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Research Article

The First Record of *Deraeocoris flavilinea* (A. Costa, 1862) (Hemiptera: Heteroptera: Miridae) as an Invasive Alien Species (IAS) in the Anatolian Peninsula (Turkey)

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ABSTRACT: In this study the first record of the *Deraeocoris flavilinea* (A. Costa, 1862) (Miridae: Deraeocorinae) in the Anatolian peninsula (Central Anatolia, Turkey) is given. With this new record, the distribution area has expanded to the East. The records of Turkey demonstrate definitively that it is an alien species for a great part of Europe and the Near East.

KEYWORDS: Heteroptera, Miridae, *Deraeocoris flavilinea*, Anatolia, Turkey, new record, invasive alien species (IAS), expansion, fauna.

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INTRODUCTION

Miridae is a large Heteropteran family and including seven thousand species worldwide and some species are predators. (Henry, 2009). Taxa of this family include are phytophageous, zoophageous, zoo-phytophageous or predator species.

Deraeocorinae is the subfamily of Miridae family and this subfamily represented in the world fauna by almost 120 genera about 800 species (Weirauch and Schuh, 2020). In the Palearctic region of the sub-family, Deraeocorinae are 117 species of 18 genera (Kerzhner and Josifov 1999), and European fauna includes 29 species within four genera (Aukema, 2013).

In Turkey the genus *Deraeocoris* Kirschbaum 1865 included 13 species until 2006 (Önder, *et al.*, 2006). The total number of species increased to 14 with the record of *Deraeocoris flavilinea* (A.Costa, 1862) from Istanbul (Thrace part of the European Turkey) in 2016 (Çerçi and Koçak, 2016).

In fact the species of *Deraeocoris* given by Önder *et al.,* (2006) in Turkey were:

Deraeocoris cyprius Wagner, 1953; *Deraeocoris delagrangei* (Puton, 1892) (endemic); *Deraeocoris lutescens* (Schilling, 1836); *Deraeocoris pallens* Reuter, 1904; *Deraeocoris punctulatus* (Fallen, 1807); *Deraeocoris punctum* (Rambur, 1842); *Deraeocoris putoni* (Montandon, 1885); *Deraeocoris ruber* (Linnaeus, 1758); *Deraeocoris rutilus* (Herrich-Schäffer, 1839); *Deraeocoris schach* (Fabricius, 1781); *Deraeocoris scutellaris* (Fabricius, 1794); *Deraeocoris serenus* Douglas and Scott, 1868; *Deraeocoris trifasciatus* (Linnaeus, 1767).

The number of known species of the genus *Deraecoris* in Turkey increased to 14 with the recent report of *D. flavilinea* (Çerçi and Koçak, 2016) in Istanbul.

According to Varga *et al.*, (2014) *Deraeocoris flavilinea* was described from Sicily. A century later, it was collected in Corsica in 1961 and from the 1980s it was recorded from several countries in Europe.

As a result of literature reviews, *D. flavilinea* (A.Costa, 1862) was originally an endemic species in Sicily and later it spread to Sardinia, whole Italy and, subsequently, to Central, Western and Eastern Europe from 1862 to 2020. (Josifov and Kerzhner 1999; Mancini 1963; Dioli 1979; Péricart, 1965; Ehanno 1989; Aukema 1989; Göllner-Scheiding 1991; Reichling 1994; Chérot 1988; Miller 2001; Kerzhner and Josifov 1999; Gogala 2006; Aukema *et al.*. 2013), Rabitsch 2002, 2010; Kment *et al.*, 2005; and 2007, Hradil *et al.*, 2008; Jerinić-Prodanović and Protić 2011; Gillerfors and Coulianos 2005; Skipper 2008 , 2013; Gessé 2011; Simov *et al.*, 2012;Gierlasiński 2015; Varga *et al.*, 2014) (Fig. 1)

A study with regard to the presence of this species in the Thrace part of Turkey has been made by Çerçi and Koçak (2016). In the present study, *D. flavilinea* (A.Costa, 1872) is reported for the first time in the Anatolian peninsula (the Asian part of Turkey).

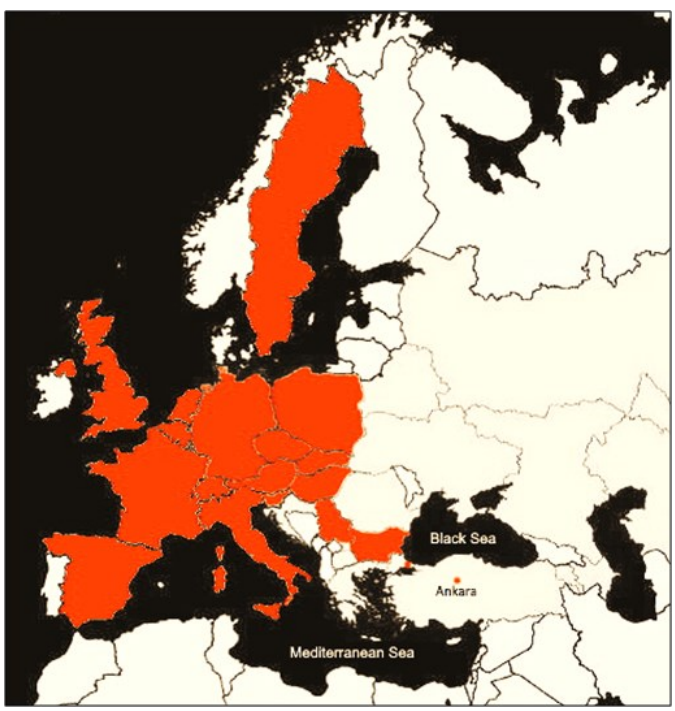

Figure 1. Distribution of Deraeocoris flavilinea (A. Costa, 1862) in Europe and Turkey. The distribution map in west Palearctic was prepared based on the following literature using the using paint.net 4.2.12 (2020; https://www.getpaint.net). New locality in the Anatolian peninsula (Ankara province, Turkey) marked with the circle (●)

MATERIAL AND METHODS

The examined material of *Deraeocoris flavolinea* (A.Costa,1862) was collected in Ankara province of Turkey on *Tilia* sp. in June 2020.

Stichel (1958) and Wagner (1971) for the identification of these specimens were used. The literature related to the geographical distribution of this species in the article is given under the title "Distribution of European".

The material is deposited in the Zoological Museum of Gazi University (ZMGU), Ankara, Turkey.

Figure 2. Habitus of *Deraeocoris flavilinea* (A.Costa, 1862) (Photo: S. Kıyak).

RESULTS

Family Miridae Hahn, 1833

Subfamily Deraeocorinae Douglas and Scott, 1865

Tribe Deraeocorini Douglas and Scott, 1865

Genus *Deraeocoris* Kirschbaum, 1856

***Deraeocoris flavolinea* (A.Costa, 1862)** (Figure 2)

Material Examined:

Turkey: Ankara: town center, (39°58'25" N, 32°38'22"E), 26.VI.2020, 1 ♂ , 835m, S. Kıyak leg. and det. (Figures 1, 2) in an urban and anthropic environment.

Habitat:

The individual specimen of this species was found on the leaf of *Tilia* sp. in the urban area.

In the field, where the specimen was collected shrubs, herbaceous plants are present ; therefore *Pinus nigra, Juniperus foetidissima, Cedrus libani, Populus* sp, *Salix babylonica, Eleagnus angustifolia, Armeniaca vulgaris, Tilia* sp, *Prunus* sp. are predominant.

Trophic status: Zoophytophageous.

Biological note: According to the literature, most of the *specimens of D. flavilinea* (A.Costa,1862) were collected from different trees; mainly from *Acer*, but also from *Tilia* sp., *Fraxinus* sp., *Corylus* sp., *Corylus avellana, Crataegus* sp., *Malus* sp; *Amygdalus communis*, *Prunus domestica*, *Pinus halepensis*, *Thuja* sp. and *Malva silvestris*. (Triggiani,1973; Wachmann et al. 2004; Kment *et al.,* 2005; Zeinstra and Aukema 2005; Kondorosy *et al.*, 2010; Cunev and Kment, 2017).

Sometimes it has been reported that *D. flavilinea* is zoophytophageous, generally feeding on aphids, but, according to some reports, it preys on eggs of true bugs, larvae of whiteflies and it is also a predator of psyllids (Trigianni 1973; Simov *et al.,* 2012; Jerinić-Prodanović and Protić 2011, 2013)

Distribution in Turkey: (Fig.1)

İstanbul (Çerçi Koçak,2016) and Ankara (the present paper).

By this study, *D. flavilinea* as the first faunistic record for the Asian part of Turkey (Anatolian Peninsula) is provided.

Distribution in Europe: (Fig.1)

Italy, Sicily, Sardinia, Corsica, Malta, France, Netherlands, Germany, Switzerland Luxembourg, Belgium, England, Ireland, Slovenia, Austria, Czech Republic, Slovakia**,** Serbia, Sweden, Denmark, Spain, Bulgaria, European Turkey, Poland, Hungary (Aukema and Rieger, 2001; Aukema *et al.,* 2013; Chérot 1988; Cuesta-Segura and Fuertes,2013; Cunev and Kment, 2017; Çerçi and Koçak 2016; Dioli 1979; Ehanno 1989; Gierlasiński and Dubiel, 2017; Gierlasiński 2015; Gillerfors and Coulianos 2005; Gogala 2006; Goula and Mata, 2011; Göllner-Scheiding 1991; Hradil et al. 2008; Jerinić-Prodanović and Protić 2011, 2013; Kerzhner and Josifov 1999; Kment *et al.,* 2005; Mancini 1963; Miller 2001; Nelson 2018; Péricart 1965; Rabitsch 2002, 2008, 2010; Reichling 1994; Schembri, 1993; Simov *et al.,* 2012; Skipper 2008, 2013; Taszakowski et al., 2020; Varga et al., 2014; Vivas, 2012).

CONCLUSION AND DISCUSSION

In this study *Deraeocoris flavilinea* (A.Costa,1862) is given as a new faunistic record for the Anatolian peninsula (Turkey).

14 species have been recorded for *Deraeocoris* Kirschbaum 1865 fauna so far (Önder et al., 2006; Çerçi & Koçak, 2016) in Turkey.

The first record of the *D. flavilinea* (A. Costa, 1862) from Ankara province in the Central Anatolian Region is given in this study.

The distribution of this species in Turkey and in the world given was shown on the map and discussed. Accordingly used literature of this paper, *Deraeocoris flavilinea* (A. Costa, 1862) is enlarged and distributed from Sicilia (Italy) (local area) to Western, Central and Eastern Europe.

The first record of *Deraeocoris flavilinea* (A. Costa, 1862) is reported in the Thrace part of Turkey, Marmara Region (Istanbul province) in 2016.

Until this study, this species has been limited known in the Thrace part of Turkey.

After the first record from Turkey (Çerçi & Koçak, 2016) the species has not been mentioned until this present manuscript. (Figure 1). The invasive species *Deraeocoris flavilinea* (A. Costa, 1862) in the four years since it was detected for the first time in Turkey, has extended to the eastwards. With this study, it was determined that this species also spread to the Anatolian peninsula.

Accordingly, *D.flavilinea* (A. Costa, 1862) can have been seems a gradually expanding species in Turkey (Figure 1).

The pathway of introduction for *D. flavilinea* (A. Costa, 1862) in Turkey is uncertain, though it is most likely that the species was transported on exotic plants or transport.

As for all invasive species, also *D. flavilinea* (A. Costa, 1862) should be researched and monitored.

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Reduvius nigritus sp. nov. (Hemiptera, Heteroptera, Reduviidae, Reduviinae) from Turkish Anatolia

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ABSTRACT: *Reduvius nigritus nov. sp.* is described from Anatolia, Turkey. The new species belongs to the *R. pallipes*-group Miller, 1955 and is close to *R. komarovii* (Jakovlev, 1885) and *R. varipes* Linnavuori, 1964 ; but male genitalia of the new species are distinctive. Illustrations of the pygphore of the three species are given.

KEYWORDS: *Reduvius*, sp. nov., Turkey.

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INTRODUCTION

Members of the genus *Reduvius* Fabricius, 1775 are very variously colored. Miller (1951, 1955) has created species-groups for Afro-Palaearctic species according to their coloration, size, shape of post ocular part of the head, and/or pilosity. Sometimes these groups may be linked to a geographic area.

In the *Reduvius testaceus*-group Miller (1955) put together species very different in shape and color, particularly *R. armipes* (Reuter, 1893), which in fact belongs to the subgenus *Pseudoreduvius* Villiers, 1948.

Moulet (in print a) considered the colouring only and grouped in an informal group (« noir & blanc ») some bicolored species formerly dispached in the *R. pallipes*-group and *R. minutus*-group (Miller, 1955).

While preparing a paper on these bicolored forms (Moulet, in print a), I have been able to study samples of the collection of Ernst Heiss from Iran, Turkey, and Saudi Arabia. In this series one particularly dark specimen caught my attention. A more detailled study convinced me that it was the representative of a new species decribed hereby.

***Reduvius nigritus* sp. nov.**

Type-material : ♂ holotype « Turkey, Nemrut, 4.7.2009, J. Louda lgt. [print, white label] / Holotypus, Reduvius nigritus, P. Moulet det. 2020 [print + ms, red label] ».

The material is preserved in E. Heiss' collection, Innsbruck, Austria.

Measurements (in mm): Total length: 11.88 ; head width across eyes (diatone): 1.29 ; length of 1st antennomere : 0.85; length of 2nd antennomere : 2.96; length of 3rd antennomere [only one joint remains, maybe incomplete]: at least 3.3; 4th antennomeres missing; length of pronotum: 2.30; length of anterior lobe of pronotum: 1.07; length of posterior lobe of pronotum: 1.29; width of pronotum at anterior angles: 1.18 ; width of pronotum at posterior angles: 3.14; length of profemur (lateral): 3.33; diameter of profemur : 0.34 ; length of protibia (lateral): 3.14; diameter of protibia: 0.25; length of hind femur (lateral): 5.00; diameter of hind femur: 0.53; length of hind tibia: 7.05; diameter of hind tibia: 0.23; length of front tarsus: 1.1 (0.22, 0.5, 0.6); length of hind tarsus: 1.78 (0.64, 0.76, 0.56) ; length of hemelytra: 8.19; maximum width of abdomen: 3.91.

Description: General coloration dark, blackish (Fig. 1); dull integument with very shallow punctuation. Head, pronotum, scutellum, corium and apex of abdomen with more or less dark brown setae as long as the spiniform antennal setae.

Head (including processes between the antennae) completely black ; transversal furrow very indistinct except in the middle where it is concave ; a very light pale spot between the eye and the ocelli. Interocular median line not widened. Processes between the antennae rather strong, erect (Fig. 2A). Posterior lobe of head as a strong bulge , hardly higher than the anterior lobe in a lateral view. Clypeus striate, slightly longer than the jugae. Eyes not globose, slightly protuding laterally. Ocelli surrounded with a narrow whitish ring.

Antenae brown yellowish. Antennomere I short, regularly enlarged from base to apex (Fig. 2B); II long and cylindrical ; III threadlike [left joint absent] ; [IV absent]. Antennomere I with some (7–8) beige spiniform setae, shorter or as long as the diameter of the article. Antennomeres II and III (Fig. 2C) with i) very short and very fine transparent setae, bent or hardly raised ; ii) very thin setae nearly orthogonal to the axis and 2 (joint II) to 2.5 (joint III) times as long as the diameter and iii) much longer beige to brown sub-orthogonal stiff setae around 3.6 (joint II) to more than 6 (joint II) times longer than the diameter.

Pronotum black; anterior angles rounded; anterior margin simple, not bulged. Anterior lobe shagreened, divided by a medio-longitudinal furrow; hemispherical on each side, with 3 smooth striated/ puntated ribs; the intermediate rib slightly ongoing on the posterior lobe. Posterior lobe transverse, trapezoid; disc bisinuous, transversally striate. Humeral angles obtuse, not surpassing the corium laterally.

Hemelytra blackish; a light spot on the apical half of the exocorium and another triangular spot in the basal third which ends on the endocorium. Membrane smoky brown, the apex whitish and just reaching the apex of the abdomen ; a very short stripe on the internal margin whitish. Corial veins very weak, hardly discernable, with long light brown setae; veins of the membrane hardly stronger.

Femora dark brown-blackish, narrowly yellow at the apex. Tibiae yellowish; front and intermediate tibiae with a subapical very pale brown ring and another dark brown ring basally. Hind tibia gradually beige to brown from base to apex, extreme apex shortly yellow.

Inferior face of the front tibia with a median row of whitish spiniform teeth, strong and directed backwards. Front fossa spongiosa rather short (nearly 0.14 times as long as the front tibia) ; a short conical yellow-orange tooth just prior the fossa spongiosa (Fig. 2D).

All legs with numerose thin and stiff light brown to black setae, erect (the longest 3 times as long as the diameter of the hind

tibia) (Fig. 2E). Tarsi three-jointed, yellowish, apex of the apical tarsomere darkened; first tarsomere of the front tarsus very reduced.

Dorsum of the abdomen light brown. Connexivum yellowish to light brown, the last segment brown.

Rostrum black; third labiomere very slightly paler. Eyes widely separated ventrally. Ventral side of pronotum and pleura dark brown to blackish; pleura striated transversally. Ventral side of abdomen brown, darkening from base to apex. Meso-, metathorax and abdominal venter (except the last non genital segment) carinate on the medio-longitudinal line.

Pygophore (Fig. 3A, B) similar to that of *R. varipes* Linnavuori, 1964, but ventral side much less differentiated in cap than in *R. varipes* and not surpassing the posterior margin (Fig. 3C, D). The apophyse of the posterior margin is short and bifid with long and acute lateral arms (Fig. 2F), in *R. varipes* the apophyse is simple and acute (Fig. 3C).

Female. Unknown.

DISCUSSION

Reduvius nigritus sp. nov. belongs to the *R. pallipes*-group (Miller, 1955 ; Moulet, in print a), though its shape is stouter, the general coloration darker and the femora black (the other species of the group are slender, lighter and the femora dark at the maximum on the apical half, generally less).

Generally in the *R. pallipes*-group the apophyse of the posterior margin of the pygophore is simple or, when bifid, the lateral arms are short or consist in two close teeth (e.g. *R. pallipes* (Klug, 1830) (Moulet, in print a). However bifid apophyse with long lateral arms is known e.g. in *R. komarovii* (Jakovlev, 1885) (Fig. 2G, 3E), *R. testaceus* (Herrich Schaeffer, 1848) (Moulet, in print a) or *R. nigroluteus* Moulet, in print b) (Fig. 2H).

In *R. komarovii* the pygophor is elongate and narrow anteriorly (Fig. 3E) and the posterior margin is deeply incised medially; the apophyse is very different (Fig. 2G).

In *R. ciliatus* (Jakovlev, 1879), which members have sometimes darkened legs, the general shape of body is more elongate and slender, the apophyse of the pygophor is not bifid (Putshkov, 1983) and the 1st tarsomere of the hind tarsus is longer than the 2nd one (Putshkov & Moulet, 2009) (shorter in *R. nigritus* sp. nov.).

In *R. nigroluteus* Moulet, in press b, the anterior lobe of the pronotum is yellow and the posterior black, the legs are yellow, the apophyse of the pygophor is different (Fig. 2H, 3F).

Etymology: The name of this new species is after the extensive black coloring; adjective.

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I warmly thank my colleague Ernst Heiss for allowing to study his collection.

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Figure 1. *Reduvius nigritus* n. sp., habitus. Photo C. Triat, Museum Requien, Avignon. Scale bar : 5

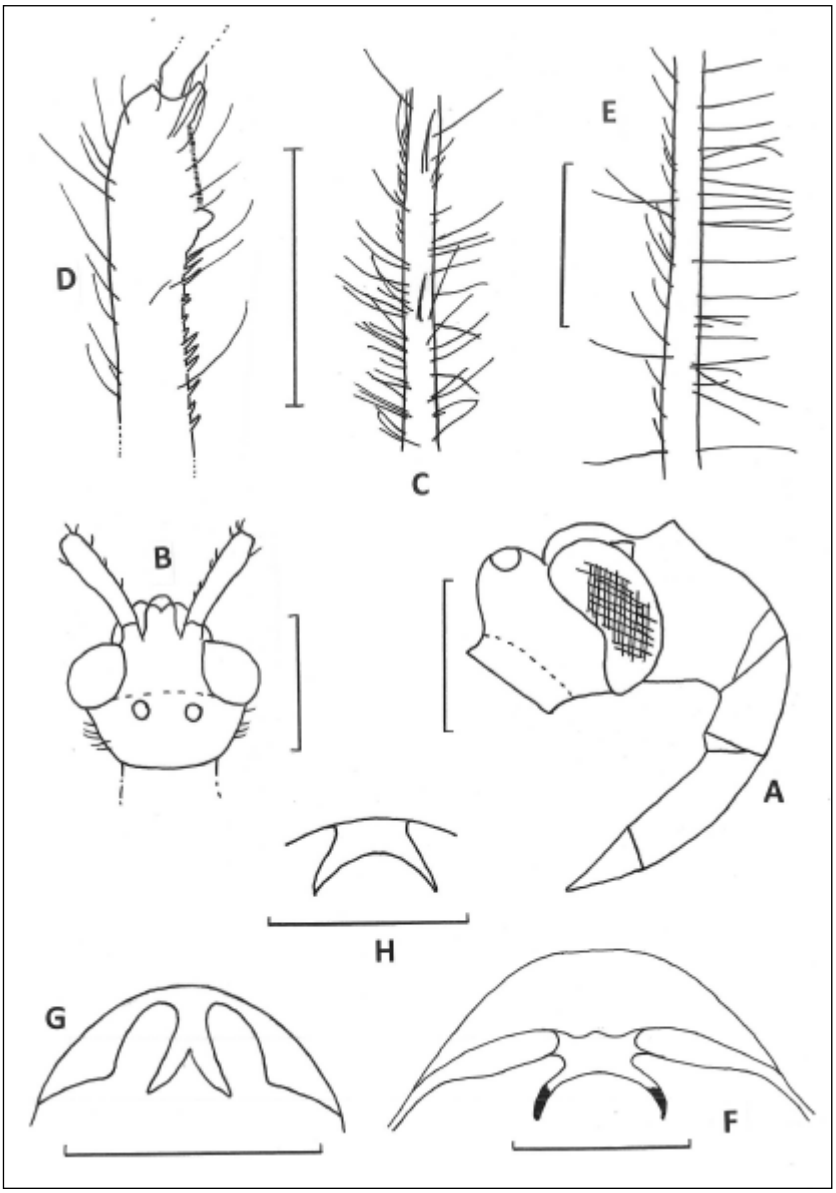

Figure 2. *Reduvius* sp. A) *Reduvius nigritus* n. sp., head laterally ; B) id., head from above ; C) id., second antennomere ; D) id., apex of the front tibia and fossa spongiosa ; E) id., hind tibia ; F) id., apophyse of the pygophore, caudal view ; G) *Reduvius komarovii* (Jakovlev), apophyse of the pygophore, caudal view ; H) *Reduvius nigroluteus* Moulet, apophyse of the pygophore, caudal view. Scale-bars : 1 mm. Fig. H from Moulet, in print b.

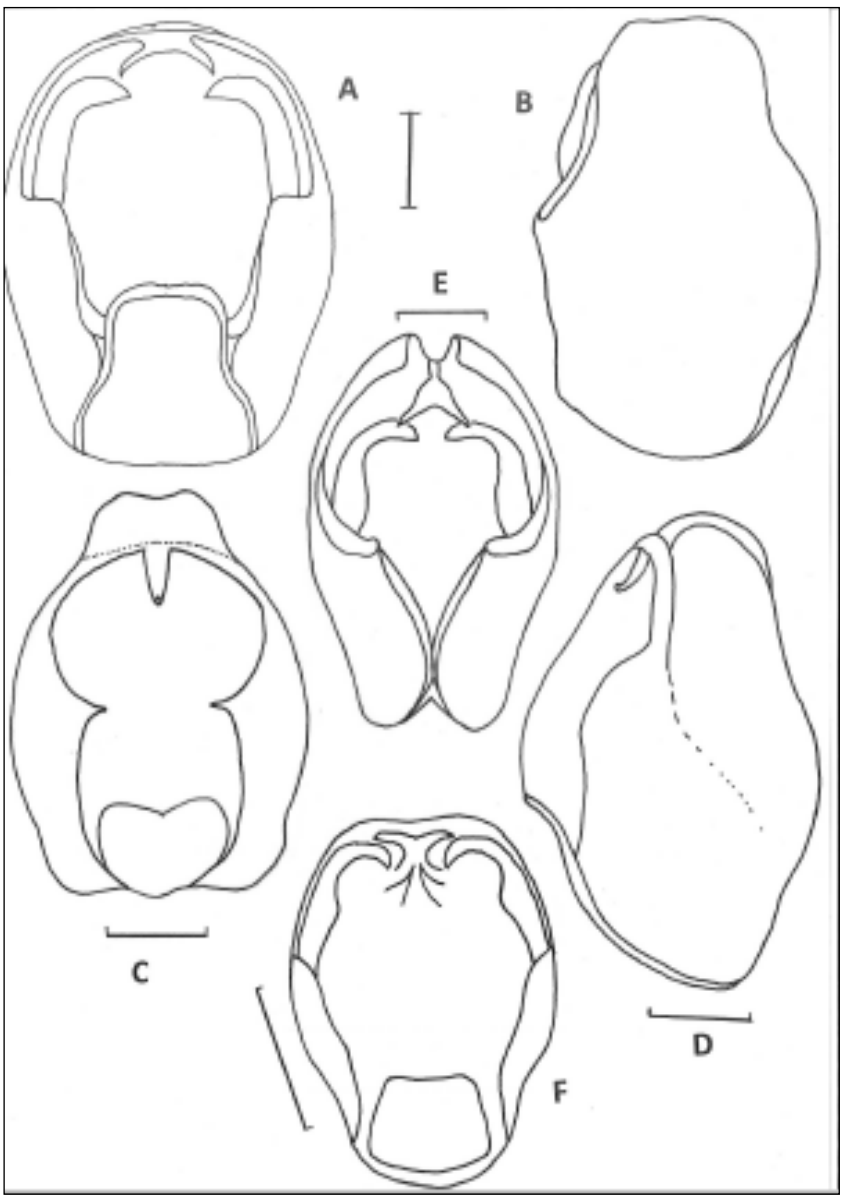

Figure 3. Pygophore of *Reduvius* sp. A) *Reduvius nigritus* n. sp., dorsal view ; B) id., lateral view ; C) *Reduvius varipes* Linnavuori, dorsal view ; D) id., lateral view ; E) *R. komarovii* (Jakovlev) ; F) *R. nigroluteus* Moulet. Scale bars : 0.5 mm. Fig. C, D from Moulet in print a, Fig. F from Moulet in print b.

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Research Article

Southeastern Anatolia Region Insect Fauna II (Order Hemiptera I: Suborder Heteroptera III: Pentatomoidea) of Turkey

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ABSTRACT: Evaluated on insect species in various ecologies have been conducted in the provinces (Adıyaman, Batman, Gaziantep, Diyarbakır, Mardin, Siirt, Şanlıurfa, Şırnak) of Southeastern Anatolia region between the years 1948-2019. During this study total 137 species were found in 5 families and in 1 superfamily Pentatomoidea of Hemiptera. The distribution of determined insect types according to the provinces, plant hosting and feeding type is also done. Information about their identification, host plants, and distribution in the Southeastern Anatolia Region was presented as detailed.

KEYWORDS: Insect Fauna, Hemiptera, Heteroptera, Southeastern Anatolia Region, Turkey.

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INTRODUCTION

Insects (Insecta) are the most numerous group of animals in the world, with over one million species that have been described (Price, 1997). Insects are difficult to study because they represent the most species-rich, yet one of the least known, of all taxa of living organisms, a problem that is compounded by a dearth of skilled entomologists. Although the number of described insect species is uncertain due to synonyms and the lack of a global list, most authorities recognize 900000-1000000 named morpho-species, representing 56% of all species known on Earth (Groombridge, 1992; Anonymous, 2003). Sensible estimates of the number of insects yet to be discovered range from another 1 million to 30 million species (Erwin, 1982-1991), although most predict around 2-8 million more species (May, 1990; Gaston, 1991; Stork, 1997; Ødegaard, 2000). Conservative estimates suggest that 50-90% of the existing insect species on Earth have still to be discovered, yet the named insects alone comprise more than half of all known species of organisms.

Insects constitute the most diverse form of animal life in terrestrial ecosystems. Most species are innocuous and essential components of natural ecosystems. Because they are cold-blooded, the rates of key physiological processes in their life cycles are determined by environmental conditions, especially temperature and precipitation. In general, they have short generation times, high fecundity and high mobility (Moore & Allard, 2008).

Turkey in fact seems to be like a small continent in terms of biological diversity. Despite the Anatolia is not a continent alone, it contains all properties of a continent that should have an ecosystem and habitat. Each of the seven geographical regions in Turkey has a distinguishable climate, flora and fauna. This study aims to determine insect species found in various ecologies on Southeastern Anatolia.

Heteroptera includes 9365 species belonging to 1632 genera in the Palaearctic Region (Aukema et al., 2013). Heteroptera includes 1526 species and subspecies belonging to 40 families in Turkey (Önder et al., 2006).

This study aims to determine insect species found in various ecologies on the Southeastern Anatolia region of Turkey.

MATERIAL AND METHODS

Entomology studies on insect species of Southeastern Anatolia Region (Adıyaman, Batman, Gaziantep, Diyarbakır, Mardin, Siirt, Şanlıurfa, Şırnak) in different ecological provinces were made between the years 1948-2019 (Figure 1).

In this study, I prepared for the inventory has reached the major advantage of the waterways:

-Currently in Turkey, published or unpublished entomology journals related to scanning,

-Giving more weight to faunistic studies, and in the meantime, the insect fauna of our country foreign scientific journals that publish articles about scanning,

-Faculty of Agriculture, Faculty of Science and Regional Plant Protection Research Institute in the library of books on insect fauna and the screening of the booklet,

-The doctorate (PhD) and the master's thesis of entomology in the region on the scanning,

-Review of other studies on the insect fauna in the area.

