

Original article (Orijinal araştırma)**Additional records to Ceutorhynchinae (Coleoptera: Curculionidae)
fauna from Turkish Thrace Region¹**

Trakya Bölgesi'nden Ceutorhynchinae (Coleoptera: Curculionidae) faunasına ilave kayıtlar

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In the present study, 4 new species for Ceutorhynchinae (Coleoptera: Curculionidae) fauna of Turkish Thrace Region and additional records belonging to 20 species known from the region are reported. These records based on material collected during 2011-2012 in Edirne province. A list of species belonging to 11 genera of 3 tribes of the subfamily Ceutorhynchinae is provided, and a list of collecting localities is also presented. Furthermore, remarks on distribution, taxonomy and pest of some species are also given on the present data related to them.

Key words: Ceutorhynchinae, fauna, new record, pest, Edirne province, Thrace Region, Turkey.

Özet

Bu çalışmada, Trakya Bölgesi Ceutorhynchinae (Coleoptera: Curculionidae) faunası için 4 yeni tür ve bölgeden bilinen 20 türe ait ilave kayıtlar verilmektedir. Mevcut kayıtlar, Trakya Bölgesi'nde yer alan Edirne İlinde, 2011-2012 yılları esnasında toplanan materyale dayanmaktadır. Ceutorhynchinae altfamilyasının 3 tribus ve 11 cinsine ait türler liste halinde verilirken materyalin toplandığı lokaliteler de tablo olarak sunulmaktadır. Ayrıca, bazı türlerin dağılım, taksonomi ve zararı ile ilgili yorumlar da bu türlerle ilgili mevcut bilgilere dayanılarak verilir.

Anahtar sözcükler: Ceutorhynchinae, fauna, yeni kayıt, zararlı, Edirne, Trakya Bölgesi, Türkiye.

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Introduction

The subfamily Ceutorhynchinae within Curculionidae family is represented in the world by 1301 valid species, and one of the most diverse subfamilies in the family in terms of the species diversity (Colonnelli, 2004). This subfamily is widely distributed throughout Palearctic Region, and most species belonging to this subfamily develop on the Brassicaceae species (Korotyaev, 2006). Ceutorhynchinae includes both economically important species lead to important harms on Brassicaceae species and some potential biocontrol agents were reported to feed on harmful grasses (Korotyaev, 2006; Toshova et al., 2009).

Ceutorhynchinae fauna of Turkish Thrace Region is represented by 25 species within 13 genera from 4 tribes (Lodos et al., 1978; Velázquez de Castro, 2013). No study has been made so far particularly to determine Ceutorhynchinae species in Edirne province. In one study of Lodos et al. (1978) who studied the pest insect fauna of Marmara and Aegean Regions only two species records, *Mogulones beckeri* (Schutze) and *Neoglocianus albovittatus* (Germar), from Edirne were reported.

The aim of this study is to reveal the Ceutorhynchinae fauna in Edirne province of Turkish Thrace, and consequently to expand the range of Ceutorhynchinae species in Turkish Thrace. In addition, this study will provide data both on species considered/ used to control harmful grasses or caused damage in culture plants and also on their distributions in the area.

Material and Method

The study was conducted in 40 localities with varying habitat characteristics from March to June in 2011-2012 (Fig. 1, Table 1).

The material was collected from short plants by a net. The specimens killed using ethyl acetate were stuck on triangle labels from the lateral side of their thoraxes, and later dried specimens were labelled. The present material has been preserved in Trakya University Museum.

For identification of specimens at tribe, genus and species levels, we referred to the studies of Hoffmann (1954), Sert & Çağatay (1999), Colonnelli (2004) and Morris (2008). Furthermore, identification keys prepared on order Coleoptera by Zabaluev (2013) and Lompe (2012) were also used. Tribes, genera and species were given alphabetically in the record section and the collecting localities were mapped (Figure 1).

