanoptera in a coastal mediterranean winter. — Akdeniz Üniversitesi Ziraat Fakültesi Dergisi **2** (1): 105-113.

TUNÇ I. (1989b): Thrips infesting temperate fruit flowers. — Akdeniz Üniversitesi Ziraat Fakültesi Dergisi **2** (2): 133-140.

TUNÇ I., BAHŞI Ş.U. & H. SUMBUL (2012): Thysanoptera fauna of the Lakes Region, Turkey. — Turkish Journal of Zoology **36** (4): 412-429.

ULUSOY M.R., VATANSEVER G. & N. UYGUN (1999): Ulukışla (Niğde) ve Pozantı (Adana) yöresi kiraz ağaçlarında zararlı olan türler, doğal düşmanları ve önemlileri üzerindeki gözlemler. — Türkiye Entomoloji Dergisi **23** (2): 111-120.

UZUN A., TEZCAN S. & O. DEMIROZER (2015): Thrips (Thysanoptera) species occurring in cherry orchards in Isparta province of western Turkey. — Linzer biol. Beiträge **47** (1): 963-968.

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