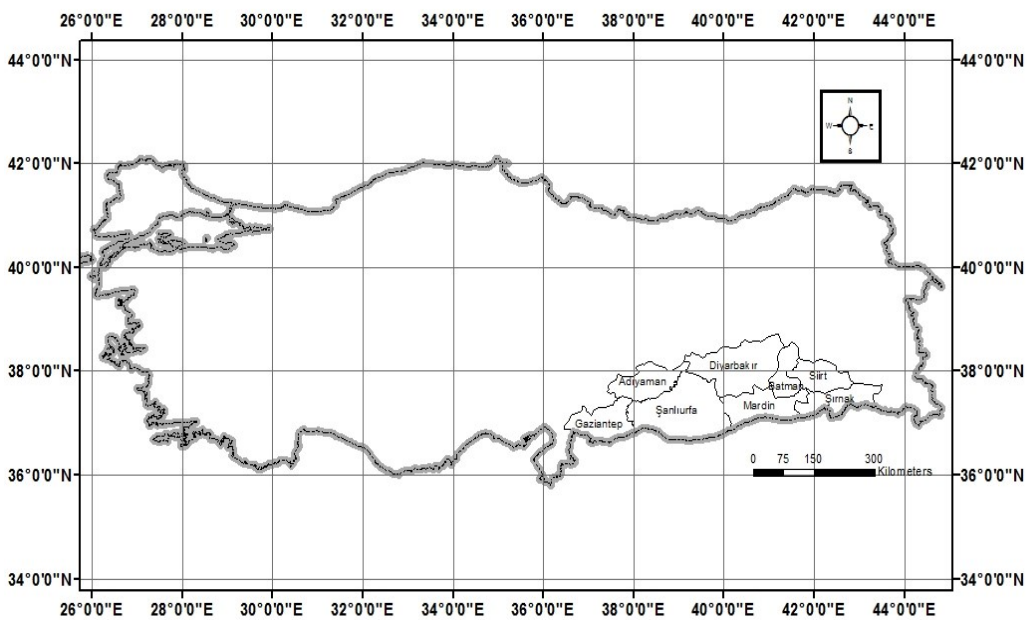

Figure 1. Sampling localities in the Southeastern Anatolia Region of Turkey

Some of the records recorded for this field in the literature used in this study are based on incorrectly defined examples, valid names were given instead of these invalid names.

While preparing this article, it was checked whether the species names in studies compiled from the literature were valid. If a synonymous name or invalid combination was used in the literature, the valid name or combination was used instead of this invalid name or combination according to Aukema (1995 -2013).

This study evaluated the information as described above were obtained.

RESULTS AND DISCUSSION

Surveys on insect species in various ecologies have been conducted in the provinces (Adıyaman, Batman, Gaziantep, Diyarbakır, Mardin, Siirt, Şanlıurfa, Şırnak) of Southeastern Anatolia region between the years 1948-2019. Almost 2600 species and subspecies of almost 180 families belonging to 13 insect orders are defined owing to these studies. The distributions of determined insect species are as follows: suborder Heteroptera included 5 families were recorded (Table 1).

Table 1. Number of species of Suborder Heteroptera on Southeastern Anatolia Region

Suborder	Superfamily	Family	Number Species
Heteroptera	Pentatomoidea	Acanthosomatidae	1
		Cydnidae	18
		Pentatomidae	92
		Plataspidae	2
		Scutelleridae	24
Total	1	5	137

Order Hemiptera

Suborder Heteroptera

Superfamily Pentatomoidea

Family Acanthosomatidae

Elasmucha antennata Reuter, 1885

Distribution of the studies area: Gaziantep, **Host plants:** Plane tree (Lodos & Önder, 1979; Önder et al., 1995).

Family Cydnidae

Cydnus aterrimus (Forster, 1771)

Distribution of the studies area: Diyarbakır, Gaziantep, Şanlıurfa, **Host plant:** Unknown (Önder et al., 1995).

Cydnus melanopterus melanopterus (Herrich-Schäffer)

Distribution of the studies area: Gaziantep, **Habitat:** Woodland, Scrub and meadow area (Önder et al., 2006).

Byrsinus pilosulus (Klug, 1845)

Remarks: It was recorded from the study area as *Aethus pilosulus* (Klug, 1845), by Lodos et al (1998) and Önder et al (2006), but this is an incorrect identification and an invalid name. The valid name of this taxon is *Byrsinus pilosulus* (Klug, 1845).

Distribution of the studies area: Gaziantep, **Habitat:** Salt field (Lodos et al., 1998; Önder et al., 2006).

Aethus pilosus (Herrich-Schäffer, 1834)

Distribution of the studies area: Gaziantep, **Habitat:** Scrub and meadow area (Önder et al., 1995; Önder et al., 2006).

Geotomus antennatus Signoret, 1883

Distribution of the studies area: Gaziantep, **Habitat:** Scrub and meadow area (Önder et al., 1995; Önder et al., 2006).

Geotomus elongatus (Herrich-Schäffer, 1840)

Distribution of the studies area: Diyarbakır, Gaziantep, collecting with light trap (Önder & Adıgüzel, 1979; Önder et al., 1995).

Macroscytus brunneus (Fabricius, 1803)

Distribution of the studies area: Diyarbakır, Gaziantep, **Habitat:** Scrub and meadow area and Light trap (Önder & Adıgüzel, 1979; Önder et al., 1995; Önder et al., 2006).

Amaurocoris curtus Brullé, 1838

Distribution of the studies area: Adıyaman, Gaziantep, Siirt, **Host plant:** *Pistaciae vera* L. (Önder et al., 1995; Önder et al., 2006; Matocq & Özgen, 2010).

Canthophorus melanopterus (Herrich-Schaeffer, 1835)

Remarks: The combination of this species, given as *Canthophorus melanopterus* (Herrich -Schaeffer, 1835) as the valid name in this study, is *Sehirus melanopterus* (Herrich-Schäffer, 1835) given in the reviewed literatüre (Lodos et al., 1998; Önder et al., 1995) records. It's not a valid combination. The valid genus name is *Canthophorus*.

Distribution of the studies area: Gaziantep, **Host plants:** *Althaea* sp., *Centaurea* sp., *Juniperus communis, Prunus cereasus, Quercus* sp., *Rosa* sp., *Rubus sp.,* Weeds *(Lodos et al., 1998; Önder et al., 1995).*

Crocistethus waltlianus (Fieber, 1861)

Distribution of the studies area: Diyarbakır, Gaziantep, **Host plants:** *Astragalus* sp., *Verbascum* sp., and Weeds (Lodos et al., 1984; Lodos et al., 1998; Önder et al., 1995; Önder et al., 2006).

Exosehirus marginatus Signoret, 1881

Remarks: The combination of this species, given as *Exosehirus marginatus* (Signoret 1881) as the valid name in this study, is *Sehirus marginatus* (Signoret, 1881) given in the reviewed literature (Önder et al., 1995; Önder et al., 2006) records. It's not a valid combination. The valid genus name is *Exosehirus*.

Distribution of the studies area: Diyarbakır, Gaziantep, **Habitat:** Scrub and meadow area (Önder et al., 1995; Önder et al., 2006).

Legnotus fumigatus (Costa, 1855)

Distribution of the studies area: Diyarbakır, **Habitat:** Agricultural area, Scrub and meadow area (Önder et al., 1995; Önder et al., 2006).

Legnotus limbosus (Geoffroy, 1785)

Remarks: *Legnotus limbatus* L. presumably misidentified by Lodos et al (1984) in the study area from Diyarbakır province, and this species name is not included in the "Türkiye Heteroptera (Insekta) Kataloğu" (Önder, et al., 2006). It should probably be *Legnotus limbosus* (Geoffroy, 1785).

Distribution of the studies area: Gaziantep, Mardin, Diyarbakır **Habitat:** Scrub and meadow area (Lodos et al., 1984; Önder et al., 1995; Önder et al., 2006; Matocq et al., 2014).

Ochetostethus nanus (Herrich-Schäffer, 1834)

Distribution of the studies area: Gaziantep, **Habitat:** Agricultural area, Scrub and meadow area (Önder et al., 1995; Önder et al., 2006).

Distribution of the studies area: Gaziantep, **Host plant:** Unknown (Önder et al., 1995)

Sehirus cypriacus Dohrn, 1860

Distribution of the studies area: Diyarbakır, Gaziantep, **Habitat:** Scrub and meadow area (Önder et al., 1995; Önder et al., 2006).

Tritomegas bicolor (L.1758)

Remarks: The combination of this species, given as *Tritomegas bicolor* (L.) as the valid name in this study, is *Sehirus bicolor* (L.) given in the reviewed literature Önder et al., (1995) records. It's not a valid combination. The valid genus name is *Tritomegas*.

***Tritomegas* delagrangei** (Puton, 1888)

Remarks: The combination of this species, given as *Tritomegas delagrangei* (Puton, 1888) as the valid name in this study, is *Sehirus delagrangei* (Puton, 1888) given in the reviewed literature (Önder et al., 1995; Önder et al., 2006) records. It's not a valid combination. The valid genus name is *Tritomega*s.

Distribution of the studies area: Diyarbakır, Gaziantep, Mardin, **Habitat:** Agricultural area, Scrub and meadow area (Önder et al., 1995; Önder et al., 2006).

Tritomegas sexmaculatus (Rambur, 1839)

Remarks: The combination of this species, given as *Tritomegas sexmaculatus* (Rambur, 1839) as the valid name in this study, is *Sehirus sexmaculatus* (Rambur, 1842) given in the reviewed literature (Önder et al., 2006; Bolu, 2019) records. It's not a valid combination. The valid genus name is *Tritomegas*.

Distribution of the studies area: Southeastern Anatolia Region area (Önder et al., 2006), and Diyarbakır (Bolu, 2019) **Habitat:** Agricultural area, Scrub and meadow area (Önder et al., 2006). **Host plant:** Rosa sp. (Bolu, 2019).

Family Pentatomidae

Acrosternum breviceps (Jakovlev, 1890)

Distribution of the studies area: Adıyaman, Diyarbakır, Mardin, Siirt, Şanlıurfa,

Habitat and host plants: Agricultural area, Almond, Cotton, Scrub and grassland, Tobacco, and collecting with light trap (Önder & Adıgüzel, 1979; Karaat, 1986; Önder et al., 1995; Bolu et al., 2005; Önder et al., 2006; Matocq et al., 2014).

Acrosternum heegeri Fieber, 1861

Distribution of the studies area: Adıyaman, Batman, Diyarbakır, Gaziantep, Mardin, Siirt, Şanlıurfa, **Habitat and host plants:** Agricultural area, Almond, Cotton, Olive, Pistachio, Scrub and grassland, Wheat, and collecting with light trap (Önder & Adıgüzel, 1979; Karaat, 1986; Önder et al., 1995; Bolu, 2002; Bolu et al., 2005; Özgen et al., 2005a; Özgen et al., 2005b; Önder et al., 2006; Matocq et al., 2014; Şimşek & Bolu, 2017).

Acrosternum millieri (Mulsant & Rey, 1866)

Distribution of the studies area: Adıyaman, Diyarbakır, Gaziantep, Şanlıurfa, **Habitat and host plants:** Almond, Olive, Scrub and grassland, Weeds, and collecting with light trap (Önder & Adıgüzel, 1979; Önder et al., 1995; Bolu et al., 2005; Özgen et al., 2005b; Önder et al., 2006).

Aelia acuminata (Linnaeus, 1758)

Distribution of the studies area: Adıyaman, Diyarbakır, Gaziantep, Mardin, Siirt, Şanlıurfa, Şırnak, **Host plants:** *Aegilops cylindrica*, *Alopecurus myosuroides*, *Avena sterilis*, *Bromus inermis*, *B. tectorum*, *Hordeum geniculatum*, *H. murinum*, *Hordeum* sp., *Lolium rigidum*, *Oryza sativa*, *Phalaris brachysatchys*, *Poa annua*, *P. bulbosa*, *Secale montanum*, *Triticum* sp., Weeds, Wheat (Lodos et al., 1984; Lodos et al., 1998; Önder et al., 1995; Özgen et al., 2005a; Gözüaçık et al., 2011; Matocq et al., 2014).

Aelia albovittata Fieber, 1868

Distribution of the studies area: Diyarbakır, Gaziantep, Mardin, Şanlıurfa, **Host plant:** *Hordeum geniculatum*, Weeds (Önder et al., 1995; Gözüaçık et al., 2011; Matocq et al., 2014).

Aelia rostrata* subsp. *rostrata Boheman,1852

Remarks: In the Ancient literature records examined in this study, the synonym names of this species were are *Aelia cognata* (Fieber, 1868) and *Aelia syriaca* Horváth, 1903. These two names are synonymous with *A.rostrata*. In this study, distribution and habitat-host recorded data of this species is given as *Aelia rostrata* subsp. *rostrata* Boheman, 1852, which is the valid name. The combination of this species, given as *Aelia rostrata* subsp. *rostrata* Boheman 1852 as the valid name in this study, are *Aelia cognata* (Fieber, 1868) and *Aelia syriaca* Horváth, 1903 given in the reviewed literatüre (Önder et al., 1995) records. These two names are not a valid combination.

Distribution of the studies area: Adıyaman, Batman, Diyarbakır, Gaziantep, Mardin, Şanlıurfa, Şırnak, **Host plant:** Culture plant (Önder et al., 1995),*Aegilops cylindrica*, Weeds, Wheat (Lodos et al., 1984; Önder et al., 1995; Özgen et al., 2005a; Gözüaçık et al., 2011).

Aelia germari Küster, 1852

Distribution of the studies area: Gaziantep, **Host plant:** Culture plant (Önder et al., 1995).

Aelia melanota Fieber, 1868

Distribution of the studies area: Batman, Diyarbakır, Şanlıurfa, **Habitat:** Scrub

and meadow area (Önder et al., 2006).

Aelia virgata Klug, 1841

Distribution of the studies area: Gaziantep, **Host plant:** Culture plant, *Astragalus* sp., Weeds (Lodos et al., 1998; Önder et al., 1995).

Agatharchus herrichi (Kolenati, 1846)

Distribution of the studies area: Diyarbakır, **Host plant:** *Astragalus* sp. (Leguminosae) (Önder et al., 1995; Gözüaçık et al., 2011).

Agatharchus tritaenia Horváth, 1897

Distribution of the studies area: Gaziantep, **Host plant:** Culture plant (Önder et al., 1995).

Ancyrosoma leucogrammes (Gmelin, 1789)

Distribution of the studies area: Adıyaman, Batman, Diyarbakır, Gaziantep, Mardin, Şanlıurfa, **Host plants:** *Rosa* spp., *Torilis arvensis neglecta* (Wagner, 1959; Önder et al., 1995; Lodos et al., 1998; Gözüaçık et al., 2011; Matocq et al., 2014; Özgen et al., 2018; Bolu, 2019).

Apodiphus amygdali (Germar, 1817)

Distribution of the studies area: Adıyaman, Diyarbakır, Gaziantep, Mardin, Siirt, Şanlıurfa, **Host plants:** Almond, Apricot, Cherry, Peach, Pistachio, Olive, Poplar, the culture plant, *Acacia* sp., *Elaeagnus* sp., *Quercus* sp., *Platanus* sp., *Punica granatum*, *Prunus armeniaca*, *Vitis vinifera* (Önder & Adıgüzel 1979; Önder et al., 1995; Lodos et al., 1998; Bolu et al., 2005; Özgen et al., 2005b; Bolu et al. 2006; Gözüaçık et al., 2011)

Bagrada abeillei Horváth, 1936

Distribution of the studies area: Adıyaman, Diyarbakır, Gaziantep, Siirt, Şanlıurfa, **Host plants:** *Brassica napus* var. *oleifera, Capparis spinosa, Eryngium campestre, Salsola* sp., *Sinapis arvensis*, *Sysmbrium officinale*, *Verbascum* sp., Weeds (Önder et al., 1995; Lodos et al., 1998; Önder et al., 2006; Fent et al., 2010; Gözüaçık et al., 2011).

Bagrada amoenula (Walker, 1870)

Distribution of the studies area: Adıyaman, Şanlıurfa, **Host plants:** *Eryngium campestre*, *Brassica napus*, *Eryngium campestre*, *Coriandrum sativum*, *Punica granatum*, *Sinapis arvensis, Brassica napus* var. *oleifera, Capparis spinosa*, *Sysmbrium officinale*; *Coriandrum sativum* (Fent et al., 2010; Gözüaçık et al., 2011).

Bagrada (Nitilia) stolida (Herrich-Schaeffer, 1839)

Remarks: *Bagrada cicur* Horváth, 1936 and *Bagrada confusa* Horváth, 1936) were used in the revised literature as synonyms for *Bagrada (Nitilia) stolida.*
Bagrada (Nitilia) stolida (Herrich-Schaeffer, 1839) was used as the valid name for these old records given in this study.
Distribution of the studies area: Batman, Diyarbakır, Gaziantep, Mardin, Şanlıurfa, (Fent et al., 2010). **Host plants:** *Capparis* sp., *Salsola* sp., *Sinapis* sp., Umbelliferous plants, Weeds. Önder et al., (1995); Lodos et al., (1998); Önder et al., (2006) have recorded it as *Bagrada cicur*, and Özgen et al. (2005a) have recorded it as *Bagrada confusa* in wheat fields at Batman province.

Bagrada concinna Horváth, 1936

Distribution of the studies area: Diyarbakır, Gaziantep, Mardin, Şanlıurfa, **Habitat and host plants:** Scrub and meadow area, *Capparis* sp., *Sinapis* sp., Weeds (Önder et al., 1995; Lodos et al., 1998; Önder et al., 2006; Fent et al., 2010).

Bagrada lepida Horváth, 1936

Distribution of the studies area: Diyarbakır, Gaziantep, Siirt, **Habitat and host plant:** Scrub and meadow area, *Alyssum murale*, Weeds (Önder et al., 1995; Lodos et al., 1998; Önder et al., 2006).

Brachynema virens (Klug, 1845)

Distribution of the studies area: Şanlıurfa, **Host plant:** Unknown (Önder et al., 1995).

Carenoplistus acutus (Signoret, 1880)

Distribution of the studies area: Adıyaman, Mardin, **Habitat:** Scrub and meadow area (Önder et al., 1995; Önder et al., 2006).

Carpocoris coreanus Distant, 1899

Remarks: *Carpocoris iranus* Tamanini, 1958 recorded by Karaat (1986) Önder et al (1995) and Lodos et al (1998) from the study area is actually synonymous name of *Carpocoris coreanus* Distant 1899.
Distribution of the studies area: Adıyaman, Gaziantep, Diyarbakır, Mardin, Siirt, Şanlıurfa, **Habitat and host plants:** *Centaurea* sp., Compositae plants, *Euphorbia* sp., *Medicago sativa*, *Sinapis* sp., *Trifolium* sp., *Triticum* sp., *Verbascum* sp., Scrub and meadow area, Tabacco, Weeds (Karaat, 1986; Önder et al., 1995; Lodos et al., 1998);*Carduus pycnocephalus*, *Centaurea calcitrapa* L., *Centaurea* sp., *Onopordum acanthium* (Önder et al., 2006; Gözüaçık et al., 2011; Matocq et al., 2014).

Carpocoris fuscispinus (Boheman, 1849)

Distribution of the studies area: Adıyaman, Diyarbakır, Gaziantep, Şanlıurfa, **Host plants:** *Carduus pycnocephalus*, *Centaurea* sp., *Echinops microcephalus*, *Onopordum acanthium* (Önder et al., 1995; Gözüaçık et al., 2011).

Antheminia lunulata (Goeze, 1778)

Remarks: The combination of this species, given as *Antheminia lunulata* (Goeze, 1778) as the valid name in this study, is *Carpocoris lunulatus* (Goeze, 1778) given in the reviewed literatüre (Önder et al., 2006) records. It's not a valid combination. The valid genus name is *Antheminia*.

Distribution of the studies area: Diyarbakır,(Önder et al., 2006); Adıyaman, Diyarbakır, Şanlıurfa (Gözüaçık et al., 2011). **Habitat:** Scrub and meadow area (Önder et al., 2006). **Host plant:** *Euphorbia helioscopia* (Gözüaçık et al., 2011).

Carpocoris mediterraneus Tamanini, 1958

Distribution of the studies area: Gaziantep, **Habitat:** Scrub and meadow area (Önder et al., 1995; Önder et al., 2006).

Carpocoris pudicus (Poda, 1761)

Distribution of the studies area: Diyarbakır, Gaziantep, Şanlıurfa, **Host plants:** *Carduus pycnocephalus*, *Centaurea iberica*, *C. solstitialis*, *Echinops microcephalus*, *Trifolium* sp., Cherry, Wheat (Önder et al., 1995; Özgen et al., 2005a; Özgen et al.,

2005b; Bolu et al., 2006; Gözüaçık et al., 2011; Matocq et al., 2014).

Carpocoris purpureipennis (De Geer, 1773)

Distribution of the studies area: Adıyaman, Diyarbakır, Gaziantep, Mardin, Siirt, Şanlıurfa, **Host plants:** Almond, Tabacco, Weeds, Wheat, *Carduus pycnocephalus*, *Echinops microcephalus*, *Helianthus annuus* (Karaat, 1986; Önder et al., 1995; Özgen et al., 2005a; Bolu et al., 2006; Gözüaçık et al., 2011).

Codophila pusio (Kolenati, 1846)

Distribution of the studies area: Diyarbakır, Gaziantep, Mardin, **Habitat and host plants:** *Chenopodium* sp., *Circium* sp., *Euphorbia* sp., *Onopordum* sp., *Peganum harmala*, graminaeous and leguminosaeous plants, Weeds, Scrub and meadow area (Önder et al., 1995; Lodos et al., 1998; Önder et al., 2006).

Codophila varia (Fabricius, 1787)

Distribution of the studies area: Adıyaman, Diyarbakır, Gaziantep, Mardin, Siirt, **Host plants:** *Carduus pycnocephalus*, *Carthamus* sp., *Centaurea iberica*, *C. solstitialis*, *Circium* sp., *Daucus* sp., *Echinops ritro*, *Scolymus* sp., *Eryngium campestre*, *E. creticum*, *Helianthus annuus*, *Sesamum indicum Echium plantagineum, Medicago sativa, Onopordum* sp., *Sinapis* sp., *Verbascum* sp., Umbelliferous and graminaeous plants, Weeds (Önder et al., 1995; Lodos et al., 1998; Önder et al., 2006; Gözüaçık et al., 2011), and is recorded as *Codophila varia varia* (Fabricius, 1787) in the studies area Mardin province, on Apiaceae by Matocq et al. (2014).

Coridius viduatus (Fabricius, 1794)

Remarks: The combination of this species, given as *Coridius viduatus* (Fabricius, 1794) as the valid name in this study, is *Aspongopus viduatus* (Fabricius, 1794) given in the reviewed literatüre (Önder et al., 2006) records. It's not a valid combination. The valid genus name is *Coridius.*

Distribution of the studies area: Gaziantep, **Habitat:** Scrub and grassland (Önder et al., 2006).

Derula delagrangei Puton, 1892

Distribution of the studies area: Adıyaman, Diyarbakır, Gaziantep, Mardin, **Host plants:** *Daucus carota*; *Verbena officinalis* (Verbenaceae) (Önder et al., 1995; Önder et al., 2006; Gözüaçık et al., 2011).

Derula flavoguttata Mulsant & Rey, 1856

Distribution of the studies area: Adıyaman, Diyarbakır, Gaziantep, **Host plant:** *Verbena officinalis* (Önder et al., 1995; Önder et al., 2006; Gözüaçık et al., 2011).

Dolycoris baccarum (Linnaeus, 1758)

Distribution of the studies area: Adıyaman, Diyarbakır, Gaziantep, Mardin, Siirt, Şanlıurfa, Şırnak, **Host plants:** Almond, Legume Forage Crops, Olive, Pistachio, Pomegranate, Tabacco, Weeds, Wheat, *Brassica napus var. oleifera*, *Sinapis arvensis*, *Sysmbrium officinale*, *Ervum ervilia*, *Lens culinaris*, *Gundelia* sp., *Onopordum acanthium*, *O. carduchorum*, *Sesamum indicum*, *Silene colorata*, *Verbascum thapsus* (Lodos et al., 1984; Karaat, 1986; Akkaya, 1995; Önder et al., 1995; Lodos et al., 1998; Bolu, 2002; Özgen et al., 2005a; Özgen et al., 2005b; Bolu et al., 2006; Gözüaçık et al., 2011; Kaplan et al., 2011).

Dryoderes umbraculatus (Fabricius, 1775)

Distribution of the studies area: Adıyaman, Mardin, Gaziantep, **Host plant:** *Centaura* sp. (Önder et al., 1995; Gözüaçık et al., 2011; Matocq et al., 2014).

Eurydema fieberi (Schummel, 1836)

Remarks: *Eurydema armeniaca* Kolenati 1846 is used mistakenly by Önder et al (2006). This name is invalid and synonymous of *E.fieberi*.

Distribution of the studies area: Adıyaman, Batman, Diyarbakır, Gaziantep, Şanlıurfa, **Habitat:** Scrub and meadow area (Önder et al., 2006). **Host plants:** *Brassica napus*, *Capparis* sp., *Cardaria draba*, *Crambe orientalis*, *Lepidum sativum*, *Sinapis arvensis*, *Sysmbrium officinale* (Önder et al., 1995; Lodos et al., 1998; Önder et al., 2006; Gözüaçık et al., 2011; Özgen, 2012).

Eurydema putoni (Jakovlev, 1877)

Remarks: The combination of this species, given as *Eurydema (Eurydema) putoni* (Jakovlev, 1877) as the valid name in this study, is as *Eurydema formosum* (Puton, 1895) given in the reviewed (Önder et al., 1995; Lodos et al., 1998; Önder et al., 2006) literature records. It's not a valid combination.

Distribution of the studies area: Diyarbakır, Gaziantep, Mardin, **Habitat and host plants**: *Capparis* sp., *Sinapis* sp., Weeds, Scrub and meadow area (Önder et al., 1995; Lodos et al., 1998; Önder et al., 2006).Vineyard area (Özgen, 2012; Matocq et al., 2014).

Eurydema laticollis Horváth, 1907

Distribution of the studies area: Diyarbakır, **Habitat**: Scrub and meadow area (Önder et al., 2006).

Eurydema oleracea (Linnaeus, 1758)

Distribution of the studies area: Gaziantep, **Habitat**: Agriculture field, Scrub and meadow area (Önder et al., 1995; Önder et al., 2006).

Eurydema ornata (Linnaeus, 1758)

Remarks: The combination of this species, given as the valid name *Eurydema ornata* (Linnaeus, 1758) in this study, is also given as *Eurydema ornatum* (Linnaeus, 1758) in some reviewed literatüre (Gözüaçık et al., 2011; Matocq et al., 2014; Önder et al., 1995; Lodos et al., 1998; Özgen et al., 2005a; Önder et al., 2006) records. In this study, information belonging to these records was combined.

Distribution of the studies area: Adıyaman, Diyarbakır, Mardin, Şanlıurfa (Gözüaçık et al., 2011; Matocq et al., 2014); Batman, Gaziantep (Önder et al., 1995; Lodos et al., 1998; Özgen et al., 2005a; Önder et al., 2006). **Habitat and host plants:** *Brassica napus*, *Capparis* sp., *Cardaria draba*, *Crambe orientalis*, *Lepidum sativum*, *Sinapis arvensis*, *Sysmbrium officinale*; *Carthamus* sp., (Gözüaçık et al., 2011; Matocq et al., 2014); *Alhagi* sp., *Alyssum murale*, *Capparis* sp., *Cirsium* sp., *Cornus mas*, *Fagus* sp., *Medicago sativa*, *Onobrychis sativa*, *Ononis* sp., *Onopordum* sp., *Pirus malus*, *Rorippa* sp., *Sinapis* sp., *Spinacia oleracea*, *Triticum sativa*, *Verbascum* sp., *Veronica* sp., *Vicia cracca*, Cruciferous and Umbelliferous plants, Scrub and meadow area (Önder et al., 1995; Lodos et al., 1998; Özgen et al., 2005a; Önder et al., 2006).

Eurydema rugulosa (Dohrn, 1860)

Remarks: This species was recorded by Önder et al (1995) and Önder et al (2006) from Gaziantep as *Eurydema rugulosum* (Dohrn, 1860). and probuably this is were

used as mis spelling.

Distribution of the studies area: Diyarbakır, Mardin, (Matocq et al., 2014); Gaziantep (Önder et al., 1995; Önder et al., 2006), **Habitat**: Scrub and meadow area (Önder et al., 1995; Önder et al., 2006).

Eysarcoris ventralis (Westwood, 1837)

Remarks: *Eysarcoris inconspicuus* (Herrich-Schäffer, 1844) is recorded by literatures (Önder & Adıgüzel, 1979; Karaat, 1986; Önder et al., 1995; Lodos et al., 1998; Özgen et al., 2005a) from the study area, this name is actually synonymous name of *Eysarcoris ventralis* (Westwood, 1837).

Distribution of the studies area: Adıyaman, Diyarbakır, Gaziantep, Mardin, Siirt, Şanlıurfa, Şırnak **Host plants:** *Oryza sativa*; *Salvia* sp., (Gözüaçık et al., 2011; Matocq et al., 2014).*Circium* sp., *Cistus* sp., *Equestrum* sp., *Inula* sp., *Juniperus* sp., *Laurus nobilis*, *Mentha* sp., *Salix* sp., *Salvia* sp., *Sideritis* sp., *Verbascum* sp., *Tamarix* sp., *Triticum sativa*, Graminaeous plants, Tabacco, Wheat, Weeds, and collecting with light trap (Önder & Adıgüzel, 1979; Karaat, 1986; Önder et al., 1995; Lodos et al., 1998; Özgen et al., 2005a).

Graphosoma italicum (Müller, 1766)

Distribution of the studies area: Gaziantep, **Habitat**: *Daucus* spp., *Alyssum murale*, Meadow pasture (Önder et al., 1995; Lodos et al., 1998; Önder et al., 2006).

Graphosoma lineatum (Linneaus, 1758).

Distribution of the studies area: Diyarbakır, Mardin, **Host plant:** *Pistacia* sp. (Bolu et al., 2005).

Graphosoma melanoxanthum Horváth, 1903

Distribution of the studies area: Diyarbakır, **Habitat:** Scrub and meadow area (Önder et al., 2006).