Table 1. List of localities and collecting dates

Locality No.	Locality	Coordinates	Altitude (m)	Habitat characteristics	Date
1	Edirne-Center (T.Ü., Balkan Campus)	41°38'422"N 26°37'198"E	63	Pond environment, grassland and meadow	08.IV.2011
					12.IV.2011
					22.IV.2011
					02.V.2011
2	Uzunköprü-Yeniköy	41°19'480"N 26°45'140"E	108	Vineyard (wild grasses, grassland, poppies)	09.IV.2011
					10.IV.2011
					29.IV.2011
3	Uzunköprü-Sazlımalkoç	41°21'219"N 26°52'506"E	35	Grassland-meadow	01.V.2012
					17.IV.2011

Table 1. continued

Locality No.	Locality	Coordinates	Altitude (m)	Habitat characteristics	Date
4	Uzunköprü–Gemici	41°19'719"N 26°33'745"E	25	River environment, poplar grove, grassland	23.IV.2011
5	Uzunköprü	41°16'374"N 26°42'095"E	30	Canola fields and their borders (chamomilla)	23.IV.2011
6	Uzunköprü–Salarlı	41°12'761"N 26°37'034"E	25	Wheat field (chamomilla, wild mustard and various wild grasses)	26.IV.2011
7	Meriç–Akçadam	41°18'002"N 26°32'518"E	56	Woody land burned one year ago, canola fields and wild grasses in border of field	01.V.2011
8	Uzunköprü–Çiftlikköy	41°15'221"N 26°37'261"E	10	Grassland-meadow	07.V.2011
9	Meriç–Küplü	41°07'485"N 26°19'788"E	20	River environment (border with trees, shrub and grassland)	07.V.2011
10	Meriç–Olacak	41°12'412"N 26°26'718"E	64	Grassland-meadow	07.V.2011
11	Meriç–Arnavutköy	41°15'373"N 26°26'125"E	67	Grassland-meadow	08.V.2011
12	Tayakadın	41°33'314"N 26°39'402"E	48	Wheat field and wild grasses in its border	10.V.2011
13	Karakasım	41°32'103"N 26°38'947"E	52	Uncultivated fields	10.V.2011
14	Orhaniye	41°30'227"N 26°38'736"E	63	Grassland-meadow	12.V.2011
15	Uzunköprü–Altınyazı	41°04'959"N 26°34'704"E	27	Fruit garden (wild grasses)	15.V.2011
16	İpsala–Sultanköy	40°59'613"N 26°26'325"E	59	Grassland-meadow	15.V.2011
17	İpsala	40°53'557"N 26°23'131"E	60	Grassland-meadow	17.V.2011
18	Meriç–Umurca	41°12'445"N 26°21'429"E	36	Meadow in the border of forest	19.V.2011
19	Yenikadın	41°42'206"N 26°26'832"E	44	Wheat fields and grassland in its border	24.V.2011
20	Ekmekçi	41°44'704"N 26°27'422"E	147	Wheat fields and grassland in its border	24.V.2011

Table 1. continued

Locality No.	Locality	Coordinates	Altitude (m)	Habitat characteristics	Date
21	Uzgaç	41°47'146"N 26°26'162"E	166	Wheat and sunflowers fields and grasslands in	24.V.2011
22	Lalapaşa	41°51'584"N 26°42'243"E	219	Wheat fields and grassland in its border	25.V.2011
23	Lalapaşa–Doğanköy	41°55'203"N 26°43'015"E	325	Grassland	25.V.2011
24	Hatip	41°48'417"N 26°30'332"E	99	Canola fields and grasslands in its border	25.V.2011
25	Lalapaşa–Hacıdanişment	41°54'296"N 26°48'711"E	393	Grassland-meadow	26.V.2011
26	Lalapaşa–Kalkansöğüt	41°57'756"N 26°48'092"E	375	Grassland-meadow	26.V.2011
27	Büyükdöllük	41°45'165"N 26°39'831"E	91	Grassland-meadow	26.V.2011
28	Uzunköprü–Hamidiye	41°08'923"N 26°39'477"E	109	Grassland-meadow	27.V.2011
29	Keşan–Paşayığıt	40°57'882"N 26°38'258"E	190	Pine forest, and meadow in its environment	27.V.2011
30	Keşan–Bahçeköy	40°47'061"N 26°40'953"E	56	Grassland-meadow	27.V.2011
31	Keşan–Yerlisu	40°43'270"N 26°43'766"E	172	Pine forest, grassland-meadow	28.V.2011
32	Keşan–Koruklu	40°39'438"N 26°25'578"E	60	Grassland-meadow	29.V.2011
33	Enez–Hasköy	40°39'921"N 26°19'012"E	47	Grassland-meadow	29.V.2011
34	Enez	40°43'569"N 26°05'004"E	10	Grassland-meadow	30.V.2011
35	İpsala–Karpuzlu	40°50'265"N 26°17'969"E	5	Barley and wheat fields, and grasslands in their	30.V.2011
36	Demirhanlı	41°41'891"N 26°40'785"E	117	Grassland-meadow	31.V.2011
37	Havsa	41°32'078"N 26°48'578"E	70	Grassland-meadow	01.VI.2011
38	İpsala–Kocahıdır	40°48'450"N 26°24'149"E	22	Grassland-meadow	03.VI.2011
39	Süloğlu–Tatarlar	41°50'141"N 26°53'204"E	258	Grassland-meadow (shepherd's-purse, chamomilla, poppy)	23.III.2012 04.IV.2012 09.V.2012 16.V.2012
40	Süloğlu–Hacıumur	41°43'170"N 26°47'470"E	124	Field borders (poppy)	04.V.2012