Graphosoma semipunctatum (Fabricius, 1775)

Remarks: The combination of this species, given as *Graphosoma semipunctatum* (Fabricius, 1775) as the valid name in this study, is *Graphosoma creticum* Horváth, 1909 given in the reviewed literatüre (Önder et al., 1995; Lodos et al., 1998; Önder et al., 2006; Gözüaçık et al., 2011) records. It's not a valid combination.
In the Ancient literature records reviewed in this study, such synonymous name was given as *Graphosoma creticum* Horváth, 1909. It's synonym, *G. creticum* to be a junior synonym of *G. semipunctatum* (See Gapon, 2007)

Distribution of the studies area: Adıyaman, Diyarbakır, Gaziantep, Mardin, Şanlıurfa, **Habitat and host plants:** *Conium maculatum*, *Daucus carota*, *Eryngium creticum*, *E. campestre* Meadow pasture, Weeds (Önder et al., 1995; Lodos et al., 1998; Önder et al., 2006; Gözüaçık et al., 2011).

Graphosoma stali Horváth, 1881

Distribution of the studies area: Diyarbakır, Gaziantep, Mardin, **Habitat and host plant:** Apiaceae, Meadow pasture (Önder et al., 1995; Özgen et al., 2005a; Önder et al., 2006).

Holcogaster fibulata (Germar, 1831)

Distribution of the studies area: Gaziantep, **Habitat:** Scrub and meadow area (Önder et al., 1995; Önder et al., 2006).

Peribalus (Peribalus) strictus strictus (Fabricius, 1803)

Remarks: The combination of this species, given as *Peribalus (Peribalus) strictus strictus* (Fabricius, 1803) as the valid name in this study, *Holcostethus (Holcostethus) strictus* (Fabricius, 1803) given in the reviewed literature records. It's not a valid combination. The valid genus name is *Peribalus.*

Distribution of the studies area: Gaziantep, Mardin (Matocq et al., 2014; Önder et al., 1995; Lodos et al., 1998; Önder et al., 2006). **Habitat and host plants:** *Juniperus* sp., *Punica granatum*, *Sinapis* sp., *Triticum sativa*, *Verbacum* sp., Scrub and meadow area, Weeds (Önder et al., 1995; Lodos et al., 1998; Önder et al., 2006).

Peribalus (Peribalus) strictus vernalis (Wolff, 1804)

Remarks: The combination of this species, given as *Peribalus (Peribalus) strictus vernalis* (Wolff, 1804) as the valid name in this study, *Holcostethus (Holcostethus) vernalis* (Wolff, 1804) given in the reviewed literature (Önder et al., 1995; Lodos et al., 1998; Özgen et al., 2005a; Bolu et al., 2006; Önder et al., 2006; Gözüaçık et al., 2011; Özgen, 2012) records. It's not a valid combination. The valid genus name is *Peribalus.*

Distribution of the studies area: Adıyaman, Batman, Diyarbakır, Gaziantep, Mardin, Siirt, Şanlıurfa, **Habitat and host plants:** *Arundo donax, Celtis australis, Centaurea* sp., *Crataegus* sp., *Pistacia vera, Prunus malus, P. Amygdali, P. armeniaca, Pirus malus, Punica granatum, Quercus* sp., *Rosa* sp., *Rubus* sp., *Sinapis* sp., *Solanum melongena, Triticum sativa, Verbascum* sp. Almond, Meadow pasture, Weeds, Wheat, (Önder et al., 1995; Lodos et al., 1998; Özgen et al., 2005a; Bolu et al., 2006; Önder et al., 2006; Gözüaçık et al., 2011; Özgen, 2012).

Leprosoma tuberculatum Jakovlev, 1874

Remarks: The combination of this species, given as *Leprosoma tuberculatum* Jakovlev, 1874 as the valid name in this study, *Leprosoma inaequale* Horváth, 1911 given in the reviewed literature (Gözüaçık et al., 2011) records. It's not a valid combination (see Gapon, 2008).

Distribution of the studies area: Diyarbakır, **Host plant:** *Poa annua* (Gözüaçık et al., 2011).

Leprosoma stali Douglas & Scott, 1868

Distribution of the studies area: Diyarbakır, **Habitat:** Scrub and meadow area (Önder et al., 1995; Önder et al., 2006).

Mustha longispinis Reuter, 1890

Distribution of the studies area: Diyarbakır, Gaziantep, Mardin, Şanlıurfa, **Host plants:** Almond, *Pistacia* sp. (Önder et al., 1995; Özgen et al., 2005b; Bolu et al., 2006).

Mustha spinosula (Lefebvre, 1831)

Distribution of the studies area: Adıyaman, Diyarbakır, Gaziantep, Mardin, Şanlıurfa, **Habitat:** Agricultural field and forest, Olive, Scrub and meadow area (Önder et al., 1995; Önder et al., 2006; Kaplan et al., 2011).

Mustha vicinia Hoberlandt, 1997

Remarks: According to Fent, Dursun et al (2010) *Mustha incana* is confused with *M. vicina. Mustha incana* is no record for this species from Turkey, except the one given mistakenly by Önder et al. (1995).

Distribution of the studies area: Gaziantep, (Önder et al., 1995; Önder et al., 2006); Adıyaman, Diyarbakır, Şanlıurfa (Gözüaçık et al., 2011).**Habitat:** Scrub and meadow area (Önder et al., 1995; Önder et al., 2006).**Host plants:** *Elaeagnus* sp., *Ficus carica*, *Morus* sp., *Quercus* sp., *Pistacia vera*, *Prunus armeniaca* (Gözüaçık et al., 2011).

Neottiglossa bifida (Costa, 1847)

Distribution of the studies area: Gaziantep, **Habitat :** Scrub and meadow area (Önder et al., 1995; Önder et al., 2006).

Neottiglossa leporina (Herrich-Schäffer, 1830)

Distribution of the studies area: Diyarbakır, **Habitat :** Scrub and meadow area (Önder et al., 1995; Önder et al., 2006).

Nezara viridula (Linnaeus, 1758)

Distribution of the studies area: Adıyaman, Batman, Diyarbakır, Gaziantep, Mardin, Siirt, Şanlıurfa, Şırnak, **Host plants:** *Althae* sp., *Capparis* sp., *Centaurea* sp., *Hordeum vulgaris, Morus alba*, *Onopordum* sp., *Paliurus* sp., *Phloemis* sp., *Phaseolus vulgaris, Rubus* sp., *Sesamum indicum, Sinapis* sp., *Styrax* sp., *Thymus vulgaris, Triticum sativa, Verbascum* sp., *Vicia faba,* Umbelliferous plants (Akkaya, 1995; Önder et al., 1995; Lodos et al., 1998).

Palomena prasina (Linnaeus, 1761)

Distribution of the studies area: Gaziantep, **Habitat :** Scrub and meadow area (Önder et al., 1995; Önder et al., 2006).

Palomena viridissima (Poda, 1761)

Distribution of the studies area: Mardin, **Host plants:** Cherry, Wheat (Özgen et al., 2005a; Özgen et al., 2005b).

Pausias martini (Puton, 1890)

Distribution of the studies area: Diyarbakır, **Host plants:** *Elaeagnus* sp., *Morus* sp., *Punica granatum* (Gözüaçık et al., 2011).

Picromerus conformis (Herrich-Schäffer, 1841)

Distribution of the studies area: Diyarbakır, **Habitat :** Forest area (Önder et al., 2006).

Piezodorus lituratus (Fabricius, 1794)

Distribution of the studies area: Adıyaman, Batman, Diyarbakır, Gaziantep, Mardin, Siirt, Şanlıurfa, Şırnak, **Host plants:** Almond, Legume Forage Crops, Wheat, *Crataegus azarrolus*, *Elaeagnus* sp., *Ervum ervilia*, *Lens culinaris*, *Medicago sativa*, *Trifolium* sp., *Morus* sp., *Prunus armeniaca* (Lodos et al., 1984; Akkaya, 1995; Önder et al., 1995; Bolu et al., 2005; Özgen et al., 2005a; Bolu et al., 2006; Gözüaçık et al., 2011).

Pitedia pinicola (Mulsant & Rey, 1852)

Distribution of the studies area: Gaziantep, **Habitat :** Forest area (Önder et al., 1995; Önder et al., 2006).

Rhaphigaster nebulosa (Poda, 1761)

Distribution of the studies area: Adıyaman, Diyarbakır, Gaziantep, Mardin, Şanlıurfa, **Host plants:** *Elaeagnus* sp., *Morus* sp., *Vitis vinifera* (Önder et al., 1995; Lodos

et al., 1998; Özgen et al., 2005b; Gözüaçık et al., 2011).

Risibia christophi (Jakovlev, 1885)

Distribution of the studies area: Diyarbakır, Gaziantep, **Habitat:** Scrub and meadow area (Önder et al., 1995; Önder et al., 2006).

Sciocoris atifi Lodos & Önder, 1982

Distribution of the studies area: Gaziantep, Siirt, **Habitat:** Farmland, Scrub and meadow area (Önder et al., 1995; Önder et al., 2006).

Sciocoris capitatus Jakovlev, 1881

Distribution of the studies area: Adıyaman, Diyarbakır, Mardin, Şanlıurfa, **Host plants:** *Aegilops cylindrica*, *Alopecurus myosuroides*, *Hordeum geniculatum* (Önder et al., 1995; Önder et al., 2006; Gözüaçık et al., 2011).

Sciocoris cursitans (Fabricius, 1794)

Distribution of the studies area: Diyarbakır, Şanlıurfa, **Host plants:** *Bromus inermis*, *Lolium rigidum*, *Hordeum murinum*, *H. geniculatum* (Lodos et al., 1984; Önder et al., 1995; Önder et al., 2006; Gözüaçık et al., 2011).

Sciocoris deltocephalus Fieber, 1861

Distribution of the studies area: Diyarbakır, **Habitat :** Scrub and meadow area (Önder et al., 1995; Önder et al., 2006).

Sciocoris distinctus Fieber, 1851

Distribution of the studies area: Mardin, **Habitat :** Vineyard area (Özgen, 2012).

Sciocoris helferi Fieber, 1851

Distribution of the studies area: Diyarbakır, Şanlıurfa, **Host plants:** *Alopecurus myosuroides*, *Aegilops cylindrica* (Gözüaçık et al., 2011).

Sciocoris hoberlandti Wagner, 1954

Distribution of the studies area: Diyarbakır, Şanlıurfa, **Host plants:** *Aegilops* cylindrica, *Alopecurus myosuroides*, *Poa annua* (Gözüaçık et al., 2011).

Sciocoris homalonatus Fieber, 1851

Distribution of the studies area: Mardin, **Habitat :** Scrub and meadow area (Önder et al., 1995; Önder et al., 2006).

Sciocoris luteolus (Fieber, 1861)

Distribution of the studies area: Adıyaman, Diyarbakır, Gaziantep, Mardin, Siirt, Şanlıurfa, **Host plants:** *Aegilops cylindrica*, *Alopecurus myosuroides*, *Hordeum murinum*, *Hordeum* sp., *Secale montanum*, *Triticum* sp. (Önder et al., 1995; Önder et al., 2006; Gözüaçık et al., 2011).

Sciocoris macrocephalus Fieber, 1851

Distribution of the studies area: Adıyaman, Diyarbakır, Gaziantep, Mardin, Siirt, **Habitat :** Agricultural area, Scrub and meadow area (Önder et al., 1995; Önder et al., 2006; Matocq et al., 2014).

Sciocoris maculatus Fieber, 1851

Distribution of the studies area: Diyarbakır, Şanlıurfa, **Host plants:** *Bromus tectorum*,

Lolium rigidum (Özgen et al., 2005a; Gözüaçık et al., 2011).

Sciocoris ochraseus Fieber, 1861

Distribution of the studies area: Diyarbakır, Mardin, Siirt, Şırnak, **Habitat:** Agricultural area, Scrub and meadow area (Önder et al., 1995; Önder et al., 2006).

Sciocoris pallens Klug, 1855

Distribution of the studies area: Gaziantep, **Habitat :** Agricultural area, Scrub and meadow area (Önder et al., 1995; Önder et al., 2006).

Sciocoris pictus Wagner, 1959

Distribution of the studies area: Batman, Diyarbakır, Gaziantep, Siirt, **Habitat:** Olive, Scrub and meadow area, Weeds (Önder et al., 1995; Lodos et al., 1998; Özgen et al., 2005b; Önder et al., 2006).

Sciocoris ressli Wagner, 1966

Distribution of the studies area: Diyarbakır, Gaziantep, Şanlıurfa, **Habitat and host plants:** *Astragalus* sp., *Rubus* sp., Scrub and meadow area (Önder et al., 1995; Lodos et al., 1998; Önder et al., 2006).

Sciocoris sulcatus Fieber, 1851

Distribution of the studies area: Adıyaman, Batman, Diyarbakır, Mardin, Siirt, Şanlıurfa, **Host plants:** *Aegilops cylindrica*, *Alopecurus myosuroides*, *Bromus inermis*, *B. tectorum*, *Hordeum* sp., *Lolium rigidum*, *Poa annua*, *P. bulbosa*, *Triticum* sp. (Önder et al., 1995; Özgen et al., 2005a; Gözüaçık et al., 2011).

Stagonomus amoenus (Brullé, 1832)

Distribution of the studies area: Gaziantep, Şanlıurfa, **Host plant:** *Carthamus* sp. (Önder et al., 2006; Gözüaçık et al., 2011).

Stagonomus bipunctatus (Linnaeus, 1758)

Distribution of the studies area: Adıyaman, Diyarbakır, Gaziantep, Şanlıurfa, **Host plants:** *Carthamus* sp.; *Salvia viridis*, *Verbascum* sp. (Önder et al., 1995; Lodos et al., 1998; Önder et al., 2006; Gözüaçık et al., 2011).

Staria lunata (Hahn, 1835)

Distribution of the studies area: Adıyaman, Diyarbakır, Gaziantep, Şanlıurfa, **Host plant:** *Carduus pycnocephalus* (Asteaceae) (Önder et al., 1995; Önder et al., 2006; Gözüaçık et al., 2011; Matocq et al., 2014).

Tarisa subspinosa (Germar, 1839)

Remarks: The combination of this species, given as *Tarisa subspinosa* (Germar, 1839) as the valid name in this study, *Tarisa fraudatrix* Horváth, 1891 given in the reviewed literature (Önder et al., 2006). records. It's not a valid combination.

Distribution of the studies area: Diyarbakır, **Habitat :** Scrub and meadow area (Önder et al., 2006).

Tarisa virescens Herrich-Schäffer, 1851

Distribution of the studies area: Gaziantep, **Habitat and host plants:** *Anchusa* sp., *Salsola* sp., Scrub and meadow area (Önder et al., 1995; Lodos et al., 1998; Önder et al., 2006).

Tholagmus flavolineatus (Fabricius, 1798)

Distribution of the studies area: Adıyaman, Diyarbakır, Gaziantep, **Habitat and host plants:** *Centaurea* sp., *Circium* sp., *Eryngium campestre*, *E. creticum, Juniperus* sp., *Vitex agnus-castus*, Graminaeous and Umbelliferous plants, Agricultural area, Scrub and meadow area (Önder et al., 1995; Lodos et al., 1998; Önder et al., 2006; Gözüaçık et al., 2011).

Trochiscocoris hemipterus (Jakovlev, 1879)

Distribution of the studies area: Diyarbakır, **Host plant:** Unknown (Matocq et al., 2014).

Trochiscocoris rotundatus Horváth, 1895

Distribution of the studies area: Adıyaman, **Habitat:** Scrub and meadow area (Önder et al., 2006).

Ventocoris achivus (Horváth, 1889)

Remarks: The combination of this species, given as *Ventocoris achivus* (Horváth, 1889) as the valid name in this study, is as *Ventocoris falcatus* (Cyrillus, 1787) given in the reviewed (Önder et al., 1995; Önder et al., 2006; Fent et al., 2010; Gözüaçık et al., 2011) literature records. It's not a valid combination (Dursun & Fent, 2013). It should probably be *Ventocoris achivus* (Horváth, 1889).

Distribution of the studies area: Diyarbakır, Şanlıurfa, **Habitat and host plant:** *Chondrilla* sp., Scrub and meadow area (Önder et al., 1995; Önder et al., 2006; Gözüaçık et al., 2011).

Ventocoris horvathi (Puton, 1896)

Distribution of the studies area: Diyarbakır, Gaziantep, Mardin, Şanlıurfa, Şırnak, **Habitat and host plant:** *Chondrilla* sp., Scrub and meadow area (Önder et al., 1995; Lodos et al., 1998; Özgen et al., 2005a; Önder et al., 2006; Gözüaçık et al., 2011).

Ventocoris rusticus (Fabricius, 1781)

Remarks: The combination of this species, given as *Ventocoris rusticus* (Fabricius, 1781) as the valid name in this study, is as *Ventocoris trigonus* (Krynicki, 1871) given in the reviewed (Önder et al., 1995; Lodos et al., 1998; Önder et al., 2006) literature records. It's not a valid combination and synonym name of *V. rusticus*. (Dursun & Fent, 2013). It should probably be *Ventocoris rusticus* (Fabricius, 1781)

Distribution of the studies area: Gaziantep, **Habitat and host plants:** Ranunculous and Cruciferous plants, Scrub and meadow area (Önder et al., 1995; Lodos et al., 1998; Önder et al., 2006).

Vilpianus galii (Wolff, 1802)

Distribution of the studies area: Diyarbakır, Gaziantep, **Habitat and host plant:** *Mentha* sp., Scrub and meadow area (Önder et al., 1995; Önder et al., 2006; Gözüaçık et al., 2011).

Zicrona coerulea (Linnaeus, 1758)

Distribution of the studies area: Adıyaman, Diyarbakır, Gaziantep, Siirt, **Habitat and host plants:** *Centaura* sp., *Carthamus* sp., *Equestrum* sp., *Mentha* sp., *Prunus domestica*, *Rubus* sp., *Urtica* sp., Scrub and meadow area (Lodos et al., 1998; Önder et al., 1995; Önder et al., 2006; Gözüaçık et al., 2011).

Family Plataspidae

Coptosoma costale Stål, 1853

Distribution of the studies area: Gaziantep, **Habitat:** Scrub and meadow area (Lodos & Önder, 1978; Önder et al., 1995; Önder et al., 2006).

Coptosoma scutellatum (Geoffroy, 1785)

Distribution of the studies area: Mardin, **Host plant:** Weeds (Lodos & Önder, 1978).

Family Scutelleridae

Ellipsocoris trilineata Mayr, 1864

Distribution of the studies area: Gaziantep, **Habitat:** Scrub and meadow area (Önder et al., 1995; Önder et al., 2006).

Eurygaster austriaca Schrank, 1776

Distribution of the studies area: Adıyaman, **Habitat and host plant:** Agricultural area, *Triticum* sp. (Önder et al., 1995; Önder et al., 2006; Gözüaçık & Fent, 2012).

Eurygaster hottentota (Fabricius, 1775)

Distribution of the studies area: Diyarbakır, **Habitat:** Agricultural area, (Önder et al., 1995; Önder et al., 2006)

Eurygaster integriceps Puton, 1881

Distribution of the studies area: Adıyaman, Batman, Diyarbakır, Gaziantep, Mardin, Siirt, Şanlıurfa, Şırnak, **Habitat and host plant:** Agricultural area, *Pistacia* sp., Wheat (Lodos, 1948; Kıran, 1995; Lodos et al., 1998; Önder et al., 1995; Karaca et al., 2004; Bolu et al., 2005; Önder et al., 2006; Gözüaçık & Fent, 2012).

Eurygaster maura (Linnaeus, 1758)

Distribution of the studies area: Diyarbakır, Gaziantep, Mardin, Şanlıurfa, **Habitat and host plant:** Agricultural area, Wheat (Lodos et al., 1998; Önder et al., 1995).

Irochrotus lanatus (Pallas, 1773)

Distribution of the studies area: Adıyaman, Diyarbakır, Gaziantep, Şanlıurfa, **Habitat and host plants:** *Carduus pycnocephalus*, *Secale montanum*, *Lolium rigidum*, Scrub and meadow area (Önder et al., 1995; Önder et al., 2006; Gözüaçık & Fent, 2012).

Irochrotus maculiventris (Germar, 1839)

Distribution of the studies area: Gaziantep, **Habitat:** Scrub and meadow area, Weeds (Lodos et al., 1998; Önder et al., 1995; Önder et al., 2006).

Odontoscelis dorsalis (Fabricius, 1803)

Distribution of the studies area: Gaziantep, **Habitat:** Scrub and meadow area (Önder et al., 1995; Önder et al., 2006).

Odontoscelis fuliginosa (Linnaeus, 1761)

Distribution of the studies area: Diyarbakır, **Host plant:** *Carduus pycnocephalus* (Gözüaçık & Fent, 2012).

Odontoscelis minuta Jakovlev, 1882

Distribution of the studies area: Adıyaman, **Host plant:** *Carduus pycnocephalus*

(Gözüaçık & Fent, 2012).

Odontoscelis seminitens Wagner, 1953

Distribution of the studies area: Gaziantep, **Habitat and host plants:** Leguminous and various plants, Scrub and meadow area (Lodos et al., 1998; Önder et al., 2006).

Odontotarsus caudatus (Burmeister, 1835)

Distribution of the studies area: Gaziantep, **Habitat:** Scrub and meadow area (Önder et al., 2006).

Odontotarsus freyi Puton, 1882

Distribution of the studies area: Gaziantep, **Habitat and host plants:** *Cistus* sp., graminaeous plants, *Poterium* sp., *Salvia* sp., *Sorghum halepense*, *Thymus* sp., *Triticum sativa* and also different species of weeds, Scrub and meadow area (Lodos et al., 1998; Önder et al., 1995; Önder et al., 2006).

Odontotarsus impictus Jakovlev, 1885

Distribution of the studies area: Adıyaman, Diyarbakır, Mardin, Siirt, Şanlıurfa, Şırnak, **Habitat and host plants:** *Centaurea calcitrapa*, *Centaurea iberica,* Scrub and meadow area (Önder et al., 1995; Önder et al., 2006; Gözüaçık & Fent, 2012).

***Odontotarsus rufescens* Fieber, 1861**

Remarks: The combination of this species, given as *Odontotarsus rufescens* Fieber, 1861 as the valid name in this study, is as *Odontotarsus karatasensis* Hoberlandt, 1955 given in the reviewed literature (Lodos et al., 1998; Önder et al., 1995; Önder et al., 2006) records. It's not a valid combination and a junior synonym of *O. rufescens*.

Distribution of the studies area: Gaziantep, **Habitat and host plant:** *Centaurea* sp., graminaeous plants, *Triticum sativa* and different species of weeds, Scrub and meadow area (Lodos et al., 1998; Önder et al., 1995; Önder et al., 2006).

Odontotarsus obsoletus obsoletus Horváth, 1906

Distribution of the studies area: Diyarbakır, Şanlıurfa, **Host plants:** *Centaurea calcitrapa*, *Centaurea iberica* (Gözüaçık & Fent, 2012).

Odontotarsus oculatus Horváth, 1881

Distribution of the studies area: Gaziantep, **Habitat:** Scrub and meadow area (Önder et al., 1995; Önder et al., 2006).

Odontotarsus plicatulus Horváth, 1906

Distribution of the studies area: Adıyaman, Diyarbakır, Gaziantep, Mardin, Siirt, Şanlıurfa, **Habitat and host plants:** *Centaurea calcitrapa*, *Centaurea iberica,* Scrub and meadow area, Weeds (Lodos et al., 1998; Önder et al., 1995; Önder et al., 2006; Gözüaçık & Fent, 2012).

Odontotarsus purpureolineatus (Rossi, 1790)

Distribution of the studies area: Adıyaman, Diyarbakır, Gaziantep, Mardin, Siirt, Şanlıurfa, Şırnak, **Habitat and host plants:** *Sesamum indicum*, *Centaurea calcitrapa*, *Centaurea iberica*, *Carduus pycnocephalus*, *Eryngium campestre,* Scrub and meadow area, Weeds (Lodos et al., 1998; Önder et al., 1995; Önder et al., 2006; Gözüaçık & Fent, 2012).

Odontotarsus robustus Jakovlev, 1883

Distribution of the studies area: Adıyaman, Diyarbakır, Gaziantep, **Habitat and**

host plants: *Centaurea calcitrapa*, *Centaurea iberica*, *Carduus pycnocephalus*, *Eryngium creticum*, *E. campestre*, Scrub and meadow area (Önder et al., 1995; Önder et al., 2006; Gözüaçık & Fent, 2012).

Odontotarsus rufescens Fieber, 1861

Distribution of the studies area: Adıyaman, Diyarbakır, Gaziantep, Mardin, Şanlıurfa, **Habitat and host plants:** *Centaurea calcitrapa*, *Centaurea iberica*, *Carduus pycnocephalus*, *Eryngium creticum*, *Eryngium campestre*, Scrub and meadow area, Umbelliferae, Labiatae (Önder et al., 1995; Lodos et al., 1998; Önder et al., 2006; Gözüaçık & Fent, 2012).

***Odontoscelis (Odontoscelis) dorsalis* (Fabricius, 1798)**

Remarks: The combination of this species, given as *Odontotarsus dorsalis* (Fabricius, 1798) as the valid name in this study, is as *Odontotarsus seminitens* Wagner, 1953 given in the reviewed literature (Önder et al., 1995) records. It's not valid combination and a synonym of *O. dorsalis* (Fabricius, 1798)

Distribution of the studies area: Gaziantep, **Host plant:** Unknown (Önder et al., 1995).

***Psacasta (Psacasta) exanthematica exanthematica* (Scopoli, 1763)**

Remarks: The combination of this species, given as *Psacasta (Psacasta) exanthematica exanthematica* (Scopoli, 1763) as the valid name in this study, is *Psacasta pallida* Reuter, 1902 given in the reviewed literatüre (Önder et al., 1995; Önder et al., 2006) records. It's not a valid combination and it's a junior synonym of *P. exanthematica*.

Distribution of the studies area: Gaziantep, Adıyaman, Diyarbakır **Habitat and host plants:** *Anchusa azurea*, *Echium* sp., *Triticum* sp., Scrub and meadow area (Önder et al., 1995; Lodos et al., 1998; Önder et al., 2006; Gözüaçık & Fent, 2012).

Psacasta tuberculata (Fabricius, 1781)

Distribution of the studies area: Gaziantep, **Habitat:** Scrub and meadow area (Önder et al., 1995; Önder et al., 2006).

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Research Article

Notes on the Gastric Caecum in *Ventocoris fischeri* (Herrich-Schaffer, 1851) (Heteroptera, Pentatomidae)

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ABSTRACT: Gastric caecum is the region of the midgut in alimentary canal of insects. The main role of the gastric caecum in digestion is secreting the digestion enzymes. In this study, the gastric caecum of *Ventocoris fischeri* (Herrich-Schaffer, 1851) (Heteroptera, Pentatomidae) was investigated with using light microscope and scanning electron microscope. In *V. fischeri*, the gastric caecum is the last part of the midgut and has four longitudinal rows. The wall of each row has single layer cuboidal epithelium. The lumen of the gastric caecum contains numerous bacteria that have a role in helping digestion. The gastric caecum is connected to the alimentary canal at the region called as the pylorus.

KEYWORDS: Insect, alimentary canal, midgut, light microscope, scanning electron microscope.

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INTRODUCTION

Gastric caecum is highly specialized part of the midgut in insects but it generally is connected to the hindgut in the species belonging to Heteroptera suborder. The main duty of the gastric caecum of insects is secreting enzymes for helping digestion (Amutkan, 2012; Zucchi et al., 2012; Şimşek et al., 2020). The structure, position and number of the gastric caecum show diversity among different insect groups i.e. 2 in some Diptera larvae, 8 in Blattodea, many in Heteroptera and some Coleoptera (Amutkan, 2012; Chapman, 2013). The lumen of the gastric caecum in many insects is associated with different symbiont bacteria that

helping the digestion process (Amutkan, 2012; Zucchi et al., 2012; Şimşek et al., 2020).

Heteroptera suborder constitutes a widespread group of insect and includes over 40.000 identified species in the world.

These 40.000 species are classified under the 140 families with over 5.800 genus (Henry, 2009; Kıyak, 2019; Şimşek et al., 2020). In Turkey, about 1.520 species belonging to 40 families of Heteroptera suborder were identified until today (Önder et al., 2006; Küçükbasmacı & Kıyak, 2015; Kıyak, 2019; Şimşek et al., 2020).

Pentatomidae family is one of the families of the suborder Heteroptera with the highest number of species (about 5.000 identified species) all around the world.

Individuals of the Pentatomidae family are generally called as stinkbugs and show great diversity in feeding habits as phytophagous, zoophagous or omnivorous (Boyd et al., 2002; Parveen et al., 2015). The mouth parts structures can vary in consequence of the feeding habits.

Members of Pentatomidae family have piercing-sucking mouth parts that used for sucking the sap of crops, thus, most of them can cause a great damage on products of cultivated fields. However, this group contains some species that are used as biological control of harmful insects. Accordingly, Pentatomidae family has economical importance (Amutkan, 2012; Zucchi et al., 2012; Amutkan et al., 2015; Parveen et al., 2015; Şimşek et al., 2020).

Ventocoris is a genus which belongs to Pentatomidae family and is represented with twenty-four species, while this number is 8 in Turkey (Dursun & Fent, 2013). *Ventocoris fischeri* (Herrich-Schaeffer, 1851) is a species that is classified in genus *Ventocoris* and is a very widespread species both in Turkey and in the world.

V. fischeri is located in Afghanistan, Armenia, Azerbaijan, Egypt, France, Iran, Israel, Kazakhstan, Portugal, Sudan, Syria, Tadzhikistan, Turkmenistan, and Uzbekistan.

Besides, it spreads in Amasya, Ankara, Antalya, Burdur, Çorum, Konya, Mersin, and Nevşehir in Turkey (Önder et al., 2006; Dursun & Fent, 2013). *V. fischeri* can generally be found in the cultivated areas but they are mostly seen on weeds instead of cereals or wheat (Schuh & Slater, 1995).

Although it is a very common species, there is no study on the structure of the digestive tract of this species in the literature. In our previously study, we described the salivary glands of *V. fischeri* (Amutkan Mutlu et al., 2019). The aim of this study is to reveal the detailed structure of the gastric caecum in *V. fischeri* in order to get more information about the biology of this stinkbug.

MATERIAL AND METHODS

The mature individuals of *V. fischeri* males and females were collected from the harvested crops and cultivated areas around Çağa Village and Sinanlı town in Ankara province in July 2018 and taken to the laboratory. The alimentary canals were dissected out and the gastric caecum was separated from the alimentary canal. After dissection process, the gastric caecum samples were prepared for light microscopic (LM) and scanning electron microscopic (SEM) examinations.

Light microscopic examinations

Some of the gastric caecum samples fixed in 10% formaldehyde for the LM examinations. After fixation, they were washed and dehydrated with the ascending series of ethyl alcohol. Following the dehydration step, the samples were blocked in paraffin. The sections with 5-6 µm thickness were cut from the paraffin blocks and the slide was stained with hematoxylin-eosin (H&E). Examinations were made under Olympus BX51 light microscope and photographed.

Scanning electron microscopic examinations

For the SEM examinations, some of the samples were dissected in 5% glutaraldehyde and washed with phosphate buffer afterward. Then, the samples were dehydrated and were dried with critical point dryer (Polaron CPD 7501). Dried samples were mounted on SEM stubs and coated with gold (Polaron SC 502). The examinations were applied with JEOL JSM 6060 SEM at 5-10 kV.

RESULTS AND DISCUSSION

The midgut is an essential part of the insect digestive system. It also plays critical roles in metabolism, immune response, and homeostasis of electrolytes, osmotic pressure, circulation, and other physiological regulation (Takeda, 2012).

Midgut cells are actively involved in the production and secretion of digestive enzymes and absorption of nutrients (Chapman, 2013).

In insects, the midgut is generally in the form of a simple tube. The gastric cecum varies in shape, number, and location among insect orders (Glasgow, 1914; Chapman, 2013). It has been reported that closed-ended sacs (gastric cecum or midgut cecum) are usually located at the anterior end of the midgut, however, they may also occur along the midgut or in the posterior region of the midgut (Li et al., 2018). While it is generally located at the posterior end of the midgut in Heteroptera species and form of 2-4 rows (Amutkan, 2012; Gangurde et al., 2019; Şimşek et al., 2020), it is mainly found in anterior part of the midgut in Orthoptera species and form of finger-like projections (Polat, 2016; Amutkan, 2020). It has been indicated that these sacs extend from the midgut and contain bacteria that helps to digestion (Amutkan, 2012). It has been stated that the gastric cecum expands the surface area in the digestive system and increases digestive enzyme secretion and nutrient absorption (Chapman, 2013; Li et al., 2018; Jurenka, 2019).

The digestive system of *V. fischeri* composed of the foregut, the midgut and the hindgut, similar to the digestive tract of other Heteroptera species described previously (Hirose et al., 2006; Prado et al., 2006; Amutkan, 2012; Gangurde et al., 2019; Harris et al., 2019; Şimşek et al., 2020). The midgut is separated to four parts. These parts are called as the first, second, third and fourth ventriculus. The last region of the midgut is different from the other parts as surface. It is distinguished the presence of four longitudinal rows known as gastric caeca.

Although this structure consists of four longitudinal rows in *V. fischeri* (Figures 1, 2) and many Heteropteran insects, this has two longitudinal rows in some Heteroptera species such as *Anasa tristis* (Hemiptera, Coreidae), *Largus cinctus* (Hemiptera, Largidae) and *Largus californicus* (Hemiptera, Largidae) (Steinhaus et al., 1956; Gordon et al., 2016). In spite of that, there is no gastric caeca in some insect as *Graptostcthus scrvus* (Hemiptera, Lygaeidae) and *Sphex flavipennis* Fabricius, 1793 (Hymenoptera, Sphecidae) (Glasgow, 1914; Kurup, 1964; Demir & Suiçmez, 2011). It is indicated that the presence or absence of gastric caecum in Heteroptera species has taxonomic and phylogenic significance (Gangurde et al., 2019). It is also stated that morphological differences in the structure vary considerably according to the development degree of the families to which the species belong (Glasgow, 1914; Chapman, 2013).

The outer surface of the gastric caeca in *V. fischeri* is quite smooth and has a slightly knottily (Figures 1, 2). It is also encircled by trachea (Figures 1, 3-5).

In SEM investigation and the cross sections of light microscope, it is observed that the gastric caecum has numerous canal shape structure (Figures 2-4). Each caecum consists of a thin monolayer cuboidal epithelium with presence of round shape nucleus

(Figures 4-6). It is also seen that the lumen of gastric caeca and the cytoplasm in cells are full of with specific bacteria that help to digestion (Figures 4-8). While some of these rode-shaped bacteria have generally thick (Figure 7), some of them are thin (Figure 8). It has been noticed that bacteria are dividing (Figures 6, 7).

The association between species of Hemiptera order and bacterial symbionts in their digestive system has been of interest to entomologists and micro-biologists long since (Glasgow, 1914; Prado et al., 2006). Although bacteria have been observed to be associated with the gastric caeca in digestive system, these bacteria have been first identified in 1882 (Glasgow, 1914). Phylogenetic placement of the species is easily conclusive by identifying of the bacteria associated with gastric caecum in digestive system of Heteroptera species (Prado et al., 2006).

The gastric caecum is connected to the alimentary canal with the structure which is known as the pylorus in *V. fischeri* (Figures 9-10). It is surrounded by single-layer epithelium (Figures 11-12). The nuclei of the cells are round in shape and located at the basal site of the cell (Figures 11-12). It is observed that the granules in different shape are found in the lumen (Figures 13).

With this histological and morphological studied, we revealed the structure of the gastric caecum in *V. fischeri*. When all these results are compared with the previous studies in the literature, it was observed that the general structure of *V. fischeri*'s gastric caecum was similar to the species belonging to the Heteroptera order.

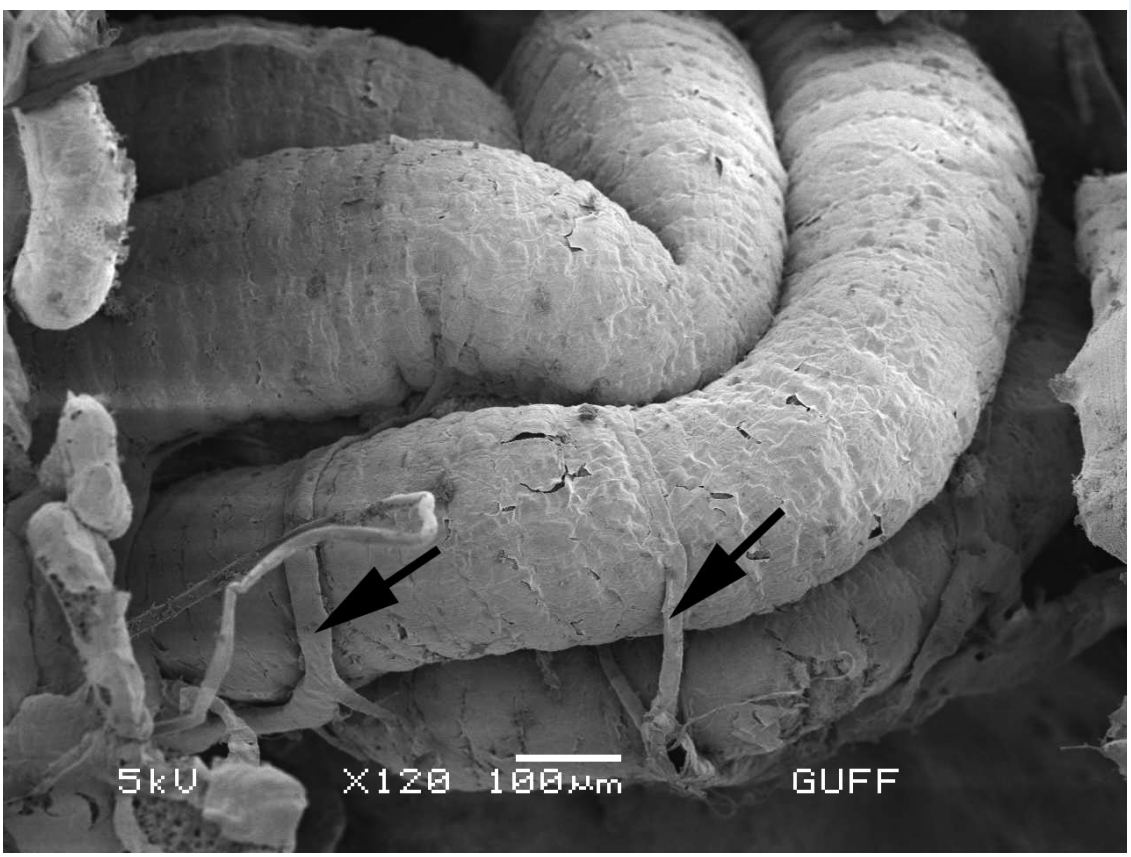

Figure 1. Outer surface of the gastric caecum in *Ventocoris fischeri*. Trachea (→) (SEM).

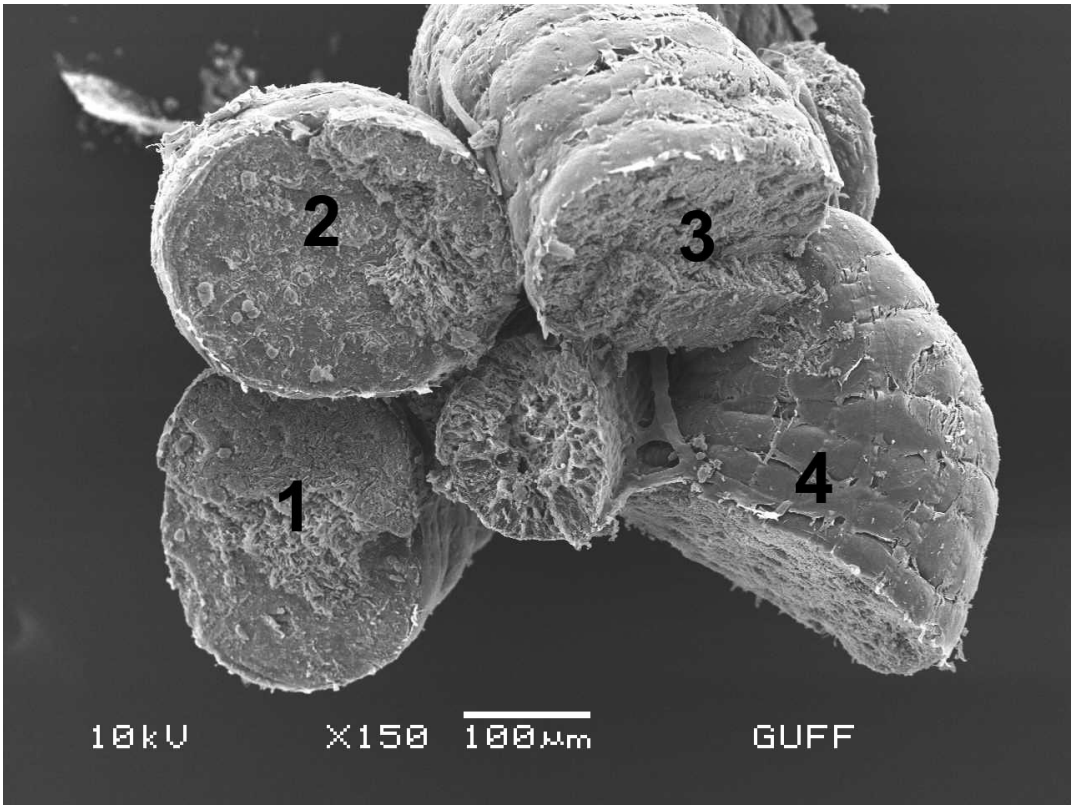

Figure 2. Four longitudinal rows in cross section of the gastric caecum (SEM).

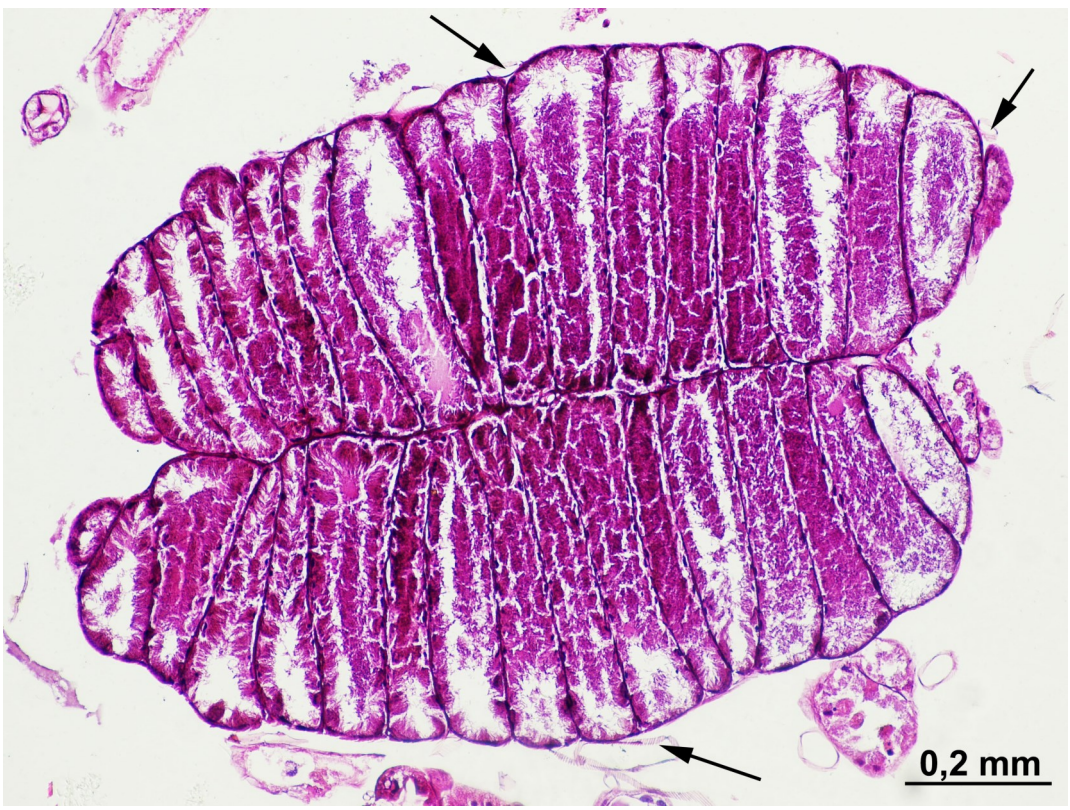

Figure 3. Two of four longitudinal rows in cross section of the gastric caecum. Trachea (→) (H&E, LM).

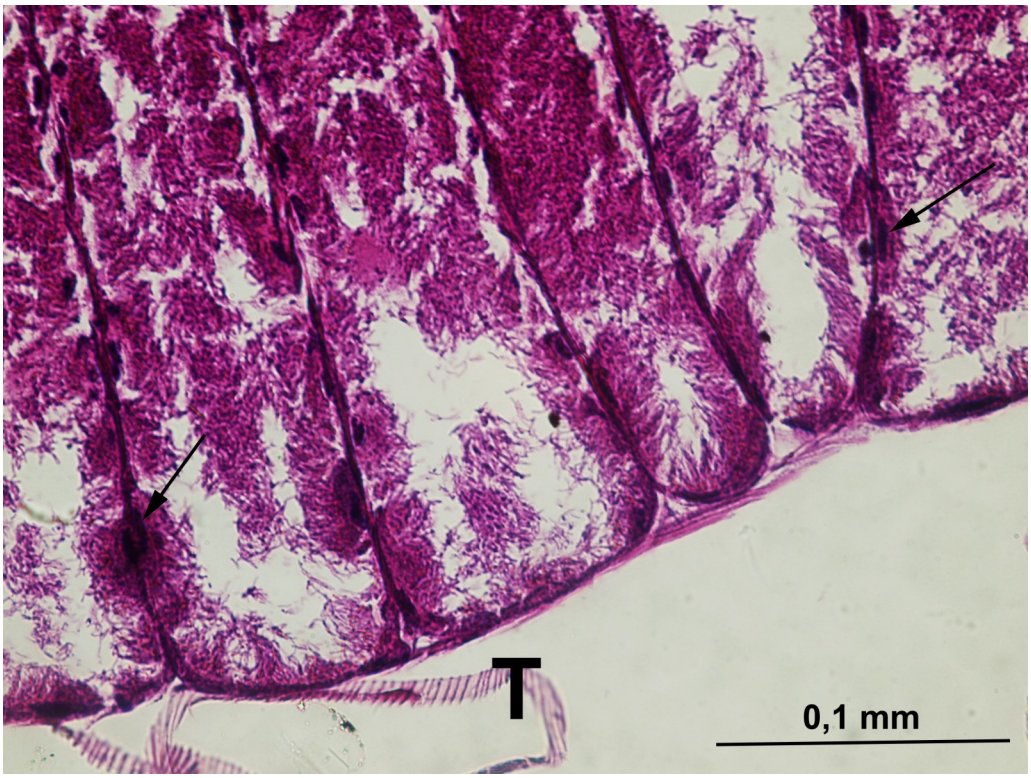

Figure 4. Cross section of the gastric caecum. Trachea (T), nucleus (→) (H&E, LM).

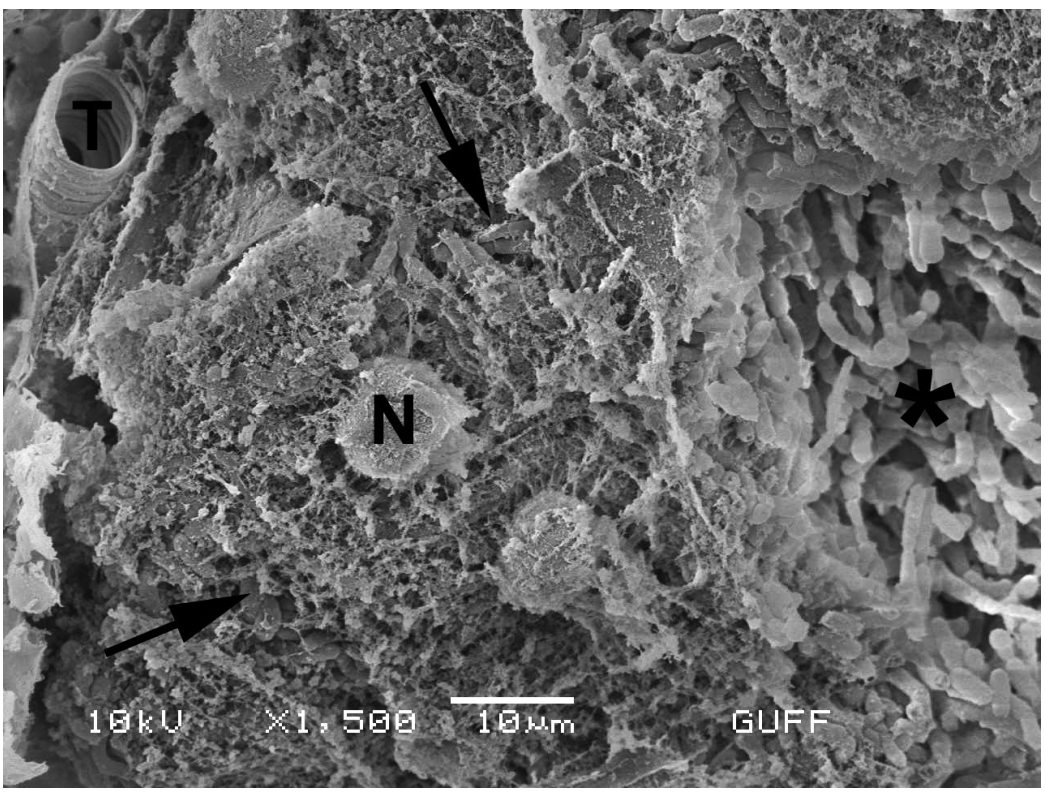

Figure 5. Cross section of the gastric caecum. Trachea (T), nucleus (N), bacteria in cytoplasm of the cell (→), bacteria in the lumen (*) (SEM).

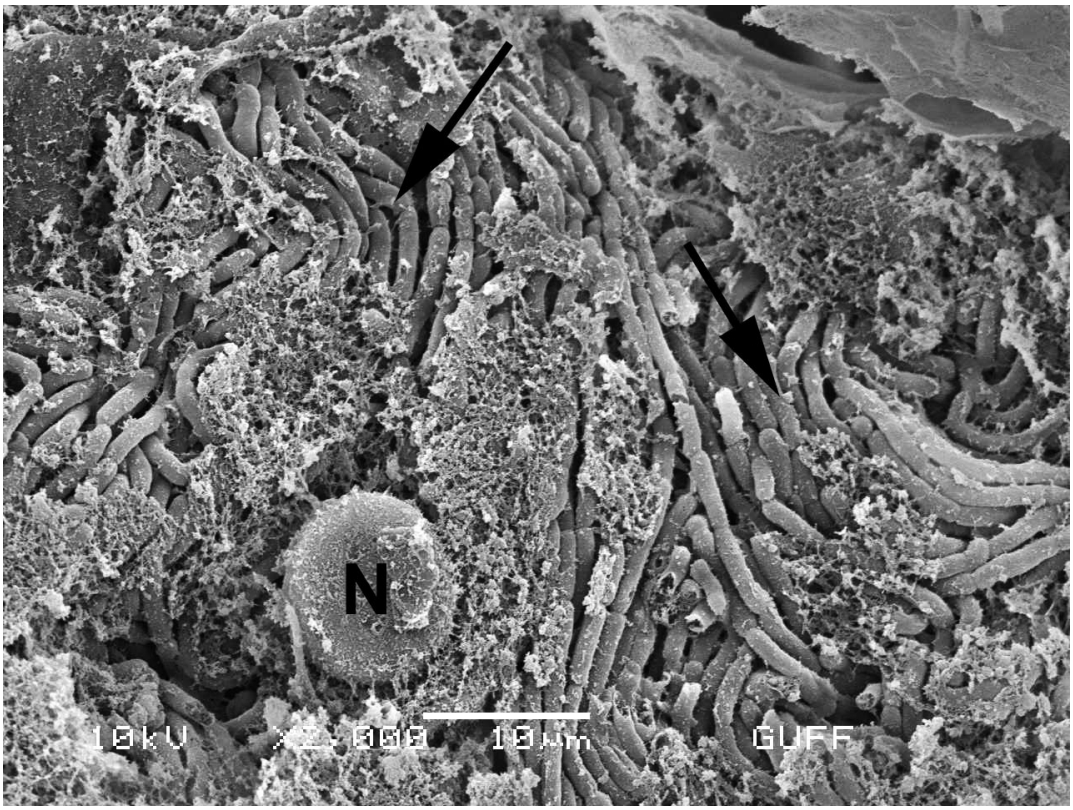

Figure 6. Cross section of the gastric caecum. Nucleus (N), bacteria in cytoplasm of the cell (→) (SEM).

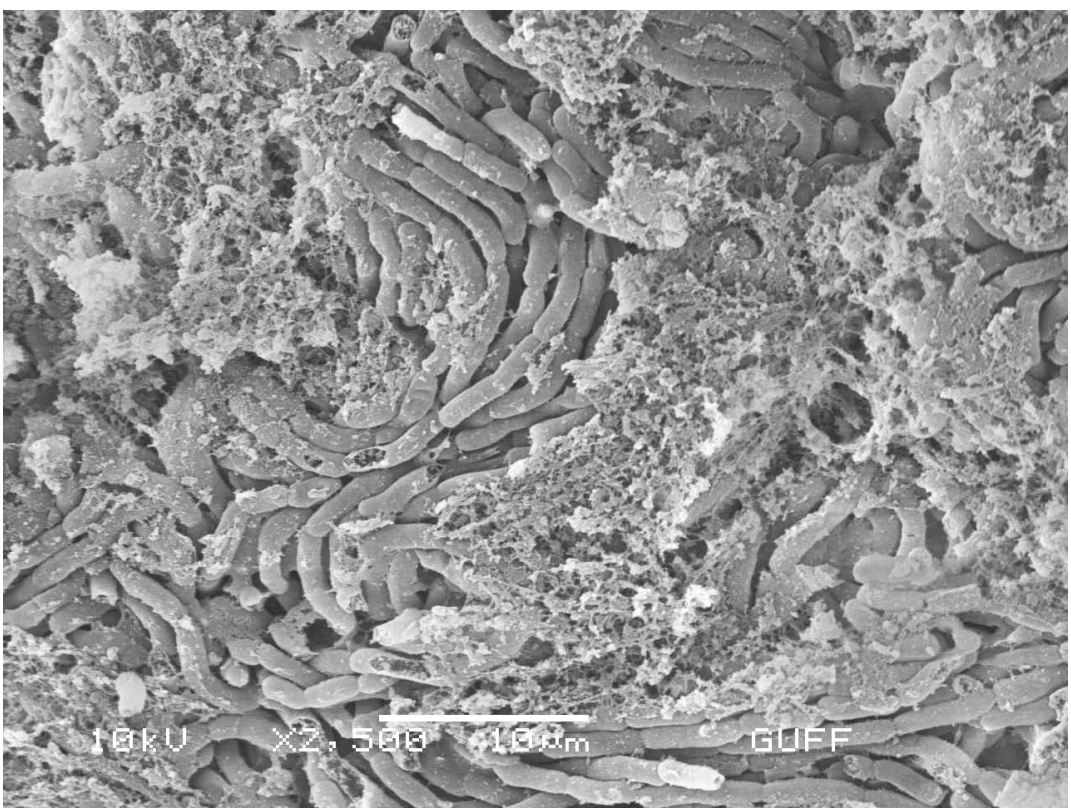

Figure 7. Overall appearance of bacteria (thick shape) in cytoplasm of the cell (SEM).

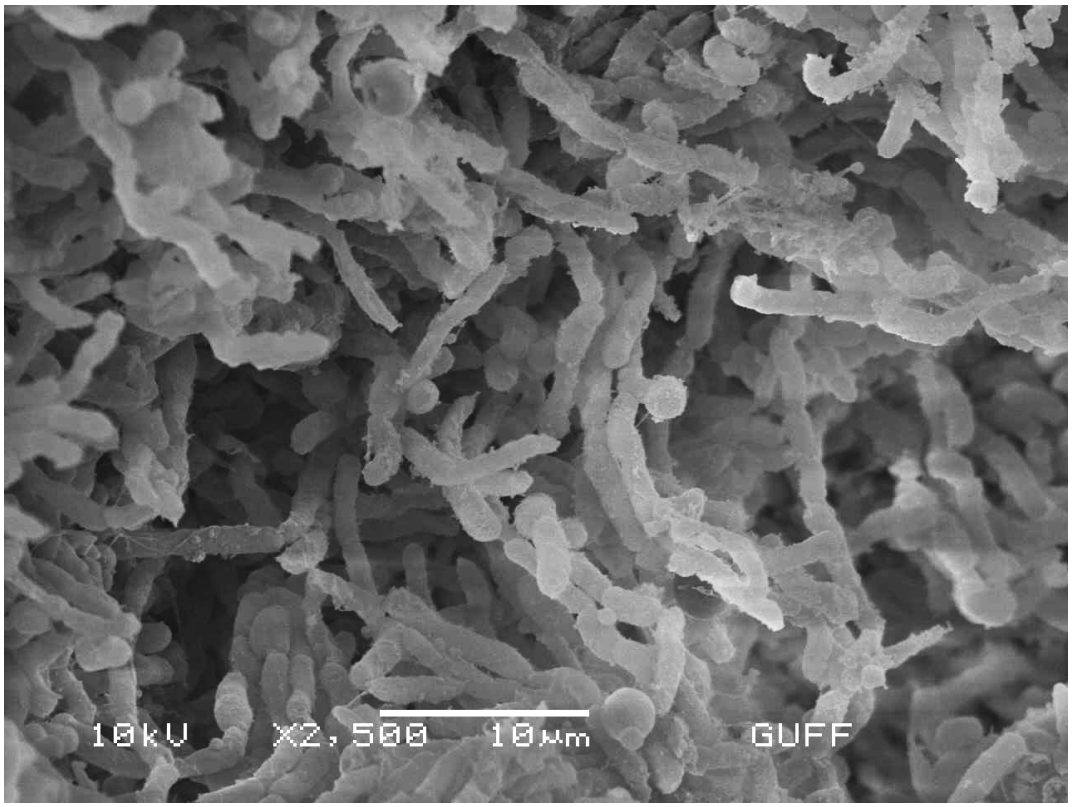

Figure 8. Overall appearance of bacteria (thin shape) in cytoplasm of the cell (SEM).

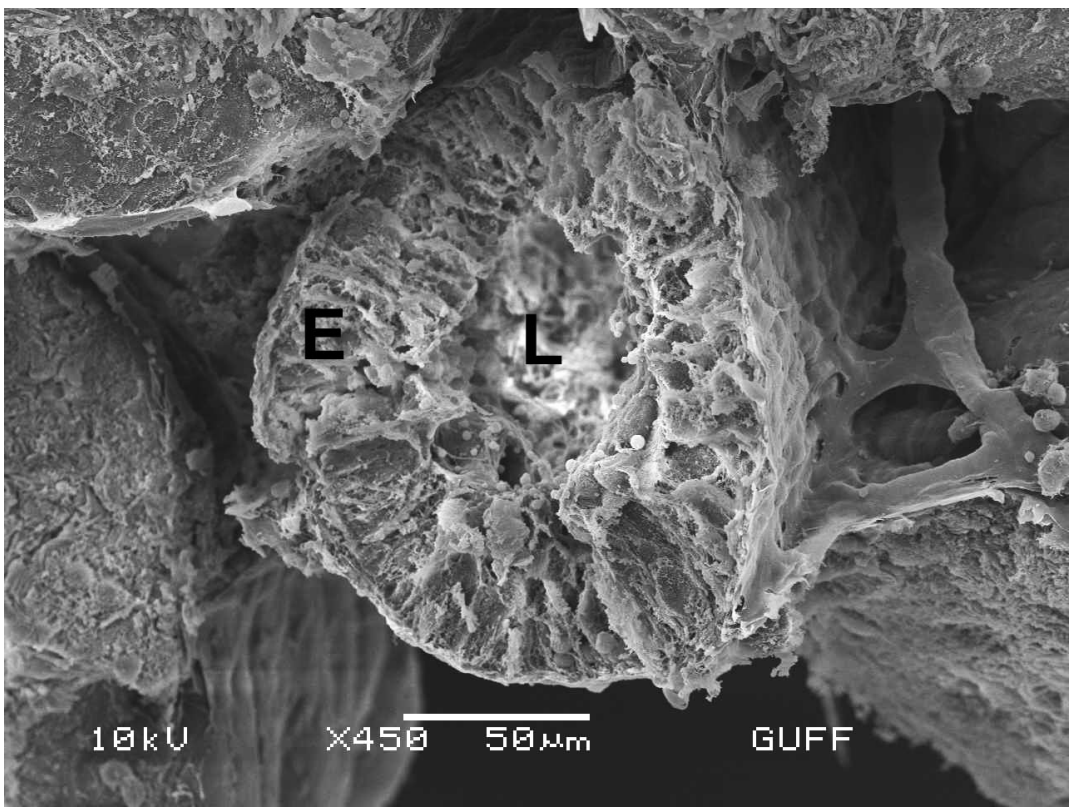

Figure 9. Overall appearance of the pylorus. Lumen (L), epithelium (E) (SEM).

Figure 10. The cross section of the pylorus. Lumen (L), gastric caecum (GC) (H&E, LM).

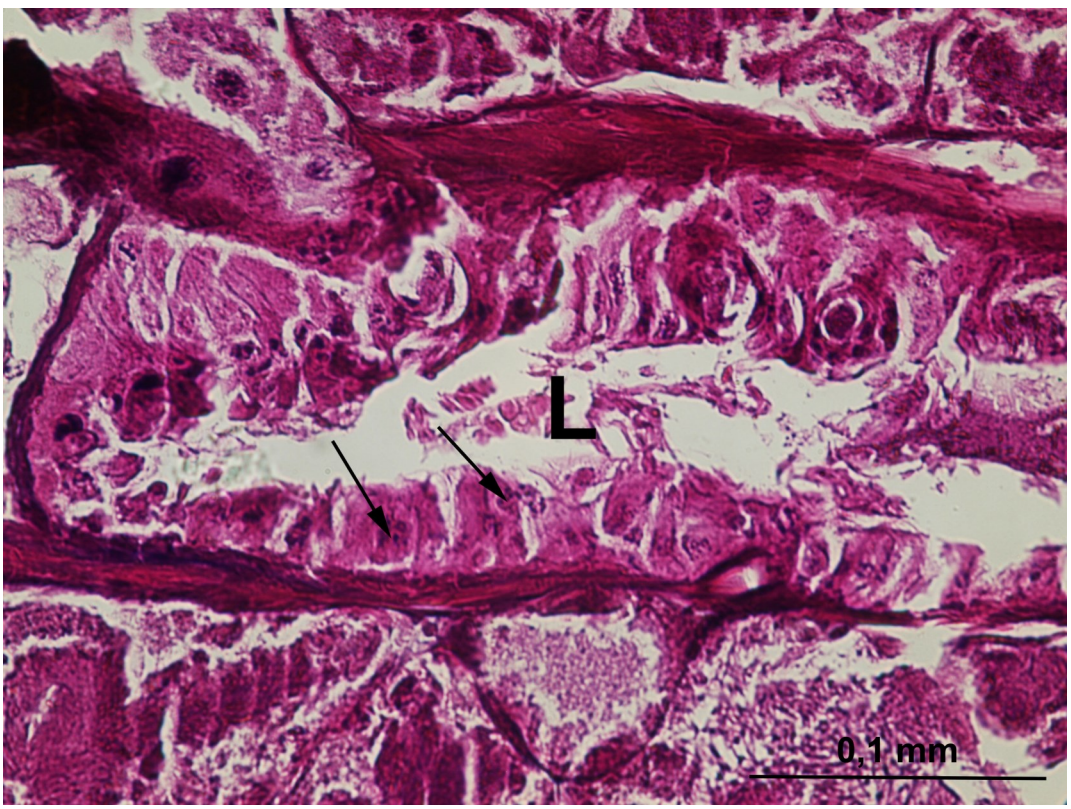

Figure 11. The cross section of the pylorus. Lumen (L), nucleus (→) (H&E, LM).

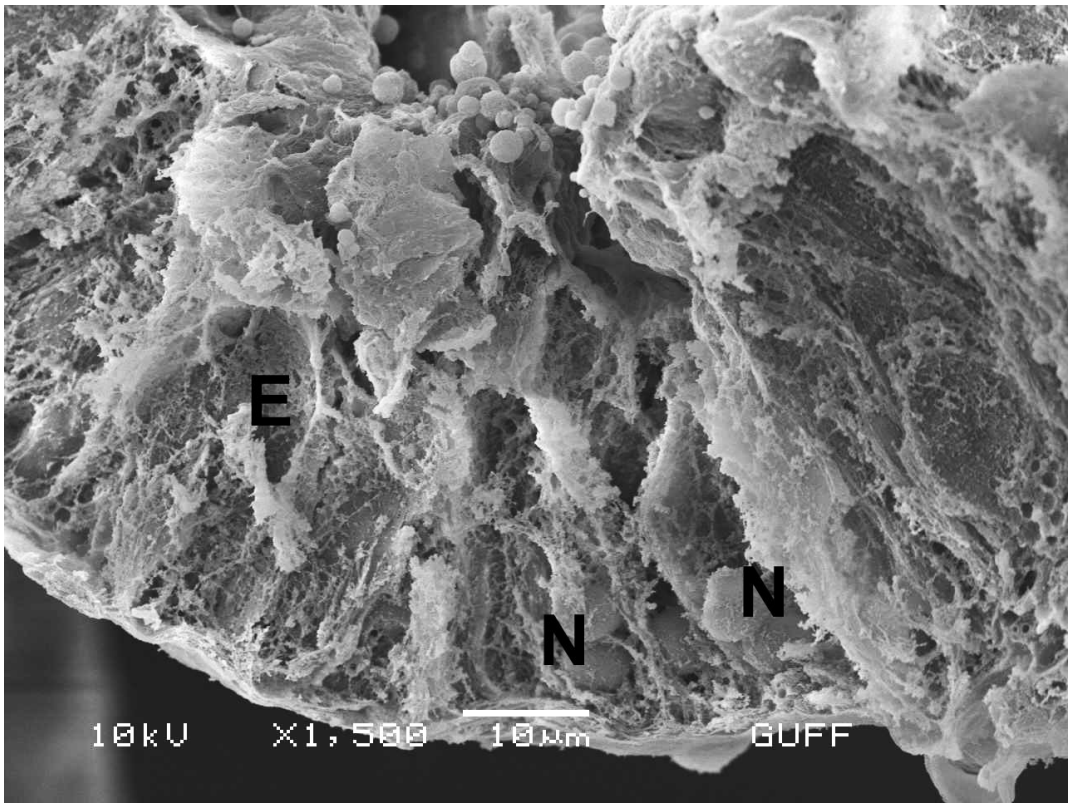

Figure 12. The cross section of the pylorus. Epithelium (E), nucleus (N) (SEM).

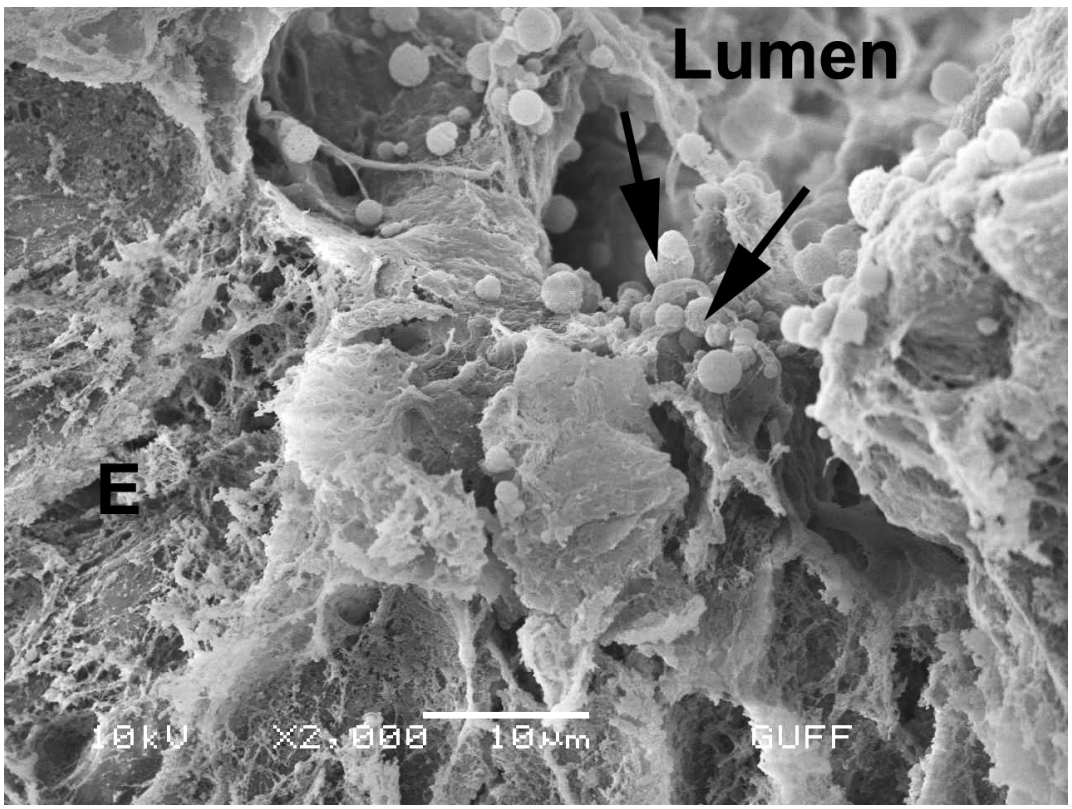

Figure 13. The cross section of the pylorus. Epithelium (E), granules (→) (SEM).

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Research Article

A Preliminary List on the Host Plants of Lygaeoidea Species (Hemiptera: Heteroptera) in Turkey- I

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ABSTRACT: In this preliminary study hostplants relationships of Lygaeoidea species of Turkey are listed, discussed and summarised. The hostplants of Lygaeoidea species are from various floristic elements of Turkey. According to various families of the superfamily Lygaeoidea studies done between the years 1922-2020, a total of 222 plant taxa in 36 families have been identified as hostplants. 77 of these taxa are given at genus level and 145 of them at species level. These hostplants are shrubs, trees, and herbaceous vegetations. In this part of the study, lygaeoid species found on 36 host plant families of Turkey are listed alphabetically. The remaining plant families will be given in the second part of the study. The relationships between these species and the hostplants are discussed in this research review.

KEYWORDS: Hemiptera, Lygaeoidea, host plant, relationship, Turkey

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INTRODUCTION

At least 708 genera and 4290 species belonging to 17 families of the superfamily Lygaeoidea (Hemiptera: Heteroptera) are known in the world (Henry, 2017).

The family Lygaeoidea contains both important phytophagous and also zoophagous insects.

The superfamily Lygaeoidea shows great diversity whithfeeding habits, the majority of the species feed on mature plant seeds while some utilize sap (Blissidae, many Lygaeidae, etc.).

Geocoridae species are predatory. Some lygaeoid taxons are specialized in some food plant species. For example the Cymidae and Pachygronthini are largely

restricted to Cyperaceae and Juncaceae, the Blissidae to monocotyledons, the Heterogastridae to Moraceae. Labiatae and Urticaceae, to grasses etc. (Slater, 1975).

Between 1922- 2020, we had the opportunity to make intensive collections, literatureses data and observations on the Turkey lygaeoid fauna.

The studies were concentrated primarily on the Turkey fauna with some field studies and literatures data.

These studies for the Insect fauna of Turkey are of considerable zoogeographic importance. And the present paper is a preliminary list of host plants of Lygaeoidea of Turkey to interpret and implications relative to the Turkey flora.

Lygaeoidea species of Turkey have host plants that belong to the too much plant families, they are seventy-four plant family species.

A high number of Lygaeoidea species associated with more than one type of vegetation is known in Turkey, and species absorb green plant parts (e.g. leaves, seeds, or flowers).

The lygaeoid species can fit into a wide range of ecological habitats. E.g. such as leaves, seeds, flowers, petiole, on sedges, or in the seed.

These can cause damage in trees, shrubs and herbaceous plants. Therefore they are considered economically important.

MATERIAL AND METHODS

In some literature about host plants of Lygaeoidea species located in Turkey limited informations are found.

The bibliographical references of the genera and species of host-plants for lygaeid's were given in the following literatures.

These are: Fahringer, 1922; Aysev, 1974; Çağlar, 1992; Çakır, 1988; Çakır, Önder, 1990; Hoberlandt, 1955; Kaya, Hıncal, 1991; Kıyak, 1990; Kıyak, 1993; Lodos, Önder, Pehlivan, Atalay, 1978; Lodos et al., 1999; Seidenstücker, 1958; 1960; 1965; Stichel, 1957-1962.

The aim of this study is to presented a list of Lygaeoidea species inhabiting on hostplants in Turkey according to our studies and the previous literatures.

These have been reviewed and listed. The host plant taxa were given at the family, genera and species level.

Lygaeoid species determined from each plant taxon are given in table 1.

In addition, the relevant source references has been given.

RESULTS

All host plants and the Lygaeoidea species are given into a list in the following table 1.

Table 1. The plant relationships of Lygaeoidea species from Turkey.

Host Plant Taxa	Lygaeoidea recorded	Cited Literature(s)
Adoxaceae		
Lonicera sp.	*Heterogaster artemisiae* Schilling, 1829	Lodos et al., 1999
Sambucus sp.	*Heterogaster cathariae* (Geoffroy, 1785) *Nysius ericae ericae* (Schilling, 1829) *Spilostethus pandurus* (Scopoli, 1763)	Lodos et al., 1999
Sambucus ebulus L.	*Macroplax fasciata fasciata* (Herrich-Schaeffer, 1835) *Spilostethus saxatilis* (Scopoli, 1763) *Spilostethus pandurus* (Scopoli, 1763)	Fahringer, 1922, Stichel, 1957; Aysev, 1974
Sambucus nigra L.	*Lygaeus equestris* (Linnaeus, 1758)	Hoberlandt, 1955; Stichel, 1957; Aysev, 1974
Viburnum sp.	*Geocoris luridus luridus* (Fieber, 1844)	Çakır, 1988; Lodos et al., 1999

Table 1. Continued

Amaranthaceae		
Beta vulgaris L.	*Lygaeus equestris* (Linnaeus, 1758) *Macroplax fasciata fasciata* (Herrich-Schaeffer, 1835) *Nysius cymoides* (Spinola, 1837) *Nysius ericae ericae* (Schilling, 1829) *Nysius graminicola graminicola* (Kolenati, 1845) *Ortholomus punctipennis* (Herrich-Schaeffer, 1838) *Oxycarenus pallens* (Herrich-Schaeffer, 1850) *Paromius gracilis* (Rambur, 1839) *Spilostethus pandurus* (Scopoli, 1763) *Spilostethus saxatilis* (Scopoli, 1763) *Xanthochilus quadratus* (Fabricius, 1798)	Stichel, 1957; Lodos et al., 1978, 1999
Chenopodium sp.	*Emblethis denticollis* Horváth, 1878 *Lygaeus equestris* (Linnaeus, 1758) *Macroplax fasciata fasciata* (Herrich-Schaeffer, 1835) *Nysius cymoides* (Spinola, 1837) *Nysius ericae ericae* (Schilling, 1829) *Nysius graminicola graminicola* (Kolenati, 1845) *Nysius senecionis senecionis* (Schilling, 1829) *Ortholomus punctipennis* (Herrich-Schaeffer, 1838) *Oxycarenus pallens* (Herrich-Schaeffer, 1850) *Paromius gracilis* (Rambur, 1839) *Peritrechus meridionalis* Puton, 1877 *Spilostethus saxatilis* (Scopoli, 1763) *Xanthochilus quadratus* (Fabricius, 1798)	Lodos et al., 1978, 1999; Péricart, 1998a.
Spinacia sp.	*Lygaeus equestris* (Linnaeus, 1758)	Lodos et al., 1999
Spinacia oleracea L.	*Emblethis denticollis* Horváth, 1878 *Geocoris erythrocephalus* (Lepeletier & Serville, 1825) *Geocoris luridus luridus* (Fieber, 1844) *Geocoris megacephalus* (Rossi, 1790) *Heterogaster urticae* (Fabricius, 1775) *Lamprodema maura* (Fabricius, 1803) *Lygaeus equestris* (Linnaeus, 1758) *Metapoplax origani* (Kolenati, 1845)	Lodos et al., 1978: Çakır, 1988; Lodos et al., 1999
Amaryllidaceae		
Allium cepa L.	*Nysius graminicola graminicola* (Kolenati, 1845)	Lodos et al., 1999
Anacardiaceae		
Pistacia lentiscus L.	*Macroplax fasciata fasciata* (Herrich-Schaeffer, 1835)	Stichel,1957; Aysev, 1974
Pistacia terebinthus L.	*Arocatus longiceps* Stål, 1872 *Arocatus roeselii* (Schilling, 1829) *Macroplax fasciata fasciata* (Herrich-Schaeffer, 1835) *Microplax limbata* Fieber, 1864	Aysev, 1974 Lodos et al.,1999
Pistacia vera L.	*Beosus quadripunctatus* (Müller, 1766) *Camptocera glaberrima* (Walker, 1872) *Geocoris erythrocephalus* (Lepeletier & Serville, 1825) *Geocoris luridus luridus* (Fieber, 1844) *Emblethis angustus* Montandon, 1890 *Emblethis denticollis* Horváth, 1878 *Heterogaster urticae* (Fabricius, 1775) *Lamprodema maura* (Fabricius, 1803) *Leptodemus minutus* (Jakovlev, 1876) *Lethaeus cribratissimus* (StåI, 1859) *Lethaeus picipes* (Herrich-Schaeffer, 1850) *Lygaeus equestris* (Linnaeus, 1758) *Megalonotus colon* Puton, 1874 *Megalonotus maximus* (Puton, 1895) *Nysius cymoides* (Spinola, 1837) *Peritrechus flavicornis* Jakovlev, 1877 *Peritrechus rhomboidalis* Puton, 1877 *Spilostethus pandurus* (Scopoli, 1763) *Tropistethus lanternae* Linnavuori, 1960 *Xanthochilus saturnius* (Rossi, 1790)	Lodos et al., 1978; 1999; Çakır, 1988; Yanık & Yücel, 2001; Matocq et al., 2014; Şimşek & Bolu, 2016, 2017; Özgen et. al., 2018; Özgen et al., 2020

Table 1. Continued

Rhus sp.	*Geocoris erythrocephalus* (Lepeletier & Serville, 1825) *Heterogaster artemisiae* Schilling, 1829 *Lygaeus creticus* Lucas, 1854 *Lygaeus equestris* (Linnaeus, 1758) *Nysius graminicola graminicola* (Kolenati, 1845) *Nysius cymoides* (Spinola, 1837) *Oxycarenus hyalinipennis* (A. Costa, 1843) *Oxycarenus pallens* (Herrich-Schaeffer, 1850) *Spilostethus pandurus* (Scopoli, 1763)	Çakır, 1988; Lodos et al., 1999
Apiaceae		
Anethum graveolens L.	*Brachyplax tenuis* (Mulsant & Rey, 1852) *Spilostethus saxatilis* (Scopoli, 1763)	Stichel, 1957; Aysev, 1974
Ammi sp.	*Nysius graminicola graminicola* (Kolenati, 1845)	Lodos et al., 1999
Daucus carota L.	*Geocoris erythrocephalus* (Lepeletier & Serville, 1825) *Spilostethus saxatilis* (Scopoli, 1763)	Fahringer, 1922; Aysev, 1974
Daucus sp.	*Oxycarenus pallens* (Herrich-Schaeffer, 1850) *Geocoris erythrocephalus* (Lepeletier & Serville, 1825)	Lodos et al., 1999
Heracleum apiifolium Boiss.	*Lygaeus equestris* (Linnaeus, 1758)	Kıyak, 1993
Heracleum sphondylium L.	*Spilostethus saxatilis* (Scopoli, 1763)	Stichel, 1957
Pastinaca sativa L.	*Spilostethus saxatilis* (Scopoli, 1763)	Stichel, 1957; Aysev, 1974
Pastinaca schekakul Russ.	*Geocoris erythrocephalus* (Lepeletier & Serville, 1825)	Çakır, 1988
Pimpinella anisum L.	*Lygaeus equestris* (Linnaeus, 1758) *Metopoplax origani* (Kolenati, 1845) *Nysius graminicola graminicola* (Kolenati, 1845) *Ortholomus carinatus* (Lindberg, 1932) *Spilostethus pandurus* (Scopoli, 1763)	Lodos et al., 1978
Seseli hippomarathrum Jacq.	*Lygaeus equestris* (Linnaeus, 1758)	Stichel, 1957; Aysev, 1974
Torilis sp.	*Metopoplax origani* (Kolenati, 1845)	Aysev, 1974
Apocynaceae		
Nerium oleander L.	*Lygaeus creticus* Lucas, 1853 *Caenocoris nerii* (Germar, 1847)	Péricart, 1998a; Matocq et al. 2014
Vincetoxicum officinale Moench	*Horvathiolus superbus* (Pollich, 1781) *Lygaeus equestris* (Linnaeus, 1758) *Tropidothorax leucopterus* (Goeze, 1778) *Lygaeus simulans* Deckert, 1985 *Spilostethus saxatilis* (Scopoli, 1763)	Stichel, 1957; Aysev, 1974; Péricart, 1998a
Vincetoxicum stepposum (Pobed)	*Spilostethus saxatilis* (Scopoli, 1763)	Péricart, 1998a
Verbascum sinuatum L.	*Emblethis angustus* Montandon, 1890	Özsaraç et al., 2001
Araliaceae		
Hedera helix L.	*Geocoris ater* (Fabricius, 1787)	Çakır, 1988
Hedera sp	*Spilostethus pandurus* (Scopoli, 1763)	Lodos et al., 1999
Asteraceae		
Asteraceae	*Metopoplax origani* (Kolenati, 1845) *Microplax interrupta* (Fieber, 1837) *Oxycarenus pallens* (Herrich-Schaeffer, 1850)	Aysev, 1974; Matocq et al., 2014
Achillea odorata L.	*Lygaeus equestris* (Linnaeus, 1758)	Fahringer, 1922; Stichel, 1957
Achillea sp.	*Spilostethus pandurus* (Scopoli, 1763) *Nysius thymi thymi* (Wolff, 1804) *Nysius ericae ericae* (Schilling, 1829)	Kıyak, 1993; Péricart, 1998a
Anthemis sp.	*Geocoris erythrocephalus* (Lepeletier & Serville, 1825) *Lygaeus equestris* (Linnaeus, 1758) *Nysius ericae ericae* (Schilling, 1829) *Nysius senecionis senecionis* (Schilling, 1829) *Oxycarenus pallens* (Herrich-Schaeffer, 1850)	Stichel, 1957; Aysev 1974; Lodos et al., 1978, 1999; Çakır, 1988; Péricart, 1998a

Table 1. Continued

Artemisia sp.	*Aellopus atratus* (Goeze, 1778) *lcus angularis* Fieber, 1861 *Metopoplax fuscinervis* Stål, 1872 *Nysius cymoides* (Spinola, 1837) *Nysius graminicola graminicola* (Kolenati, 1845) *Nysius ericae ericae* (Schilling, 1829) *Ortholomus punctipennis* (Herrich-Schaeffer, 1838)	Hoberlandt, 1955; Stichel, 1957; Seidenstücker, 1960; Aysev, 1974 Lodos et al., 1999; Péricart, 1998a
Artemisia absinthium L.	*Nysius cymoides* (Spinola, 1837)	Péricart, 1998a
Artemisia campestris L.	*Heterogaster artemisiae* Schilling, 1829	Stichel, 1957
Artemisia maritima L.	*Henestaris halophilus* (Burmeister, 1835)	Stichel, 1957
Aster sp.	*Oxycarenus pallens* (Herrich-Schaeffer, 1850)	Aysev, 1974
Carduus nutans nutans L.	*Spilostethus pandurus* (Scopoli, 1763)	Kıyak, 1990
Carthamus flavescens Willd.	*Geocoris erythrocephalus* (Lepeletier & Serville, 1825)	Aysev, 1974
Carthamus sp.	*Beosus quadripunctatus* (Müller, 1766)	Lodos et al., 1999
Centaurea sp.	*Beosus maritimus* (Scopoli, 1763) *Geocoris erythrocephalus* (Lepeletier & Serville, 1825) *Geocoris luridus luridus* (Fieber, 1844) *Graptopeltus validus* (Horváth, 1875) *Ischnodemus suturalis* Horváth, 1883 *Lygaeosoma sardeum sardeum* Spinola, 1837 *Lygaeus equestris* (Linnaeus, 1758) *Metopoplax origani* (Kolenati, 1845) *Nysius cymoides* (Spinola, 1837) *Nysius ericae ericae* (Schilling, 1829) *Nysius thymi thymi* (Wolff, 1804) *Oxycarenus hyalinipennis* (A. Costa, 1843) *Spilostethus pandurus* (Scopoli, 1763) *Spilostethus saxatilis* (Scopoli, 1763) *Xanthochilus minusculus* (Reuter, 1885)	Lodos et al., 1978: Çakır, 1988; Lodos et al.,1999
Centaurea aggragata Fisch. & C.A.Mey	*Geocoris pubescens* (Jakovlev, 1871)	Kıyak, 1993
Centaurea jacea L.	*Graptopeltus lynceus* (Fabricius, 1775)	Stichel, 1957
Centaurea solstitialis L.	*Oxycarenus pallens* (Herrich-Schaeffer, 1850) *Nysius cymoides* (Spinola, 1837)	Aysev, 1974; Lodos et al., 1999; Péricart, 1998a
Conyza bonariensis (L.)	*Xanthochilus saturnius* (Rossi, 1790)	Özsaraç et al., 2001
Cichorium sp.	*Oxycarenus pallens* (Herrich-Schaeffer, 1850)	Aysev, 1974
Cirsium sp.	*Artheneis alutacea* Fieber, 1861 *Emblethis griseus* (Wolff, 1802) *Geocoris arenarius* (Jakovlev, 1867) *Geocoris erythrocephalus* (Lepeletier & Serville, 1825) *Geocoris megacephalus* (Rossi, 1790) *Lygaeus equestris* (Linnaeus, 1758) *Nysius cymoides* (Spinola, 1837 *Nysius ericae ericae* (Schilling, 1829) *Nysius graminicola graminicola* (Kolenati, 1845) *Oxycarenus hyalinipennis* (A. Costa, 1843) *Oxycarenus pallens* (Herrich-Schaeffer, 1850) *Spilostethus pandurus* (Scopoli, 1763) *Spilostethus saxatilis* (Scopoli, 1763)	Stichel, 1957; Aysev 1974; Lodos et al., 1978, 1999; Çakır, 1988;
Crepis sp.	*Metopoplax origani* (Kolenati, 1845) *Oxycarenus pallens* (Herrich-Schaeffer, 1850) *Nysius ericae ericae* (Schilling, 1829)	Aysev, 1974; Péricart, 1998a
Crepis foetida L.	*Geocoris erythrocephalus* (Lepeletier & Serville, 1825)	Aysev, 1974
Echinops sp.	*Aphanus rolandri* (Linnaeus, 1758) *Neurocladus brachiidens* (Dufour, 1851)	Hoberlandt, 1955
Echinops viscosus bthynicus (Boiss.)	*Cymus claviculus* (Fallén, 1807)	Lodos et al., 1999

Table 1. Continued

Erigeron sp.	*Nysius senecionis senecionis* (Schilling, 1829)	Stichel, 1957; Péricart, 1998a
Filago minima (Sm.) Pers.	*Microplax interrupta* (Fieber, 1837)	Stichel, 1957
Gundelia tournefortii L.	*Lygaeus equestris* (Linnaeus, 1758) *Lethaeus fulvovarius* Puton, 1884	Kıyak, 1990, 1993
Helichrysum sp.	*Geocoris erythrocephalus* (Lepeletier & Serville, 1825) *Nysius ericae ericae* (Schilling, 1829) *Nysius helveticus* (Herrich-Schaeffer, 1850) *Paranysius fraterculus Horvath, 1895*	Kıyak, 1990, 1993; Péricart, 1998a
Helichrysum italicum (Roth) G. Don fil.	*Nysius immunis* (Walker, 1872)	Stichel, 1957
Hieracium sp.	*Spilostethus saxatilis* (Scopoli, 1763) *Nysius ericae ericae* (Schilling, 1829)	Stichel,1957; Aysev, 1974; Péricart, 1998a
Inula sp.	*Cymus claviculus* (Fallén, 1807) *Cymus melanocephalus* Fieber, 1861 *Geocoris arenarius* (Jakovlev, 1867) *Geocoris erythrocephalus* (Lepeletier & Serville, 1825) *Nysius graminicola graminicola* (Kolenati, 1845) *Nysius thymi thymi* (Wolff, 1804) *Oxycarenus pallens* (Herrich-Schaeffer, 1850) *Peritrechus meridionalis* Puton, 1877	Çakır, 1988 Lodos et al., 1999; Péricart, 1998a
Lactuca sp.	*Spilostethus pandurus* (Scopoli, 1763)	Kıyak, 1990
Lactuca serriola L.	*Lygaeus equestris* (Linnaeus, 1758) *Nysius cymoides* (Spinola, 1837)	Kıyak, 1990; Péricart, 1998a
Matricaria sp.	*Beosus quadripunctatus* (Müller, 1766) *Auchenodes costalis* (Lethierry, 1875) *Emblethis ciliatus* Horvath, 1875 *Geocoris erythrocephalus* (Lepeletier & Serville, 1825) *Geocoris luridus luridus* (Fieber, 1844) *Ischnopeza hirticornis* (Herrich-Schaeffer, 1850) *Lasiocoris crassicornis* (Lucas, 1849) *Metopoplax origani* (Kolenati, 1845) *Nysius cymoides* (Spinola, 1837) *Oxycarenus hyalinipennis* (A. Costa, 1843) *Oxycarenus pallens* (Herrich-Schaeffer, 1850)	Aysev, 1974; Çakır, 1988; Péricart, 1998b; Lodos et al., 1999
Matricaria chammomilla L.	*Cymus claviculus* (Fallén, 1807) *Cymus melanocephalus* Fieber, 1861 *Emblethis brachynotus* Horváth, 1897 *Geocoris erythrocephalus* (Lepeletier & Serville, 1825) *Horvathiolus superbus* (Pollich, 1781) *Leptodemus minutus* (Jakovlev, 1874) *Lygaeosoma sardeum erythropterum* (Puton, 1876) *Macroplax fasciata fasciata* (Herrich-Schaeffer, 1835) *Metopoplax fuscinervis* Stål, 1872 *Metopoplax origani* (Kolenati, 1845) *Nysius ericae ericae* (Schilling, 1829) *Nysius graminicola graminicola* (Kolenati, 1845) *Nysius senecionis senecionis* (Schilling, 1829) *Ortholomus carinatus* (Lindberg, 1932) *Oxycarenus pallens* (Herrich-Schaeffer, 1850) *Xanthochilus minusculus* (Reuter, 1885)	Lodos et al., 1978; 1999; Stichel, 1957
Tripleuraspermum inodorum (L.) Sch. Bip.	*Metopoplax origani* (Kolenati, 1845)	Stichel, 1957; Aysev, 1974
Onopordon sp.	*Beosus maritimus* (Scopoli, 1763) *Geocoris ater* (Fabricius, 1787) *Geocoris erythrocephalus* (Lepeletier & Serville, 1825) *Graptopeltus validus* (Horváth, 1875 *Henestaris kareli* Hoberlandt, 1956 *Ischnopeza hirticornis* (Herrich-Schaeffer, 1850) *Leptodemus minutus* (Jakovlev, 1874) *Lygaeosoma sardeum sardeum* Spinola, 1837 *Lygaeus equestris* (Linnaeus, 1758)	Lodos et al., 1978, 1999; Çakır, 1988

Table 1. Continued

	Macroplax fasciata fasciata (Herrich-Schaeffer, 1835) *Nysius graminicola graminicola* (Kolenati, 1845) *Oxycarenus pallens* (Herrich-Schaeffer, 1850) *Platyplax inermis* (Rambur, 1839) *Spilostethus pandurus* (Scopoli, 1763) *Spilostethus saxatilis* (Scopoli, 1763)	
Onopordon tauricum Willd.	*Spilostethus pandurus* (Scopoli, 1763)	Fahringer, 1922
Scolymus hispanicus L.	*Geocoris erythrocephalus* (Lepeletier & Serville, 1825)	Aysev, 1974
Senecio sp.	*Nysius senecionis senecionis* (Schilling, 1829) *Nysius thymi thymi* (Wolff, 1804)	Hoberlandt, 1955; Péricart, 1998a
Senecio jakobaeae L.	*Spilostethus saxatilis* (Scopoli, 1763) *Nysius senecionis senecionis* (Schilling, 1829)	Stichel, 1957; Aysev, 1974; Péricart, 1998a
Senecio vernalis Waldst. & Kit.	*Oxycarenus pallens* (Herrich-Schaeffer, 1850)	Aysev, 1974
Senecio viscosus L.	*Nysius senecionis senecionis* (Schilling, 1829)	Stichel, 1957; Pércart, 1998a
Senecio vulgaris L.	*Melanocoryphus albomaculatus* (Goeze, 1778)	Stichel, 1957; Aysev, 1974
Sonchus sp	*Oxycarenus pallens* (Herrich-Schaeffer, 1850) *Nysius ericae ericae* (Schilling, 1829)	Péricart, 1998a; Lodos et al., 1999
Taraxacum sp.	*Lygaeus equestris* (Linnaeus, 1758) *Nysius ericae ericae* (Schilling, 1829)	Aysev, 1974; Péricart, 1998a
Taraxacum officinale (L.)	*Oxycarenus pallens* (Herrich-Schaeffer, 1850)	Aysev, 1974
Berberidaceae		
Berberis sp.	*Geocoris ater* (Fabricius, 1787)	Çakır, 1988; Lodos et al., 1999
Betulaceae		
Alnus sp.	*Horvathiolus superbus* (Pollich, 1781) *Spilostethus pandurus* (Scopoli, 1763)	Lodos et al., 1978, 1999
Alnus glutinosa (L.) Gaertn.	*Arocatus roeselii* (Schilling, 1829) *Oxycarenus modestus* (Fallén, 1829) *Kleidocerys resedae resedae* (Panzer, 1797)	Stichel, 1957; Aysev, 1974; Péricart, 1998a
Alnus incana (L.) Moench	*Oxycarenus modestus* (Fallén, 1829)	Stichel, 1957
Alnus viridis(Chaix.) D.C.	*Kleidocerys resedae resedae* (Panzer, 1797)	Aysev, 1974; Péricart, 1998a
Betula sp.	*Kleidocerys resedae resedae* (Panzer, 1797)	Aysev, 1974
Betula verrucosa Ehrh.	*Kleidocerys resedae resedae* (Panzer, 1797)	Yıldırım & Eroğlu, 2015; Péricart, 1998a
Betula vulgaris Roth	*Nysius ericae ericae* (Schilling, 1829) *Spilostethus pandurus* (Scopoli, 1763)	Stichel, 1957; Lodos et al., 1978
Carpinus betulus L.	*Kleidocerys resedae resedae* (Panzer, 1797)	Aysev, 1974
Corylus sp.	*Emblethis angustus* Montandon, 1890	Lodos et al., 1978
Corylus avellana L.	*Beosus maritimus* (Scopoli, 1763) *Horvathiolus superbus* (Pollich, 1781) *Kleidocerys resedae resedae* (Panzer, 1797) *Metopoplax origani* (Kolenati, 1845)	Aysev, 1974; Lodos et al., 1978, 1999;
Boraginaceae		
Alkanna sp.	*Brachyplax tenuis* (Mulsant & Rey, 1852) *Hyalochilus dolosus* Horváth, 1897	Lodos et al., 1999
Anchusa sp.	*Geocoris erythrocephalus* (Lepeletier & Serville, 1825)	Çakır, 1988 Lodos et al., 1999
Anchusa azurea Mill.	*Geocoris erythrocephalus* (Lepeletier & Serville, 1825)	Çakır, 1988
Anchusa officinalis L.	*Aellopus atratus* (Goeze, 1778)	Stichel, 1957

Table 1. Continued

Borago officinalis L.	*Aellopus atratus* (Goeze, 1778)	Stichel, 1957
Cynoglossum officinale L.	*Aellopus atratus* (Goeze, 1778)	Stichel, 1957
Echium sp.	*Aellopus atratus* (Goeze, 1778 *Geocoris erythrocephalus* (Lepeletier & Serville, 1825) *Geocoris megacephalus* (Rossi, 1790) *Metopoplax origani* (Kolenati, 1845) *Nysius graminicola graminicola* (Kolenati, 1845) *Trichaphanus fuentei* (Puton, 1894)	Seidenstücker, 1958; Lodos et al., 1978; 1999; Çakır, 1988; Péricart, 1998a
Echium italicum L.	*Geocoris arenarius* (Jakovlev, 1867) *Geocoris ater* (Fabricius, 1787)	Çakır, 1988
Echium plantagineum L.	*Geocoris erythrocephalus* (Lepeletier & Serville, 1825)	Çakır, 1988
Echium vulgare L.	*Aellopus atratus* (Goeze, 1778 *Emblethis verbasci* (Fabricius, 1803) *Graptopeltus lynceus* (Fabricius, 1775) *Platyplax salviae* (Schilling, 1829)	Stichel, 1957
Heliotropium sp.	*Oxycarenus pallens* (Herrich-Schaeffer, 1850)	Lodos et al., 1999
Hormuzakia aggregata Lehm. Gusuleac	*Apterola kuenckeli rubicunda* (Stål, 1872) *Apterola lounii* (Saunders, 1876)	Stichel, 1957
Brassicaceae		
Brassicaceae	*Geocoris erythrocephalus* (Lepeletier & Serville, 1825) *Lygaeus equestris* (Linnaeus, 1758) *Metopoplax origani* (Kolenati, 1845) *Peritrechus gracilicornis* Puton, 1877 *Spilostethus saxatilis* (Scopoli, 1763)	Aysev, 1974; Çakır, 1988 Lodos et al., 1999
Aethionema sp.	*Geocoris erythrocephalus* (Lepeletier & Serville, 1825) *Lygaeus equestris* (Linnaeus, 1758)	Lodos et al., 1978; Çakır, 1988
Alyssum condensatum Boiss. Et Hausskn	*Emblethis verbasci* (Fabricius, 1803)	Stichel, 1957
Alyssum troodi Boiss.	*Emblethis verbasci* (Fabricius, 1803)	Stichel, 1957
Brassica napus (L.)	*Nysius cymoides* (Spinola, 1837)	Demirel (2009)
Lepidium sp.	*Emblethis denticollis* Horváth, 1878 *Nysius thymi thymi* (Wolff, 1804) *Nysius ericae ericae* (Schilling, 1829	Péricart, 1998a; Özsaraç & Kıyak, 2001
Capsella bursa-pastoris (L.) Medik.	*Spilostethus pandurus* (Scopoli, 1763)	Özsaraç & Kıyak, 2001
Cardaria draba L.	*Spilostethus pandurus* (Scopoli, 1763)	Özsaraç & Kıyak, 2001
Lepidium draba (L.) Desv.	*Lygaeus equestris* (Linnaeus, 1758)	Kıyak, 1990; Özsaraç & Kıyak, 2001
Descurania sophia (L.) Webb	*Oxycarenus pallens* (Herrich-Schaeffer, 1850)	Aysev, 1974
Sinapis sp.	*Artheneis foveolata* Spinola, 1837 *Beosus quadripunctatus* (Müller, 1766) *Dimorphopterus spinolae* (Signoret, 1857) *Geocoris arenarius* (Jakovlev, 1867) *Geocoris erythrocephalus* (Lepeletier & Serville, 1825) *Geocoris luridus luridus* (Fieber, 1844) *Lygaeus equestris* (Linnaeus, 1758) *Metopoplax fuscinervis* Stål, 1872 *Metopoplax origani* (Kolenati, 1845) *Nysius graminicola graminicola* (Kolenati, 1845) *Nysius thymi thymi* (Wolff, 1804) *Oxycarenus pallens* (Herrich-Schaeffer, 1850)	Çakır, 1988; Lodos et al., 1999
Sinapis arvensis L.	*Leptodemus minutus* (Jakovlev, 1874) *Metopoplax origani* (Kolenati, 1845) *Nysius graminicola graminicola* (Kolenati, 1845) *Oxycarenus pallens* (Herrich-Schaeffer, 1850)	Aysev, 1974; Lodos et al., 1978
Cannabaceae		
Humulus lupulus L.	*Kleidocerys ericae* (Horváth, 1908)	Lodos et al., 1978
Solanum nigrum L.	*Taphropeltus contractus* (Herrich-Schaeffer, 1835)	Stichel, 1957

Table 1. Continued

Capparaceae		
Capparis sp.	*Oxycarenus pallens* (Herrich-Schaeffer, 1850)	Lodos et al., 1999; Özgen et al., 2020
Capparis spinosa L.	*Caenocoris nerii* (Germar, 1847) *Heterogaster urticae* (Fabricius, 1775) *Lamprodema maura* (Fabricius, 1803) *Spilostethus pandurus* (Scopoli, 1763)	Lodos et al., 1978, 1999
Caryophyllaceae		
Herniaria sp.	*Cymus claviculus* (Fallén, 1807)	Stichel, 1957
Herniaria glabra L.	*Nysius senecionis senecionis* (Schilling, 1829)	Stichel, 1957; Péricart, 1998a
Illecebrum verticillatum L.	*Cymus claviculus* (Fallén, 1807)	Stichel, 1957; Aysev, 1974
Saponaria sp.	*Geocoris erythrocephalus* (Lepeletier & Serville, 1825)	Çakır, 1988
Dianthus carthusianorum L	*Lygaeus equestris* (Linnaeus, 1758)	Özsaraç et al., 2001
Spergula arvensis L.	*Lygaeus equestris* (Linnaeus, 1758)	Özsaraç et al., 2001
Silene longipetale Vent.	*Beosus maritimus* (Scopoli, 1763) *Emblethis verbasci* (Fabricius, 1803)	Stichel, 1957
Cistaceae		
Cistus sp.	*Cymus melanocephalus* Fieber, 1861 *Geocoris erythrocephalus* (Lepeletier & Serville, 1825) *Kleidocerys ericae* (Horváh, 1908) *Macroplax fasciata fasciata* (Herrich-Schaeffer, 1835) *Metopoplax origani* (Kolenati, 1845) *Nysius immunis* (Walker, 1872) *Orsillus depressus* (Mulsant & Rey, 1852) *Raglius tristis* (Fieber, 1861) *Spilostethus pandurus* (Scopoli, 1763) *Stygnocoris sabulosus* (Schilling, 1829)	Çakır, 1988 Lodos et al., 1999
Cistus albidus L.	*Ischnopeza hirticornis* (Herrich-Schaeffer, 1850) *Macroplax fasciata fasciata* (Herrich-Schaeffer, 1835) *Nysius graminicola graminicola* (Kolenati, 1845)	Lodos et al., 1978
Cistus creticus L.	*Macroplax fasciata fasciata* (Herrich-Schaeffer, 1835)	Stichel, 1957; Aysev, 1974
Cistus parviflorus Lam.	*Macroplax fasciata fasciata* (Herrich-Schaeffer, 1835)	Stichel, 1957; Aysev, 1974
Cistus salviaefolius L.	*Macroplax fasciata fasciata* (Herrich-Schaeffer, 1835)	Stichel, 1957; Aysev, 1974
Cistus villosus L.	*Macroplax fasciata fasciata* (Herrich-Schaeffer, 1835)	Stichel, 1957; Aysev, 1974
Convolvulacea		
Convolvulus sp.	*Geocoris ater* (Fabricius, 1787) *Lygaeus equestris* (Linnaeus, 1758) *Spilostethus saxatilis* (Scopoli, 1763) *Tropidothorax leucopterus* (Goeze, 1778)	Lodos et al., 1999
Convolvulus elegantissima L.	*Emblethis denticollis* Horváth, 1878	Özsaraç et al., 2001
Crassulaceae		
Sedum acre L.	*Ortholomus punctipennis* (Herrich-Schaeffer, 1838)	Stichel, 1957; Aysev, 1974
Cucurbitaceae		
Citrulus lanatus Matsum. & Nakai	*Nysius cymoides* (Spinola, 1837)	Özgen et al., 2020
Cucumis sativus L.	*Nysius cymoides* (Spinola, 1837)	Özgen et al., 2020
Cucurbita sp.	*Megalonotus praetextatus* (Herrich-Schaeffer, 1835) *Oxycarenus pallens* (Herrich-Schaeffer, 1850)	Lodos et al., 1999
Cucumis melo L.	*Geocoris ater* (Fabricius, 1787)	Çakır, 1988
Cornaceae		
Cornus sp.	*Kleidocerys ericae* (Horváth, 1908)	Lodos et al., 1999

Table 1. Continued

Cupressaceae		
Cupressus sp.	*Cymus melanocephalus* Fieber, 1861 *Eremocoris fenestratus* (Herrich-Schaeffer, 1839) *Geocoris luridus luridus* (Fieber, 1844) *Orsillus depressus* (Mulsant & Rey, 1852) *Orsillus maculatus* (Fieber, 1861) *Orsillus reyi* Puton, 1871 *Macroplax fasciata fasciata* (Herrich-Schaeffer, 1835) *Spilostethus pandurus* (Scopoli, 1763) *Spilostethus saxatilis* (Scopoli, 1763)	Stichel, 1957; Çakır, 1988 Lodos et al., 1999;
Cupressus sempervirens L.	*Eremocoris fenestratus* (Herrich-Schaeffer, 1839) *Orsillus maculatus* (Fieber, 1861) *Spilostethus pandurus* (Scopoli, 1763)	Lodos et al., 1978; Péricart, 1998a
Juniperus sp.	*Beosus quadripunctatus* (Müller, 1766) *Eremocoris fenestratus* (Herrich-Schaeffer, 1839) *Gastrodes grossipes grossipes* (De Geer, 1773) *Geocoris erythrocephalus* (Lepeletier & Serville, 1825) *Gonianotus galactodennus* Fieber, 1861 *Emblethis verbasci* (Fabricius, 1803) *Heterogaster artemisiae* Schilling, 1829 *Lethaeus cribratissimus* (StåI, 1859) *Lygaeosoma sardeum sardeum* Spinola, 1837 *Lygaeus equestris* (Linnaeus, 1758) *Microplax interrupta* (Fieber, 1837) *Nysius thymi thymi* (Wolff, 1804) *Orsillus depressus* (Mulsant & Rey, 1852) *Orsillus maculatus* (Fieber, 1861) *Orsillus reyi* Puton, 1871 *Oxycarenus pallens* (Herrich-Schaeffer, 1850) *Peritrechus meridionalis* Puton, 1877 *Spilostethus pandurus* (Scopoli, 1763) *Spilostethus saxatilis* (Scopoli, 1763)	Lodos et al., 1978, 1999 Çakır, 1988;
Juniperus communis L.	*Eremocoris plebejus* (Fallén, 1807) *Graptopeltus lynceus* (Fabricius, 1775)	Stichel, 1957; Péricart, 1998a
Juniperus excelsa M. Bieb.	*Eremocoris pellitus* Seidenstücker, 1965 *Orsillus depressus* (Mulsant & Rey, 1852)	Hoberlandt, 1955; Stichel, 1957; Seidenstücker, 1965; Péricart, 1998a
Cyperaceae		
Carex sp.	*Cymus claviculus* (Fallén, 1807) *Cymus glandicolor* Hahn, 1832 *Cymus melanocephalus* Fieber, 1861	Hoberlandt, 1955; Stichel, 1957; Aysev, 1974
Scirpus sp.	*Cymus glandicolor* Hahn, 1832	Stichel, 1957
Cystopteridaceae		
Cystopteris fragilis (L.) Bernh.	*Lygaeus equestris* (Linnaeus, 1758)	Kıyak, 1993
Dipsacaceae		
Knautia arvensis (L.) Coult.	*Oxycarenus pallens* (Herrich-Schaeffer, 1850)	Aysev, 1974
Scabiosa argentea L.	*Geocoris erythrocephalus* (Lepeletier & Serville, 1825)	Kıyak, 1990
Scabiosa canescens Waldst. & Kit.	*Heterogaster artemisiae* Schilling, 1829	Stichel, 1957
Dryopteridaceae		
Dryopteris sp.	*Raglius tristis* (Fieber, 1861)	Lodos et al., 1999
Elaeagnaceae		
Elaeagnus commutata L.	*Lygaeus creticus* Lucas, 1854	Lodos et al., 1999
Elaeagnus orientalis L.	*Lygaeus equestris* (Linnaeus, 1758) *Spilostethus pandurus* (Scopoli, 1763)	Lodos et al., 1999;
Ericaceae		
Arbutus sp.	*Geocoris ater* (Fabricius, 1787)	Çakır, 1988; Lodos et al., 1999

Table 1. Continued

Calluna sp.	*Lamprodema maura* (Fabricius, 1803) *Ortholomus punctipennis* (Herrich-Schaeffer, 1838) *Pionosomus varius* (Wolff, 1804) *Scolopostethus thomsoni* Reuter, 1875	Stichel, 1957; Aysev, 1974;
Calluna vulgaris (L.) Hull	*Aellopus atratus* (Goeze, 1778) *Beosus maritimus* (Scopoli, 1763) *Cymus claviculus* (Fallén, 1807) *Eremocoris plebejus* (Fallén, 1807) *Graptopeltus lynceus* (Fabricius, 1775) *Nysius senecionis senecionis* (Schilling, 1829) *Scolopostethus decoratus* (Hahn, 1833) *Tropistethus holosericus* (Scholtz, 1846)	Stichel, 1957
Erica sp.	*Ortholomus punctipennis* (Herrich-Schaeffer, 1838) *Nysius senecionis senecionis* (Schilling, 1829)	Stichel, 1957; Aysev, 1974; Lodos et al., 1978
Erica arborea L.	*Emblethis denticollis* Horváth, 1878 *Stygnocoris faustus* Horváth, 1888	Özsaraç et al., 2001; Péricart, 1998b
Rhododendron sp.	*Macroplax fasciata fasciata* (Herrich-Schaeffer, 1835) *Kleidocerys ericae* (Horváth, 1908)	Lodos et al., 1978 Lodos et al., 1999
Rhododendron ferrugineum L.	*Kleidocerys resedae resedae* (Panzer, 1797)	Aysev, 1974; Péricart, 1998a
Rhododendron hirsutum L.	*Kleidocerys resedae resedae* (Panzer, 1797)	Péricart, 1998a
Euphorbiaceae		
Euphorbia sp.	*Lygaeus equestris* (Linnaeus, 1758) *Oxycarenus pallens* (Herrich-Schaeffer, 1850) *Spilostethus pandurus* (Scopoli, 1763)	Kıyak, 1990; Lodos et al, 1978, 1999;
Euphorbia gerardiana Jacg.	*Emblethis ciliatus* Horváth, 1875	Stichel, 1957
Fabaceae		
Acacia sp.	*Geocoris luridus luridus* (Fieber, 1844)	Matocq et al., 2014
Alhagi sp.	*Artheneis alutacea* Fieber, 1861 *Spilostethus saxatilis* (Scopoli, 1763)	Lodos et al., 1999
Astragalus sp.	*Diomphalus hispidulus* Fieber, 1864 *Emblethis brachynotus* Horváth, 1897 *Emblethis ciliatus* Horvath, 1875 *Emblethis dilaticollis* (Jakovlev, 1874) *Emblethis griseus* (Wolff, 1802) *Geocoris erythrocephalus* (Lepeletier & Serville, 1825) *Geocoris grylloides* (Linnaeus, 1761) *Geocoris lineola lineola* (Rambur, 1839) *Geocoris megacephalus* (Rossi, 1790) *Geocoris pallidipennis pallidipennis* (A. Costa, 1843) *Gonianotus galactodennus* Fieber, 1861 *Horvathiolus superbus* (Pollich, 1781) *Lasiocoris crassicornis* (Lucas, 1849) *Lygaeosoma sardeum sardeum* Spinola, 1837 *Lygaeus equestris* (Linnaeus, 1758) *Macroplax fasciata fasciata* (Herrich-Schaeffer, 1835) *Megalonotus brevicornis* (Puton, 1883) *Megalonotus praetextatus* (Herrich-Schaeffer, 1835) *Metopoplax fuscinervis* Stål, 1872 *Metopoplax origani* (Kolenati, 1845) *Microplax interrupta* (Fieber, 1837) *Nysius ericae ericae* (Schilling, 1829) *Nysius helveticus* (Herrich-Schaeffer, 1850) *Oxycarenus pallens* (Herrich-Schaeffer, 1850) *Rhyparochromus phoeniceus* (Rossi, 1794) *Spilostethus pandurus* (Scopoli, 1763) *Spilostethus saxatilis* (Scopoli, 1763) *Stygnocorisella mayeti* (Puton, 1879) *Xanthochilus minusculus* (Reuter, 1885) *Paranysius fraterculus Horvath, 1895*	Hoberlandt, 1955; Seidenstücker, 1958; Aysev, 1974; Çakır, 1988; Çakır & Önder, 1990; Kıyak, 1990; Lodos et al., 1999; Péricart, 1998a,b.

Table 1. Continued

Astragalus hamasus L.	*Lygaeus equestris* (Linnaeus, 1758)	Özsaraç & Kıyak, 2001; Özsaraç et al., 2001
Astragalus microcephalus Willd.	*Geocoris grylloides* (Linnaeus, 1761) *Geocoris lineola lineola* (Rambur, 1839) *Henestaris laticeps laticeps* (Curtis, 1836) *Macroplax fasciata fasciata* (Herrich-Schaeffer, 1835) *Nysius graminicola graminicola* (Kolenati, 1845) *Rhyparochromus phoeniceus* (Rossi, 1794) *Spilostethus saxatilis* (Scopoli, 1763) *Xanthochilus quadratus* (Fabricius, 1798)	Çağlar, 1992
Astragalus spruneri Boiss.	*Lygaeus equestris* (Linnaeus, 1758)	Özsaraç & Kıyak, 2001
Cicer arientum L.	*Nysius graminicola graminicola* (Kolenati, 1845) *Nysius thymi thymi* (Wolff, 1804)	Lodos et al., 1999
Coronilla varia (L.) Lassen	*Heterogaster artemisiae* Schilling, 1829	Stichel, 1957
Dorycnium suffruticosum Will.	*Macroplax fasciata fasciata* (Herrich-Schaeffer, 1835)	Stichel, 1957; Aysev, 1974
Dorycnium hirsutum L.	*Rhyparochromus phoeniceus* (Rossi, 1794)	Özsaraç et al., 2001
Genista sp.	*Homoscelis ruficollis* Horvath, 1884 *Spilostethus saxatilis* (Scopoli, 1763) *Spilostethus pandurus* (Scopoli, 1763)	Seidenstücker, 1960 Lodos et al., 1999
Glychirrizza glabra L.	*Geocoris erythrocephalus* (Lepeletier & Serville, 1825) *Nysius thymi thymi* (Wolff, 1804)	Lodos et al., 1999
Glycine soja Siebold & Zucc.	*Geocoris ater* (Fabricius, 1787)	Lodos et al, 1978
Lathyrus sp	*Geocoris erythrocephalus* (Lepeletier & Serville, 1825)	Lodos et al., 1999
Lens culinaris L.	*Geocoris ater* (Fabricius, 1787) *Geocoris arenarius* (Jakovlev, 1867) *Horvathiolus superbus* (Pollich, 1781) *Lygaeus equestris* (Linnaeus, 1758) *Metopoplax fuscinervis* Stål, 1872 *Nysius graminicola graminicola* (Kolenati, 1845)	Kaya & Hıncal, 1991 Çakır, 1988; Lodos et al., 1999
Medicago sp.	*Cymus glandicolor* Hahn, 1832 *Geocoris erythrocephalus* (Lepeletier & Serville, 1825) *Lamprodema maura* (Fabricius, 1803) *Melanocoryphus tristrami* (Douglas & Scott, 1868) *Pionosomus varius* (Wolff, 1804)	Stichel, 1957; Çakır, 1988; Lodos et al., 1999
Medicago maritima Pall.	*Emblethis griseus* (Wolff, 1802) *Geocoris arenarius* (Jakovlev, 1867) *Geocoris ater* (Fabricius, 1787) *Geocoris erythrocephalus* (Lepeletier & Serville, 1825) *Geocoris lineola lineola* (Rambur, 1839) *Geocoris megacephalus* (Rossi, 1790) *Lethaeus cribratissimus* (StåI, 1859) *Lethaeus picipes* (Herrich-Schaeffer, 1850) *Oxycarenus pallens* (Herrich-Schaeffer, 1850)	Çakır, 1988; Lodos et al., 1999
Medicago minima L.	*Geocoris ater* (Fabricius, 1787) *Geocoris lineola lineola* (Rambur, 1839)	Çakır, 1988 Lodos et al., 1999
Medicago disciformis DC.	*Macroplax fasciata fasciata* (Herrich-Schaeffer, 1835)	Özsaraç et al., 2001
Medicago sativa L.	*Arocatus longiceps* Stål, 1872 *Beosus maritimus* (Scopoli, 1763) *Cymus melanocephalus* Fieber, 1861 *Emblethis griseus* (Wolff, 1802) *Geocoris erythrocephalus* (Lepeletier & Serville, 1825) *Lygaeus equestris* (Linnaeus, 1758) *Megalonotus sabulicola* (Thomson, 1870) *Metopoplax origani* (Kolenati, 1845) *Nysius cymoides* (Spinola, 1837) *Nysius ericae ericae* (Schilling, 1829) *Nysius graminicola graminicola* (Kolenati, 1845) *Nysius senecionis senecionis* (Schilling, 1829)	Lodos et al, 1978, 1999; Özbek, 1986; Kaya, 2018, Özgen et al., 2020

Table 1. Continued

	Oxycarenus pallens (Herrich-Schaeffer, 1850) *Peritrechus meridionalis* Puton, 1877 *Remaudiereana annulipes* (Bärensprung, 1859) *Scolopostethus pictus* (Schilling, 1829) *Spilostethus pandurus* (Scopoli, 1763) *Spilostethus saxatilis* (Scopoli, 1763)	
Melilotus sp.	*Lygaeus equestris* (Linnaeus, 1758) *Metopoplax origani* (Kolenati, 1845)	Kıyak, 1993 Lodos et al.,1999
Melilotus officinalis (L.) Pall.	*Beosus maritimus* (Scopoli, 1763) *Xanthochilus saturnius* (Rossi, 1790)	Kıyak, 1990
Onobrychis sp.	*Geocoris erythrocephalus* (Lepeletier & Serville, 1825) *Spilostethus pandurus* (Scopoli, 1763)	Çakır, 1988 Lodos et al.,1999
Ononis sp.	*Beosus quadripunctatus* (Müller, 1766) *Rhyparochromus pini* (Linnaeus, 1758)	Lodos et al.,1999
Ononis spinosa L.	*Spilostethus saxatilis* (Scopoli, 1763)	Stichel, 1957; Aysev, 1974
Phaseolus sp.	*Geocoris erythrocephalus* (Lepeletier & Serville, 1825) *Geocoris pallidipennis pallidipennis* (A. Costa, 1843)	Çakır, 1988; Çakır & Önder, 1990
Phaseolus vulgaris L.	*Geocoris erythrocephalus* (Lepeletier & Serville, 1825)	Lodos et al., 1999
Prosopis sp.	*Geocoris erythrocephalus* (Lepeletier & Serville, 1825)	Çakır, 1988
Trifolium sp.	*Cymus melanocephalus* Fieber, 1861 *Emblethis angustus* Montandon, 1890 *Geocoris erythrocephalus* (Lepeletier & Serville, 1825) *Geocoris megacephalus* (Rossi, 1790) *Geocoris pallidipennis pallidipennis* (A. Costa, 1843) *Ortholomus punctipennis* (Herrich-Schaeffer, 1838) *Peritrechus geniculatus* (Hahn, 1832)	Stichel, 1957; Aysev, 1974; Çakır, 1988; Kıyak, 1993; Lodos et al., 1999;
Trifolium campestre Scrieb.	*Heterogaster artemisiae* Schilling, 1829	Stichel, 1957
Trifolium pratense L.	*Beosus maritimus* (Scopoli, 1763)	Kıyak, 1990
Trifolium repens L.	*Geocoris ater* (Fabricius, 1787)	Lodos et al, 1978
Vicia sp.	*Geocoris erythrocephalus* (Lepeletier & Serville, 1825) *Lygaeus equestris* (Linnaeus, 1758) *Melanocoryphus albomaculatus* (Goeze, 1778) *Nysius cymoides* (Spinola, 1837) *Nysius ericae ericae* (Schilling, 1829)	Çakır,1988; Lodos et al., 1999;
Vicia cracca L.	*Heterogaster urticae* (Fabricius, 1775) *Leptodemus minutus* (Jakovlev, 1874 *Macroplax fasciata fasciata* (Herrich-Schaeffer, 1835) *Melanocoryphus albomaculatus* (Goeze, 1778) *Metopoplax origani* (Kolenati, 1845) *Nysius graminicola graminicola* (Kolenati, 1845) *Xanthochilus minusculus* (Reuter, 1885)	Lodos et al., 1978; Kıyak, 1993
Vicia ervilia (L.) Willd.	*Geocoris erythrocephalus* (Lepeletier & Serville, 1825)	Çakır, 1988
Vicia faba L.	*Geocoris erythrocephalus* (Lepeletier & Serville, 1825) *Kleidocerys ericae* (Horváth, 1908) *Lygaeus equestris* (Linnaeus, 1758) *Peritrechus gracilicornis* Puton, 1877 *Scolopostethus decoratus* (Hahn, 1833)	Lodos et al., 1978; Çakır, 1988; Lodos, et al.,1999
Fabaceae	*Eremocoris plebejus* (Fallén, 1807) *Ortholomus carinatus* (Lindberg, 1932)	Lodos et al., 1978; Kaya & Hıncal,1991
Hippocrepis unisiliquosa L	*Xanthochilus saturnius* (Rossi, 1790)	Özsaraç et al., 2001
Fagaceae		
Castanea sp.	*Geocoris erythrocephalus* (Lepeletier & Serville, 1825) *Homoscelis ruficollis* Horváth, 1884 *Arocatus longiceps* C. Stal, 1872	Seidenstücker, 1960; Çakır, 1988; Péricart, 1998a
Castanea sativa Mill.	*Emblethis angustus* Montandon, 1890 *Geocoris erythrocephalus* (Lepeletier & Serville, 1825) *Macroplax fasciata fasciata* (Herrich-Schaeffer, 1835) *Nysius graminicola graminicola* (Kolenati, 1845) *Raglius alboacuminatus* (Goeze, 1778)	Hoberlandt, 1955; Lodos et al., 1978

Table 1. Continued

Fagus sp.	*Geocoris erythrocephalus* (Lepeletier & Serville, 1825) *Macroplax fasciata fasciata* (Herrich-Schaeffer, 1835) *Metopoplax origani* (Kolenati, 1845) *Oxycarenus pallens* (Herrich-Schaeffer, 1850) *Scolopostethus affinis* (Schilling, 1829)	Lodos et al., 1978, 1999; Çakır, 1988
Quercus sp.	*Artheneis alutacea* Fieber, 1861 *Arocatus melanocephalus* (Fabricius, 1798) *Beosus maritimus* (Scopoli, 1763) *Cymus glandicolor* Hahn, 1832 *Cymus melanocephalus* Fieber, 1861 *Eremocoris fenestratus* (Herrich-Schaeffer, 1839) *Geocoris arenarius* (Jakovlev, 1867) *Geocoris erythrocephalus* (Lepeletier & Serville, 1825) *Geocoris luridus luridus* (Fieber, 1844) *Ischnopeza hirticornis* (Herrich-Schaeffer, 1850) *Ischnopeza pallipes* Puton, 1892 *Kleidocerys ericae* (Horváth, 1908) *Lygaeosoma sardeum sardeum* Spinola, 1837 *Lygaeus equestris* (Linnaeus, 1758) *Horvathiolus superbus* (Pollich, 1781) *Macroplax fasciata fasciata* (Herrich-Schaeffer, 1835) *Megalonotus praetextatus* (Herrich-Schaeffer, 1835) *Metopoplax origani* (Kolenati, 1845) *Microplax interrupta* (Fieber, 1837) *Microplax limbata* Fieber, 1864 *Nysius cymoides* (Spinola, 1837) *Nysius helveticus* (Herrich-Schaeffer, 1850) *Rhyparochromus vulgaris* (Schilling, 1829) *Tropistethus fasciatus* Ferrari, 1874 *Oxycarenus pallens* (Herrich-Schaeffer, 1850) *Spilostethus saxatilis* (Scopoli, 1763)	Lodos et al., 1978, 1999; Çakır,1988; Özgen et al., 2012
Quercus coccifera L.	*Horvathiolus guttatus* (Rambur, 1839)	Hoberlandt, 1955
Quercus ilex L.	*Nysius ericae ericae* (Schilling, 1829) *Peritrechus gracilicornis* Puton, 1877 *Spilostethus pandurus* (Scopoli, 1763)	Lodos et al., 1999
Quercus macrolepis Kotschy	*Nysius ericae ericae* (Schilling, 1829)	Lodos et al., 1999
Quercus pubescens Willd.	*Camptotelus lineolatus lineolatus* (Schilling, 1829) *Heterogaster affinis* Herrich-Schaeffer, 1835 *Lygaeus equestris* (Linnaeus, 1758) *Macroplax fasciata fasciata* (Herrich-Schaeffer, 1835) *Melanocoryphus albomaculatus* (Goeze, 1778) *Melanocoryphus tristrami* (Douglas & Scott, 1868) *Oxycarenus pallens* (Herrich-Schaeffer, 1850) *Spilostethus saxatilis* (Scopoli, 1763) *Geocoris erythrocephalus* (Lepeletier & Serville, 1825)	Çağlar, 1992; Özsaraç et al., 2001
Quercus robur L.	*Kleidocerys resedae resedae* (Panzer, 1797)	Aysev, 1974
Gentianaceae		
Gentiana asclepeiadea L.	*Spilostethus saxatilis* (Scopoli, 1763)	Stichel, 1957; Aysev, 1974
Geraniaceae		
Erodium sp.	*Lygaeus equestris* (Linnaeus, 1758) *Megalonotus praetextatus* (Herrich-Schaeffer, 1835) *Ortholomus carinatus* (Lindberg, 1932) *Platyplax inermis* (Rambur, 1839)	Lodos et al., 1978
Geranium stepporum Davis	*Spilostethus pandurus* (Scopoli, 1763)	Kıyak, 1990
Grossulariaceae		
Ribes nigrum L.	*Kleidocerys resedae resedae* (Panzer, 1797)	Aysev, 1974
Hypericaceae		
Hypericum sp.	*Cymus claviculus* (Fallén, 1807) *Geocoris erythrocephalus* (Lepeletier & Serville, 1825) *Spilostethus saxatilis* (Scopoli, 1763)	Stichel, 1957; Aysev, 1974; Çakır, 1988; Lodos et al., 1999

Table 1. Continued

Hypericum perforatum L.	*Geocoris erythrocephalus* (Lepeletier & Serville, 1825)	Lodos et al., 1978
Juglandaceae		
Juglans sp.	*Geocoris erythrocephalus* (Lepeletier & Serville, 1825)	Çakır, 1988
Juglans regia L.	*Arocatus longiceps* Stål, 1872 *Geocoris erythrocephalus* (Lepeletier & Serville, 1825) *Kleidocerys ericae* (Horváth, 1908) *Lygaeus creticus* Lucas, 1854 *Metopoplax origani* (Kolenati, 1845) *Rhyparochromus vulgaris* (Schilling, 1829) *Spilostethus pandurus* (Scopoli, 1763) *Stygnocoris rusticus* (Fallén, 1807)	Lodos et al., 1978, 1999
Juncaceae		
Juncaceae	*Cymus melanocephalus* Fieber, 1861	Hoberlandt, 1955; Aysev, 1974
Juncus sp.	*Cymus claviculus* (Fallén, 1807) *Cymus glandicolor* Hahn, 1832 *Cymus melanocephalus* Fieber, 1861 *Dimorphopterus spinolae* (Signoret, 1857) *Geocoris ater* (Fabricius, 1787) *Henestaris halophilus* (Burmeister, 1835) *Holcocranum saturejae* (Kolenati, 1845) *Ischnodemus quadratus* Fieber, 1837 *Metopoplax origani* (Kolenati, 1845 *Microplax interrupta* (Fieber, 1837) *Nysius cymoides* (Spinola, 1837) *Nysius graminicola graminicola* (Kolenati, 1845) *Nysius ericae ericae* (Schilling, 1829) *Oxycarenus hyalinipennis* (A. Costa, 1843) *Oxycarenus pallens* (Herrich-Schaeffer, 1850) *Peritrechus gracilicornis* Puton, 1877 *Spilostethus saxatilis* (Scopoli, 1763)	Hoberlandt, 1955; Stichel, 1957; Aysev, 1974 Lodos et al., 1999

Table 2. The number of Lygaeoidea species on hostplants family in Turkey.

Host Plant Family	Number of Lygaeoidea species on the host	Host Plant Family	Number of Lygaeoidea species on the host
Adoxaceae	9	Crassulaceae	1
Amaranthaceae	22	Cucurbitaceae	4
Amaryllidaceae	1	Cupressaceae	25
Anacardiaceae	29	Cyperaceae	3
Apiaceae	9	Cystopteridaceae	1
Apocynaceae	8	Dipsacaceae	3
Araliaceae	2	Dryopteridaceae	1
Asteraceae	55	Elaeagnaceae	3
Berberidaceae	1	Ericaceae	18
Betulaceae	9	Euphorbiaceae	4
Boraginaceae	16	Fabaceae	69
Brassicaceae	20	Fagaceae	41
Cannabaceae	2	Gentianaceae	1
Capparaceae	5	Geraniaceae	5
Caryophyllaceae	6	Grossulariaceae	1
Cistaceae	12	Hypericaceae	4
Convolvulacea	5	Juglandaceae	8
Cornaceae	1	Juncaceae	17

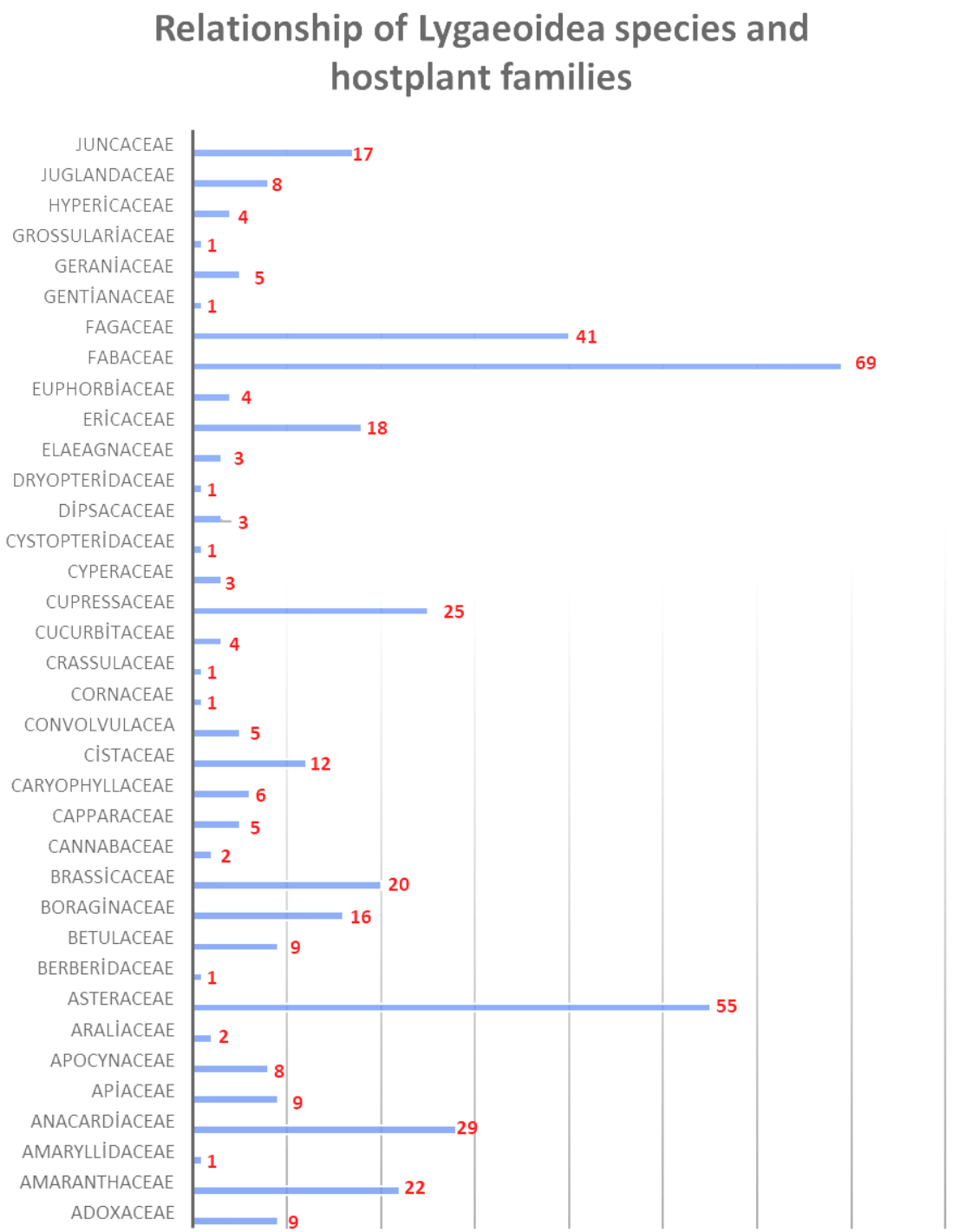

Figure 1. Distribution of Lygaeoidea species numbers by families of hostplants in Turkey.

Table 3. The number of hostplant species in Turkey.

	Hostplant Families	Number of Hostplant species		Hostplant Families	Number of Hostplant species
1	Adoxaceae	5	19	Cucurbitaceae	4
2	Amaranthaceae	4	20	Cornaceae	1
3	Amaryllidaceae	1	21	Cupressaceae	5
4	Anacardiaceae	4	22	Cyperaceae	2
5	Apiaceae	11	23	Cystopteridaceae	1
6	Apocynaceae	4	24	Dipsacaceae	3
7	Araliaceae	2	25	Dryopteridaceae	1
8	Asteraceae	44	26	Elaeagnaceae	2
9	Berberidaceae	1	27	Ericaceae	8
10	Betulaceae	9	28	Euphorbiaceae	2
11	Boraginaceae	12	29	Fabaceae	37
12	Brassicaceae	11	30	Fagaceae	9
13	Cannabaceae	2	31	Gentianaceae	1
14	Capparaceae	2	32	Geraniaceae	2
15	Caryophyllaceae	7	33	Grossulariaceae	1
16	Cistaceae	6	34	Hypericaceae	2
17	Convolvulacea	2	35	Juglandaceae	2
18	Crassulaceae	1	36	Juncaceae	1

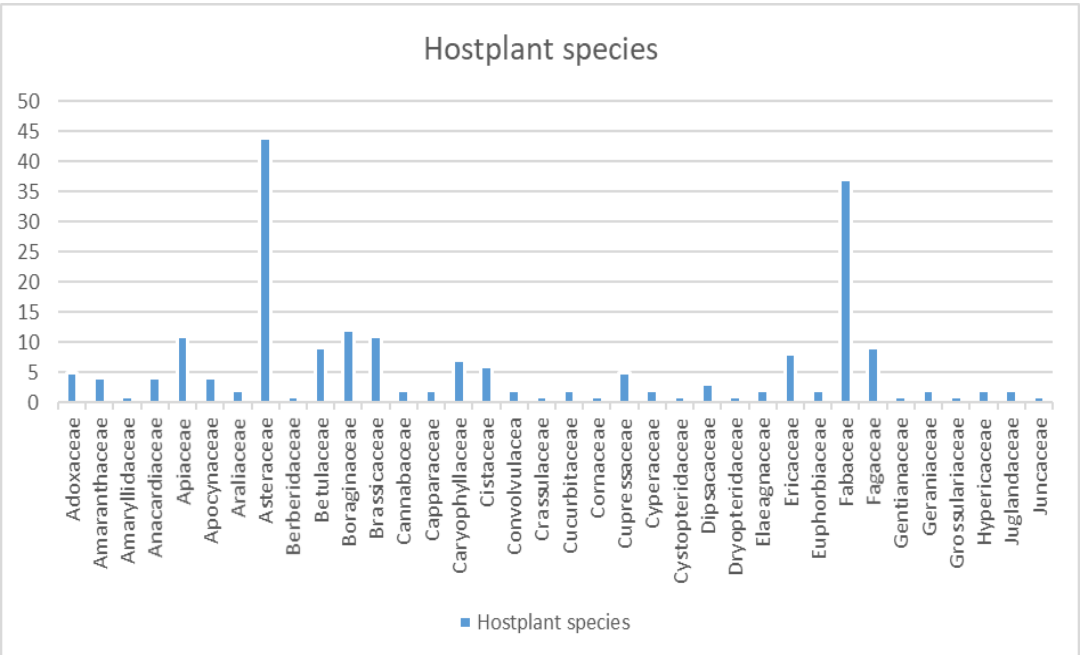

Figure 2. Hostplants species of Lygaeoidea species in Turkey.

CONCLUSION AND DISCUSSION

In this study are confirmed 222 taxa as a host plants of Lygaeoidea from Turkey; they are belonging to 36 families. Of these 77 of 222 plant taxa of them are only genera level host, also 145 of them are species level. In this part of the study were Lygaeoidea species found on 36 host plant family in Turkey given. The most host plant species belong to Asteraceae (44 species), Fabaceae (37 species), Boraginaceae (12 species), Apiaceae (11 species), Brassicaceae (11 species) and Fagaceae (9 species) families (Table 3, Fig. 2).

It is uncertain how much of which Lygaeoid species are experts in plants, with the exception of some species where research is concentrated. Reliable data on the preferred habitats and nutrition of Lygaeoid species are not available for many species. However, according to some studies, it has been found that many lygaeoid species are found or fed on species from one or more plant families. (e.g. Aysev, 1974; Çağlar, 1992; Çakır, 1988; Hoberlandt, 1955; Kıyak, 1990; Kıyak, 1993; Lodos, Önder, Pehlivan, Atalay, 1978; Lodos et al., 1999; Stichel, 1957-1962). For this purpose, this article about the host plant species on the list of Turkey lygaeoid species in this study has been submitted.

When looking at this list, it can be seen that various species are present on one or more hosts. For example, *Lygaeus equestris* (Linnaeus, 1758) in 41different hosts, *Macroplax fasciata fasciata* (Herrich-Schaeffer, 1835) in 24 different hosts, *Nysius graminicola graminicola* (Kolenati, 1845), *Nysius ericae ericae* (Schilling, 1829) and *Metopoplax origani* (Kolenati, 1845) in 22 different hosts were detected. In this respect, they are considered as "non-specific" because they are not limited to any plant species.

On the other hand, in this study; only "one species" was found in the host of 8 plant families, limited to any lygaeoid species. And in teo plant taxa only "two species" were found, limited to any lygaeoid species. Only "three species" were found in four plants, limited to any lygaeoid species. In three plant taxa only “five species” or “more species” were found, limited to any lygaeoid species. (Table 2, Figure 1).

Most Lygaeoidea species were found in Fabaceae (69 species), Asteraceae (55 species), Fagaceae (41 species) Anacardiaceae (29 species) and Cupressaceae (25 species) in plant families. Number of recorded Lygaeoidea species each host plant family were given Table 2 and Figure 1.

Other host plants family will be in next paper published.

Based on the aforementioned findings, it has been found that some species (such as *Lygaeus equestris*), *Macroplax fasciata fasciata* and *Nysius graminicola graminicola* prefer many host plants and feed on a large number of plant families. This preference spectrum can help to explain the harmful role of some lygaeoid species for economically loss related to them.

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Research Article

Psallus (*Psallus*) *flavellus* Stichel, 1933, a New Miridae (Hemiptera: Heteroptera) Species for the Fauna of Turkey

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ABSTRACT: *Psallus* (*Psallus*) *flavellus* Stichel, 1933, collected in the European part of İstanbul, is recorded from Turkey for the first time. Its male, female, last instar nymph and vesica are illustrated. Characters that distinguish this species from other species of *Psallus* which are also associated with *Fraxinus,* are given.

KEYWORDS: *Psallus* (*Psallus*) *flavellus*, new record, Turkey

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INTRODUCTION

The genus *Psallus* Fieber, 1858 is currently subdivided into eight subgenera (Linnavuori, 1993, Kerzhner & Josifov, 1999, Yasunaga & Vinkurov, 2000). The nominotypical subgenus *Psallus* (*Psallus*) consists of 62 species in the Palaearctic Region, 54 of which are distributed in the Western Palaearctic Region (Kerzhner & Josifov, 1999, Pagola-Carte, 2017, Pagola -Carte, 2018, Carapezza & Kment, 2018, Matocq, 2019a, Matocq, 2019b, Aukema, 2020). Recently, Carapezza & Kment (2018) prepared a checklist of the *Psallus* species of Turkey. They listed 37 species of *Psallus*, including a new species that they described, *Psallus* (*Psallus*) *thomashenryi* Carapezza & Kment, 2018, recorded a new species for Turkey, *Psallus* (*Psallus*) *lucanicus* and excluded *Psallus* (*Psallus*) *aurora* (Mulsant & Rey, 1852) from the fauna of Turkey. Interestingly, Carapezza & Kment (2018) did not include *P.* (*P.*) *flavellus* Stichel, 1933 in their checklist, although this species had been recorded by Önder (1976) from Turkey.

This species is known from Azerbaijan, hence the record from Turkey did not seem unreasonable. Çerçi & Tezcan (2020) examined the supposed specimens of *P.sallus* (*Psallus*) *flavellus* collected by Önder (1976) and found out that they in fact belonged to another species and excluded *P.* (*P.*) *flavellus* from

the fauna of Turkey. Additionaly, very recently, 2 more *Psallus* species were described from Turkey (Matocq, 2019a, Matocq, 2019b). As a result, the total number of *Psallus* species recorded from Turkey was 39.
With the new record presented in this paper, this number rises to 40.

MATERIAL AND METHODS

The material examined in this paper was collected sweeping branches of trees with sweeping net.

The specimens were examined using Celestron 44125 Microscope. Photographs were taken with Nikon D3300 DSLR Camera combined with a 68mm extension tube and a Lomo 3.7X 0.11 Microscope lens. Identification of the species was based on Wagner (1975) and Wyniger (2004).

RESULTS

***Psallus* (*Psallus*) *flavellus* Stichel, 1933**
(Fig 1–3)

Material examined: Turkey, İstanbul, Esenyurt, N 41°03'04.0", E 28°40'29.9", 04. 06. 2016, 1 female (on *Fraxinus* sp.); 20. 05. 2017, 2 males 3 females (on *Fraxinus* sp.); 25. 05. 2017, 2 males 1 female (on *Fraxinus* sp.); 28. 05. 2017, 1 male (on *Fraxinus* sp.), B. Çerçi leg. & det, B. Çerçi Coll. (İzmir)

DISCUSSION

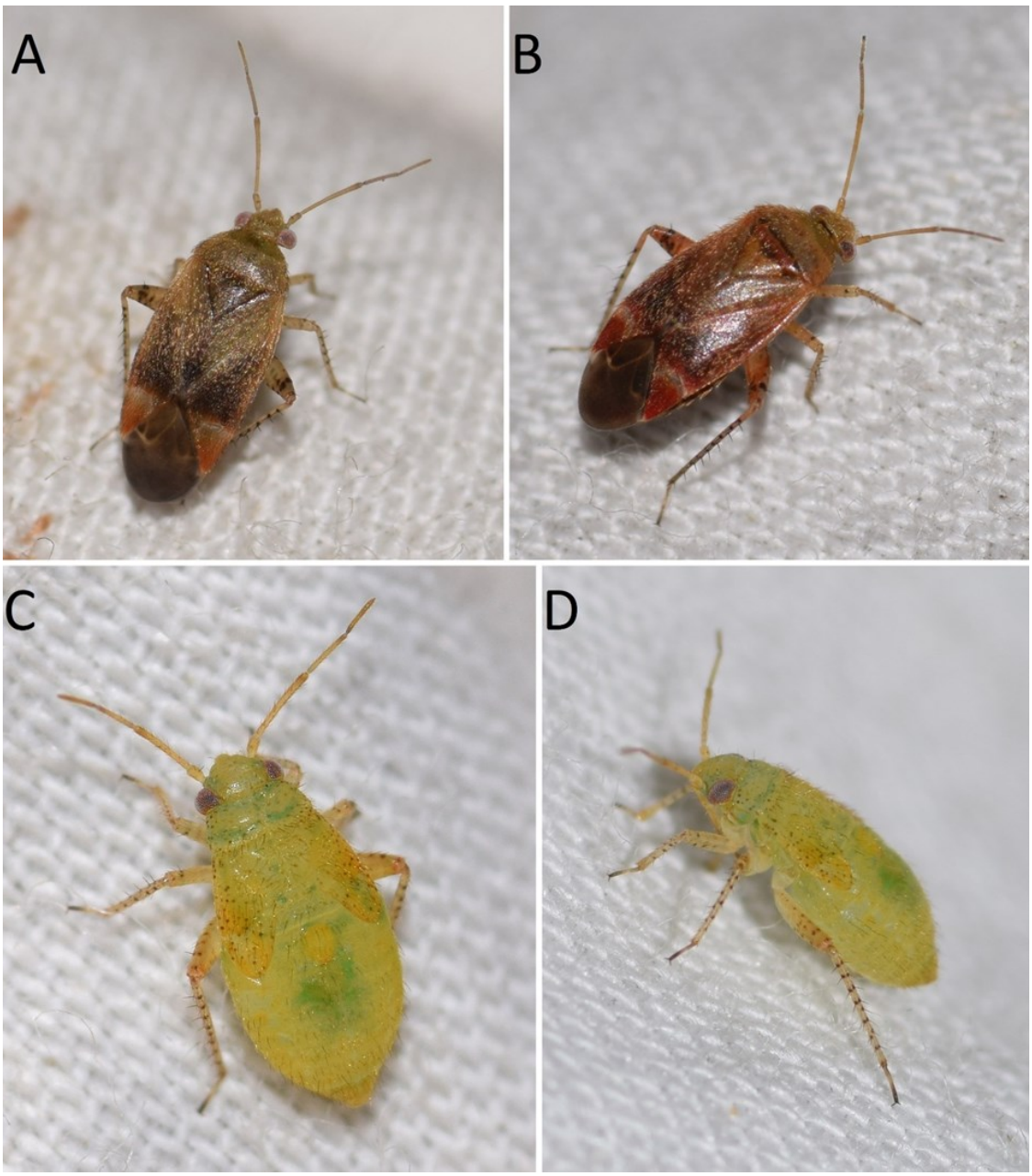
Psallus (Psallus) *flavellus* is a European species known from almost all Central and Northern European countries (Aukema, 2020). Its distribution extends to Africa in Algeria (A. Carapezza regards the record from this country as highly dubious, *pers. comm.*) and to Asia in Azerbaijan. It was also introduced to North America (Kelton, 1983).

The species is not present in European regions of Central and Eastern Mediterranean: In Italy it occurs only in continental Northern regions (Lombardia and Emilia) and in Balkan Peninsula it is known only from northern Moldovia and Serbia. Hence its record from Istanbul, Turkey, at the centre of a very wide area where the species is known not to occur, is rather puzzling.
P. (*P.*) *flavellus* is associated with *Fraxinus* trees. Until very recently, only 2 more species of *Psallus* were known to feed on *Fraxinus*: *P.* (*P.*) *lepidus* Fieber, 1858 and *P.* (*P.*) *orni* Wagner, 1968. In the last ten years 3 more species associated with *Fraxinus* were described: *P.* (*P.*) *inancozgeni* Matocq & Pluot-Sigwalt, 2011 from Turkey, *P.* (*P.*) *anasanthi* Pagola-Carte, 2017 and *P.* (*P.*) *enejokosu* Pagola-Carte, 2018, both from Spain. Hence the total number of *Psallus* species associated with *Fraxinus* rised to 6. Among them, *P.* (*P.*) *lepidus* and *P.* (*P.*) *inancozgeni* are known from Turkey (Önder, 1976, Matocq & Pluot-Sigwalt, 2011). Both male and female adults (Fig. 1A–B, 2A–B) and nymphs (Fig. 1C–D) of *P.* (*P.*) *flavellus* were collected from a *Fraxinus* tree in the European part of Istanbul, over 2 years. With this record, the total number of *Psallus* species associated with *Fraxinus* in Turkey rises to 3.

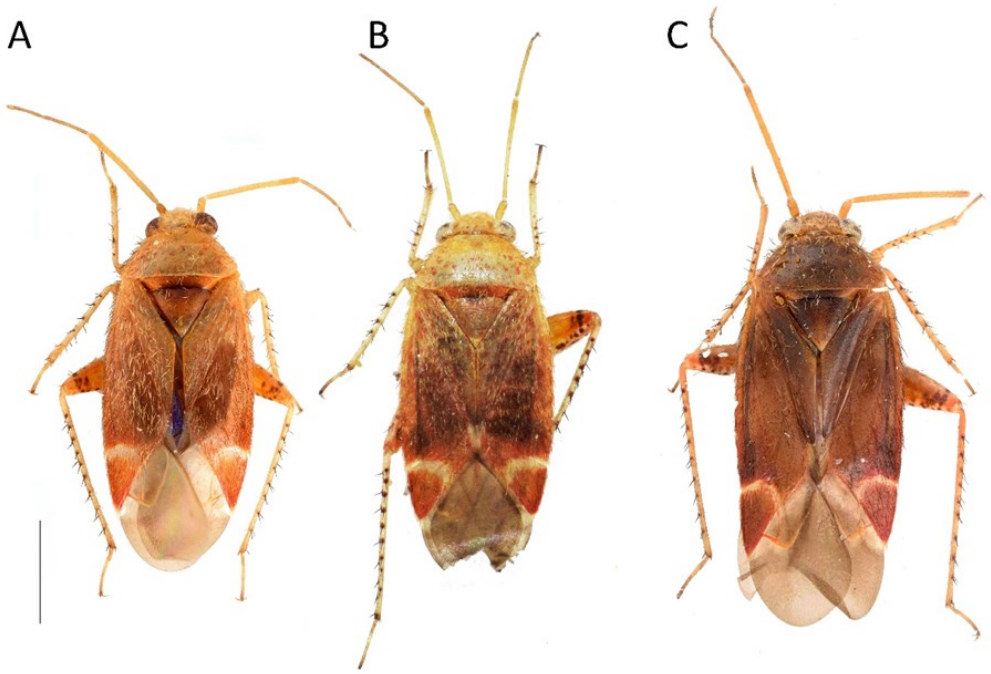
Fraxinus-associated species of *Psallus* have similar type of vesical structure with a dentate apical process and a spine -like lateral process, except for *P.* (*P.*) *inancozgeni* which lacks a lateral process (Fig. 3) (Wyniger, 2004, Matocq & Pluot-Sigwalt, 2011, Pagola-Carte, 2017, Pagola-Carte, 2018).

Among these species, *P.* (*P.*) *flavellus* is distinguished by the apical process long and slender and the lateral process very long and almost straight (Wyniger, 2004). *P.* (*P.*) *lepidus* (Fig. 2C) differs from *P.* (*P.*) *flavellus* by the shorter and stouter apical process and the much shorter lateral process of the latter (Fig. 3E). As one more distinguishing feature, although not always valid, one can mention that *P.* (*P.*) *lepidus* has most often unicolorous dark red to brown coloration (Fig. 1C), whereas *P.* (*P.*) *flavellus* has most often pale yellow to orange coloration of pronotum, scutellum and proximal half of hemelytra and only the apical half of hemelytra is red to brown (Fig. 1A–B). *P.* (*P.*) *inancozgeni*

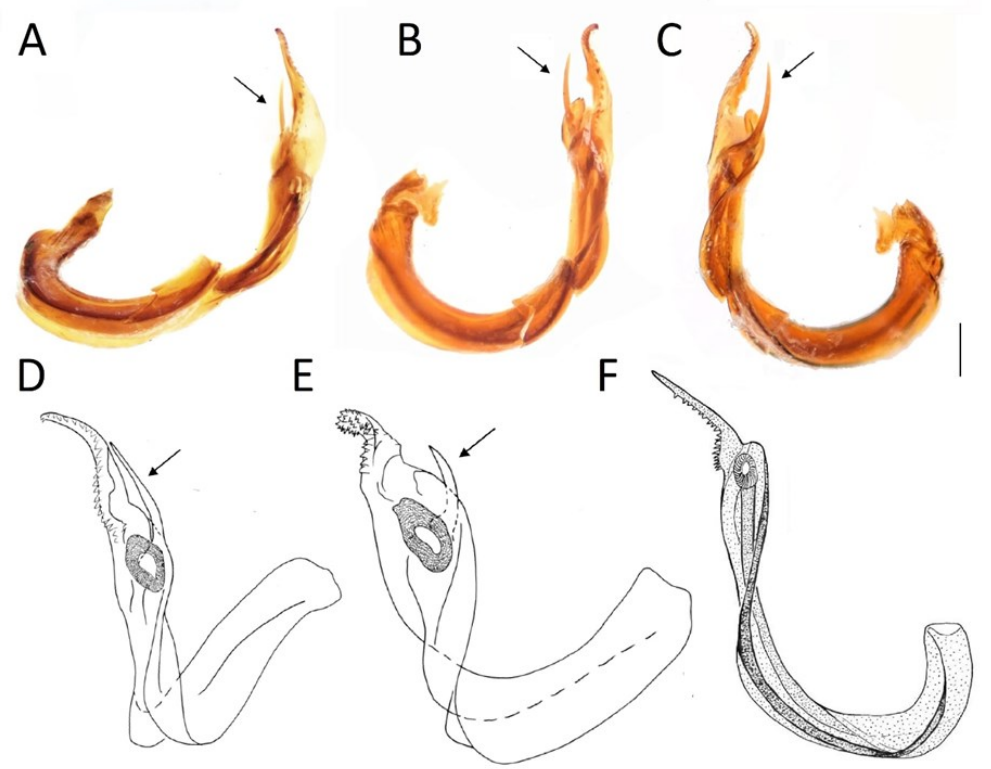
differs from *P.* (*P.*) *flavellus* by the lack of a lateral process (Fig. 3F). *Psallus* (*P.*) *anasanthi*, *P.* (*P.*) *enejokosu* and *P.* (*P.*) *orni*, which are only known from the western Mediterranean region, also differ from *P.* (*P.*) *flavellus* by the shorter and stouter apical process and the shorter lateral process of the vesica (Matocq & Pluot-Sigwalt, 2011, Pagola-Carte, 2017, Pagola-Carte, 2018).



Figures 1A–D. Fig. 1A – *Psallus* (*Psallus*) *flavellus* Stichel, 1933, male specimen, **Fig. 1B** – *idem*, female specimen, **Fig. 1C** – *idem*, last instar nymph, **Fig. 1D** – *idem*, from lateral view.



Figures 2A–C. Fig. 2A - *Psallus* (*Psallus*) *flavellus* Stichel, 1933, male, **Fig. 2B** – *idem*, female, **Fig. 2C** - *Psallus* (*Psallus*) *lepidus* Fieber, 1858, specimen from Karaman, Turkey, (Scale bar = 1 mm).



Figures 3A–F. Fig. 3A–C – *Psallus* (*Psallus*) *flavellus* Stichel, 1933, photographs of vesica from different views, **Fig. 3D** – *idem*, drawing of vesica, **Fig. 3E** - *Psallus* (*Psallus*) *lepidus* Fieber, 1858, drawing of vesica, **Fig. 3F** – *Psallus* (*Psallus*) *inancozgeni* Matocq & Pluot-Sigwalt, 2011, (Scale bar = 0,1 mm) [Arrows indicate lateral process of vesica, A–C = original, D–E = from Wyniger (2004), F = from Matocq & Pluot-Sigwalt (2011)].

CONCLUSION

The number of *Psallus* species associated with *Fraxinus* was doubled from 3 to 6 in recent years with the description of 3 new species from Spain and Turkey. Pagola-Carte (2018) expressed the opinion that host association of *Fraxinus* seems to be a hot spot for the speciation of *Psallus* species. In accordance with this notion, an isolated record of a *Fraxinus*-associated *Psallus* species could have corresponded to another spot of speciation, but in this case, this isolated record belongs to *P.* (*P.*) *flavellus*, a species widely known from Central Europe. The absence of records of this species from peninsular Italy and Balkan Peninsula except from Moldovia and Serbia is noteworthy. Since peninsular Italy and some countries of the Balkan peninsula are among the egions where the distribution of *Psallus* species is best studied, at present the most likely hypothesis is that this species was accidentally introduced to Turkey by the agency of man. Nevertheless, it is necessary to carry out further field research in the European Part of Turkey and the Balkan Peninsula in order to enhance our knowledge of the distribution of Heteroptera species, which remains inadequate. Such researches are very likely to produce very interesting and unexpected results.

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Research Article

The Some Miridae (Hemiptera: Heteroptera) Family Species by Collected by Light Traps in Western Turkey

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ABSTRACT: This study was carried out between 2013 to 2017 years in Western Turkey. The species were collected by light traps . Totally; The four teen species were recorded in Miridae Family. These are: *Lepidargyrus syriacus* (Wagner, 1956), *Lygus gemellatus gemellatus* (Herrich-Schäffer, 1835), *Deraeocoris (Camptobrochis) serenus* (Douglas & Scott, 1868), *Phytocoris (Leptophytocoris) miridioides* Lethierry, 1877, *Phytocois (Phytocoris) setiger* Reuter, 1896, *Plagiognathus (Plagiognathus) chrysanthemi* (Wolff, 1804), *Trigonotylus pulchellus* (Hahn, 1834), *Hallopadus concolor* (Reuter, 1890), *Psallus (Psallus) varians varians* (Herrich-Schäffer, 1841), *Plesiodema pinetella* (Zetterstedt, 1828), *Macrolophus pygmaeus* (Rambur, 1839), *Creontiades pallidus* (Rambur, 1839), *Campylomma diversicorne* (Reuter, 1878),, *Megalocoleus molliculus (*Fallén, 1807).

KEYWORDS: Miridae, Fauna, Western Turkey, new regional records.

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INTRODUCTION

Miridae is a group of Miroidea, which comprises eight subfamilies worldwide (Yazıcı and Yıldırım, 2018; Çerçi and Dursun, 2017). In total, 122 species belonging to 65 genera of five subfamilies of the family Miridae are recorded from Turkey (Yazıcı et al., 2019). Important studies have been carried out on this

family species by various researchers in Turkey (Lodos et al., 2003; Önder et al. 2006; Tezcan et al. 2010; Fent, 2011; Matocq et al. 2014; Yazıcı and Yıldırım, 2016 a, b; Yazıcı and Yıldırım, 2018; Yazıcı et al., 2019). This study results were contributed to the Miridae family in Turkey.

MATERIAL AND METHOD

The Miridae species were collected in different habitats in İzmir, Aydın, Denizli and Manisa provinces, One light trap on the ground was used for each area from the mid June to the mid September. A 20 watt Philips energy saver white day light bulb was used at each trap and traps were cleared at two weeks intervals. The specimens were identified by second author.

RESULTS

Lepidargyrus syriacus (Wagner, 1956)

Material examined: Aydın, Campus of the Agricultural Faculty, 15.06.2013, 5 ♂, 5 ♀, cotton, leg. Özgen & Örgel.

Distribution in Turkey: Diyarbakır, Mardin (Matocq et al., 2014).

First record in Western part of Turkey

Lygus gemellatus gemellatus (Herrich-Schäffer, 1835)

Material examined: Denizli, Tavas, 15.06.2013, 3 ♂, 2 ♀, leg. Özgen & Örgel.

Distribution in Turkey: Ağrı, Adana, Amasya, Antalya, Bayburt, Çanakkale, Diyarbakır, Edirne, Erzurum, İzmir, Muş, Tekirdağ, Uşak, Iğdır, Kars, Konya, Siirt (Önder et al., 2006; Matocq & Özgen, 2010; Fent, 2011; Yazıcı & Yıldırım, 2016a).

First record in Denizli province.

Deraeocoris (Camptobrochis) serenus (Douglas & Scott, 1868)

Material examined: Aydın, Campus of the Agricultural Faculty, 15.06.2013, cotton, 5♂, 5 ♀, leg. Özgen & Örgel.

Distribution in Turkey: All of Turkey (Önder et al., 2006)

Phytocoris (Leptophytocoris) miridioides (Lethierry, 1877)

Material examined: İzmir, Seferihisar, 15.05.2013, 15 ♂,17 ♀, leg. Özgen & Örgel.

Distribution in Turkey: Denizli

First record in İzmir province.

Phytocois (Phytocoris) setiger (Reuter, 1896)

Material examined: İzmir, Seferihisar, 15.07.2014, 5♂,2 ♀, leg. Özgen & Örgel.

Distribution in Turkey: Antalya, Çanakkale, Hatay, İzmir, Mersin, Muğla, Trabzon. (Lodos et al., 2003; Önder et al., 2006).

Plagiognathus (Plagiognathus) chrysanthemi (Wolff, 1804)

Material examined: Denizli, Tavas, 15.06.2013,2 ♂, 1 ♀, Özgen & Örgel.

Distribution in Turkey: Adana, Aydın, Bursa, Bilecik ,Bolu, Diyarbakır, Edirne, Erzurum, Gaziantep, Hatay, Kahramanmaraş, Kayseri, Kocaeli, Kütahya, Manisa, Mersin, Muğla, Sakarya, Sivas, Şanlıurfa, İçel, İstanbul, İzmir (Önder et al. 2006; Matocq & Özgen, 2010; Tezcan et al., 2010; Matocq et al., 2014; Yazıcı & Yıldırım, 2016b; Çerçi & Dursun, 2017).

First record in Denizli province.

Trigonotylus pulchellus (Hahn, 1834)

Material examined: Manisa, Alaşehir, 01.07.2013, 1 ♂, 1 ♀, leg. Özgen & Örgel.

Distribution in Turkey: Adana, Ağrı, Ankara, Antalya, Artvin, Bartın, Çorum, Diyarbakır, Eskişehir, Gaziantep, Hatay, Kahramanmaraş, Kayseri, Manisa, Mersin, Nevşehir, Niğde, Osmaniye, Siirt,

Yozgat, Zonguldak (Önder et al., 2006; Matocq & Özgen, 2010).

***Hallopadus concolor* Reuter, 1890**

Material examined: İzmir, Seferihisar, 15.05.2013, 10 ♂, 10 ♀, leg. Özgen & Örgel.

Distribution in Turkey: İzmir (Anonymous, 2020).

***Psallus (Psallus) varians varians* (Herrich-Schäffer, 1841)**

Material examined: İzmir, Seferihisar, 15.05.2013, 7 ♂, 7 ♀, leg. Özgen & Örgel.

Distribution in Turkey: Antalya, Bartın, Çankırı Hatay, Kahramanmaraş, Karaman, Kastamonu, Kayseri, Kırıkkale, Konya (Önder et al., 2006).

First record in İzmir province.

***Plesiodema pinetella* (Zetterstedt, 1828)**

Material examined: İzmir, Seferihisar, 15.05.2013, 4 ♂, 4 ♀, leg. Özgen & Örgel.

Distribution in Turkey: Adana (Önder et al., 2006).

First faunistic record in Aegean region.

***Macrolophus pygmaeus* (Rambur, 1839)**

Material examined: İzmir, Seferihisar, 15.05.2013, 5♂, 4 ♀, leg. Özgen & Örgel.

Distribution in Turkey: Siirt (Matocq & Özgen, 2010)

***Creontiades pallidus* (Rambur, 1839)**

Material examined: Manisa, Alaşehir, 01.07.2013, 14 ♂, 14 ♀, leg. Özgen & Örgel.

Distribution in Turkey: Adana, Adıyaman, Antalya, Aydın, Batman, Denizli, Diyarbakır, İzmir, Mardin, Mersin, Muğla, Şanlıurfa, Şırnak (Efil & İlkan, 2003; Önder et al., 2006; Efil & Bayram, 2009).

First faunistic record in Manisa province.

***Campylomma diversicorne* Reuter, 1878**

Material examined: Balıkesir, Burhaniye, 22.08.2017, 15 ♂, 15 ♀, leg. Özgen & Örgel.

Distribution in Turkey: All of Turkey (Önder et al., 2006).

***Megalocoleus molliculus* (Fallén, 1829)**

Material examined: İzmir, Seferihisar, 15.05.2013, 5 ♂, 6 ♀ leg. Özgen & Örgel.

Distribution in Turkey: Ankara, Balıkesir, Bilecik, Çankırı, Diyarbakır, Isparta, İzmir, Karaman, Kastamonu, Kayseri, Kars, Kırıkkale, Kırklareli, Kırşehir, Kütahya, Manisa, Muğla, Nevşehir, Şanlıurfa, Tekirdağ (Önder et al., 2006).

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Research Article

First Record of the Alien Species *Zelus renardii* (Kolenati, 1856) (Hemiptera: Heteroptera: Reduviidae) from Black Sea Region of Turkey

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ABSTRACT: In this study we report new additional record for Nearctic species *Zelus renardii* (Kolenati, 1856) (Reduviidae: Harpactorinae) from Black Sea Region of Turkey. Male genitalia were used to identify of the species and knowledge on the recognized distribution of this species in Turkey was given to summarized.

KEYWORDS: *Zelus renardii*, first record, distribution, Black Sea Region, Turkey

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INTRODUCTION

The endemic and largest genus *Zelus* Fabricius, 1803 of the New World belongs to the tribe Harpactorini (Reduviidae: Harpactorinae) and is widely distributed from Nearctic and Neotropic Regions. The genus *Zelus* is represented by 71 species on the New World (Maldonado Capriles, 1990; Zhang et al., 2016).

The only species of leafhopper assassin bug *Zelus renardii* (Kolenati, 1856) was recorded so far in many European countries and Israel. This Nearctic species was first mentioned by from Greece in Europe by Davranoglou (2011) and Petrakis & Moulet (2011). Then *Z. renardii* has been reported from Spain (Vivas, 2012), Italy (Dioli, 2013; Pinzari at al., 2018), Turkey (Çerçi & Koçak, 2016), Albania (van der Heyden, 2017), Israel (van der Heyden, 2018), France (Garrouste, 2019) and Portugal (Van der Heyden & Grosso-Silva, 2020).

In Turkey, *Z. renardii* has been reported from İstanbul and İzmir firstly by Çerçi &

Koçak (2016), later from Ankara province (Central Anatolia) by Kıyak (2020). The present study extends its distribution to the Amasya from Black Sea region of Turkey.

MATERIAL AND METHODS

Material examined: Amasya, center, 17.10.2018, 1♂; 9.11.2018, 1♀, 1♂; 26.02. 2019, 1♂; 13.10.2020, 1♀ (leg. A. Dursun, det. A. Dursun & M. Fent)**.**

The material was collected on the balcony and stairs of the house in Amasya Province located in Black Sea Region of Turkey. The identification was made based on the descriptions and the characteristics of the male genitalia indicated by Zhang et al. (2016). The photographs are given general appearance of the body dorsally (male and female) (Figs. 1, a, b) and pygophore (Figs. 2, a, b). Specimens are deposited in the Zoology Collection of Amasya University.

DISCUSSION

In this Study, we reported additional record for the alien species *Z. renardii* recorded in Amasya Province from Black Sea Region of Turkey. This species is distributed in both Anatolia and Turkish Thrace in Turkey according to the present datas (Çerçi & Koçak, 2016; Kıyak, 2020). Although Van der Heyden (2018) reports the known distribution of *Z. renardii* is principally limited to the Mediterranean Region in Europe, more distributional informations of this species from Black Sea Region to the eastern region of Turkey, Caucasicus and Iran can be expected in the near future. Weirauch et al. (2012) reported that the Mediterranean climate and California climate are similar, so this species adapted around the Mediterranean. This hypothesis may be correct, but our finding show that the adapted specimens to the climate of Turkey is expanding its distribution northerly and it also adapted to regions outside Mediterranean climate.

Zelus renardii is a predator species and prey leafhoppers. According to some literature has been reported this species in agricultural areas, urban, peri-urban and natural habitats where it preys on all types of insects belonging to different orders, even on intermediate predators. When the prey is not sufficient or it cannot be easily seized, the insect switches from zoophagy to phytophagy to provided the essential foods (Petrakis & Moulet, 2011; Çerçi & Koçak, 2016; Pinzari et al., 2018; Kıyak, 2020). In this study, a female of *Z. renardii* was caught while hunting. This specimen probably turned to the light at night and hunted the a Diptera specimen on the table (Fig. 1.c).

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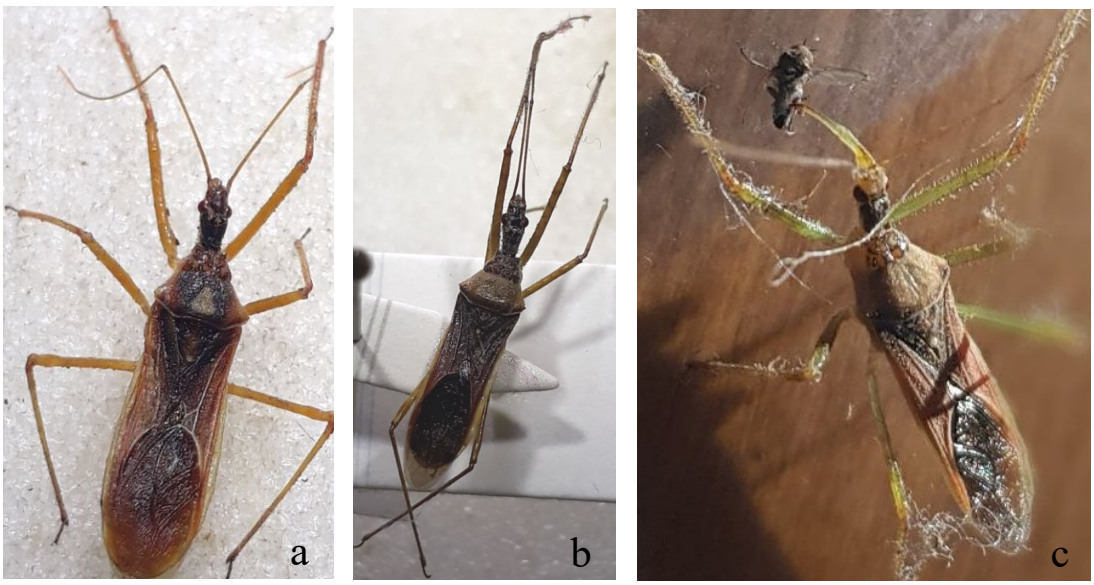

Figure 1. *Zelus renardii* (Kolenati, 1856) Dorsally **a.** female **b.** male **c.** female (while hunting)

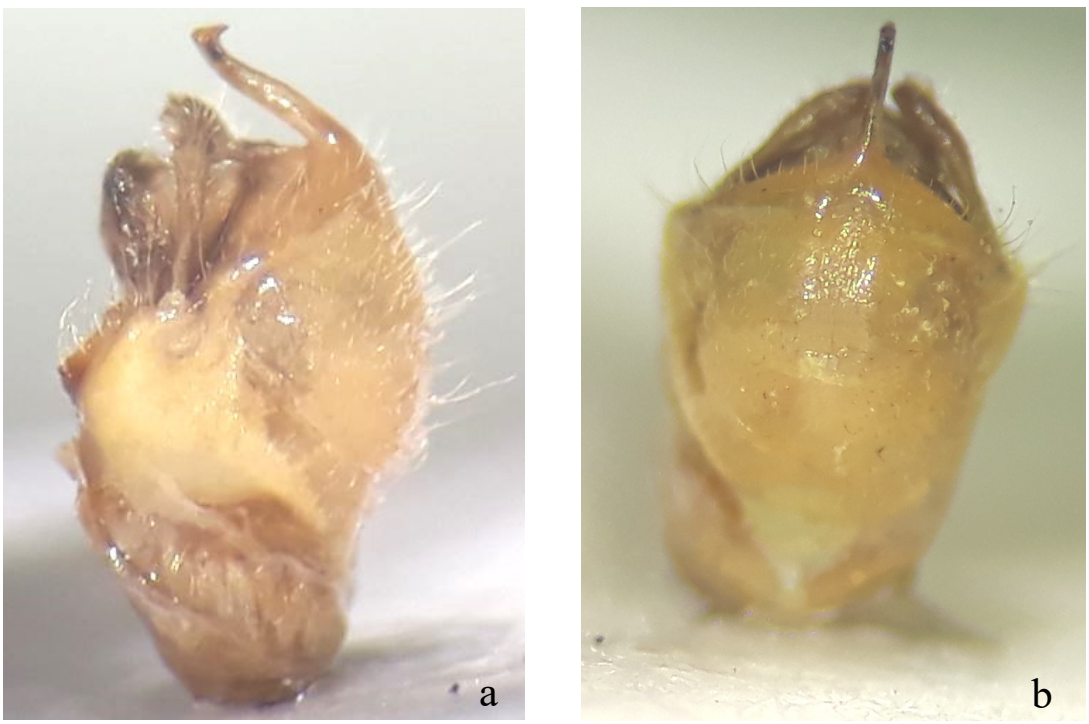

Figure 2. *Zelus renardii* (Kolenati, 1856). Pygophore, **a.**lateral view, **b.** dorsal view

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Short Note

First record of *Sphedanolestes cingulatus* (Fieber, 1864) (Hemiptera: Heteroptera: Reduviidae) in Greece

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ABSTRACT: The first record of *Sphedanolestes cingulatus* (Fieber, 1864) for Greece is reported. Information on the known distribution of this species in the Mediterranean Region is summarized and discussed.

KEYWORDS: *Sphedanolestes cingulatus*, first record, distribution, Mediterranean Region.

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INTRODUCTION

The genus *Sphedanolestes* Stål, 1867 belongs to the subfamily Harpactorinae of the Reduviidae (Hemiptera: Heteroptera). *Sphedanolestes cingulatus* (Fieber, 1864), a red and dark-coloured reduviid of 10 to 12 mm in length, has been assumed to be endemic to mainland Italy and the Italian island of Sicily (Ippolito, 1990; Putshkov & Putshkov, 1996; Putshkov & Moulet, 2009; Dioli et al., 2020).
The known distribution area of this species has been expanded, as a specimen of *S. cingulatus* was found on the Greek island of Corfu.

MATERIAL AND METHODS

On 26.06.2010, Vladimir Deulin photographed a specimen of *S. cingulatus* in the village of Liapades at the western coast of Corfu (Fig. 1). The specimen was found on a flowering *Myrtus communis* L. (Myrtaceae) about one meter above the ground (Vladimir Deulin, personal communication). The photo was published in the online database iNaturalist (Deulin, 2019).

DISCUSSION

The island of Corfu is located near the Italian coast. Thus, *S. cingulatus* was probably transported "accidentally" to

Corfu by a ship coming from Italy. As *S. cingulatus* has not been reported for Greece in scientific publications yet, the record reported in this note is the first one for this country.

ACKNOWLEDGEMENTS

I would like to thank Vladimir Deulin (Moscow, Russia) for allowing me to use his photo of *S. cingulatus* to illustrate this paper and for additional information about his finding.

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Figure 1. Specimen of *Sphedanolestes cingulatus* (Fieber, 1864), Liapades, Corfu, Greece, 26.06.2010. (Photo: Vladimir Deulin).

AUTHOR GUIDELINES

Aims & Scope

The *Journal of the Heteroptera of Turkey* is a biannual peer reviewed international journal that publishes original articles, review articles, and short communication on all aspects of Heteroptera.

The *Journal of the Heteroptera of Turkey* publishes qualified research articles on the systematics, taxonomy, faunistical and ecology of heteroptera suborder. The topic of the research may include a wide range of heteropteran fields. Detailed studies on systematics, morphology, ecology, and phenology of heteroptera, and the biological, ecological, and faunistic formation of heteroptera taxons.

In this Journal full-papers and short communications containing original researches on any aspect of heteropteran in palaearctic region and Turkey will be considered as publication.

The *Journal of the Heteroptera of Turkey* welcomes review articles in the field of heteropteran.

The *Journal of the Heteroptera of Turkey* also published short notes on heteropteran topics. Information of the heteropteran specialists and book reviews will also be published.

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Manuscripts should be written on A4 (21 cm x 29.7 cm) paper with margins of at least 2 cm in width.

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Abstract: The abstract should not exceed 250-300 words (maximum), should be one paragraph.

Keywords: For subject indexing, up to 6 topical keywords in English are required (for Turkish articles).

Text: Introduction, Materials and Methods, Results, Conclusion and Discussion, Acknowledgments, References, Figure and table legends.

Use italics for Scientific names of genera, species, and subspecific taxa.
Do not use italics for abbreviations such as “spp.”, “sp.”, “ssp.”, ”var.”, ”gen.nov.”, “sp.n.”, “ssp.nov.”, “stat.n.”, “comb.n.”, “s.l.”, “s. str.”, “et al.”, and names of taxa of rank higher than genus.
For faunistic research follow this order: Taxon name, Material examined, Habitat, Host plant(s), Distribution. Example:
Miridae Hahn, 1831
Deraeocoris rutilus (Herrich-Schaeffer, 1838)
Habitat: The specimens belonging to *D. rutilus* (H.,-S., 1838) were found on *Carduus pycnocephalus* subsp. *albidus* (Bieb) Kazmi.
Materials examined: 1 male, 24.6.1996 (Loc. 1), 1 female, 24.6.1996 (Loc.6).

Distribution in Turkey: The Aegean, the Marmara, and the Anatolia regions (18,10,8,13,29).
Distribution in the world: Israel, Sardinia, Syria, Cyprus, Poland, the Balkans, Russia, and Turkey (18,25).

References: References should be prepared according to "*The Guidelines to Authors*".

The complete reference list should appear alphabetically by name at the end of the paper. A sample of the most common entries in reference lists appears below. Please note that a DOI should be provided for all references where available.

References must be cited in the text as (Dursun, 2013), Fent & Dursun (2005) or Fent et al. (1997), or in a parenthesis (Dursun, 2013; Fent & Dursun, 2005; or Fent et al. ,1997).

Journal article: Abbreviate names of periodicals basically according to the World List of Scientific Periodicals, 4th Edition, Butterworths, London, 1964–1965. (If you are not certain about the correct abbreviation, give the journal's name in full).

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Using the DOI (Digital Object Identifier) Number: Nestel D., Papadopoulos N. T. & Miranda Chueca M. A. (2008). Current advances in the study of the ecology of fruit flies from Europe, Africa and the Middle East. *Journal of Applied Entomology*, DOI: 10.1111/j.1439-0418.2008.01378.x

Please note on the illustrations, figure, table, and photographs legends: Illustrations should be arranged into blocks or plates by the author(s). Figures should be provided electronically in either JPG or TIFF format. JPG images should be the highest resolution possible. TIFF images should be at 300 dpi resolution.

Morphological illustrations (if not schematic) and **photographs/** electron microscope micrographs should include scale bars. Photographs and electron microscope micrographs must be in JPEG file format (300 dpi).

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A holotype should always be designated for each newly described species-level taxon and at least holotypes should be deposited in public collections that provide long-term care and access for study (note that such deposition is mandatory for neotypes). For this reason, two particular recommendations (73A and 16C) should be observed in JHT.

In the Abstract must be listed new combinations, new status, new taxa, new synonyms, etc. in. The list of synonymized names must indicate their disposition. For newly should be described taxa included for all newly synonymized or combined names. Use “sp. n.”, “gen. n.” etc.. **Important note:** Descriptions based on single specimens are discouraged.

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It is the *author’s responsibility* to know the group, both material and literature, well enough (preferably on a worldwide basis) to be able to ensure that all relevant taxa were taken into account and that any new taxa proposed have not already been described from elsewhere.

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