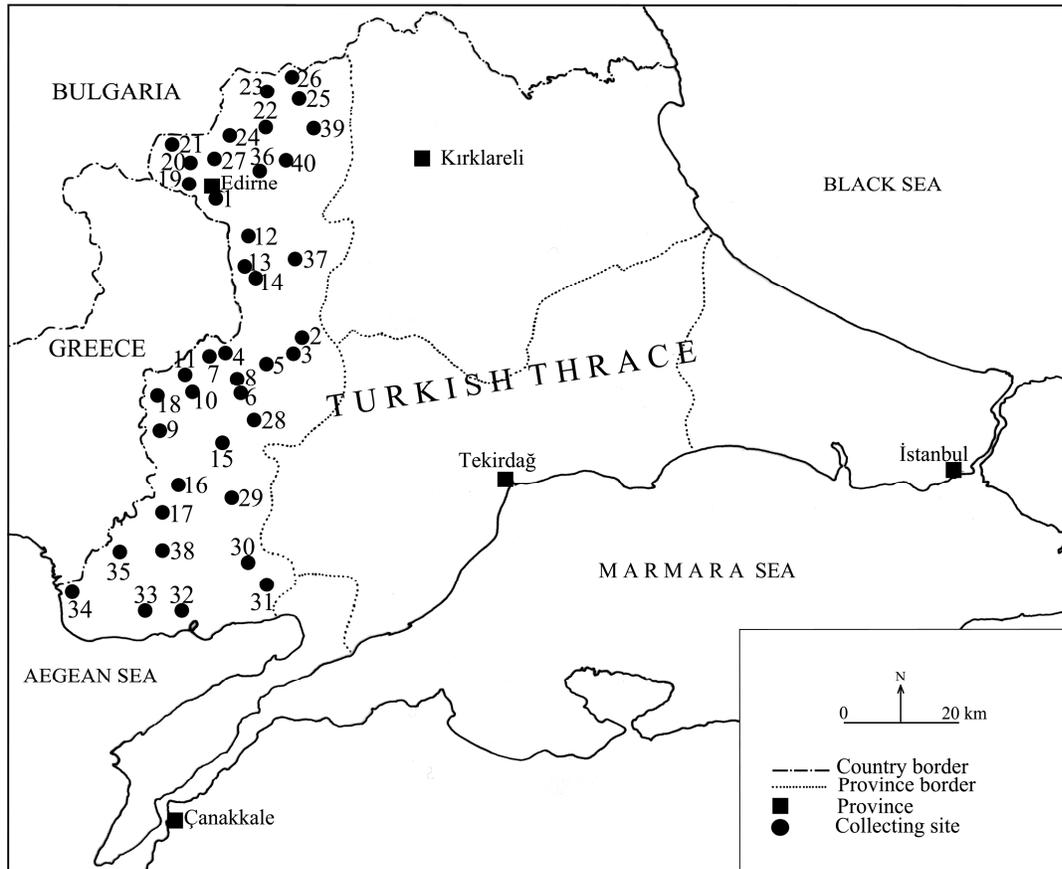


Figure 1. Collecting localities in Edirne Province of the Turkish Thrace.

Results

During our field trips in Edirne, 24 taxa within 11 genera of 3 tribes of Ceutorhynchinae were collected at 40 localities. Of them, *Ceutorhynchus posthumus* Germar, *Oprohinus consputus* (Germar), *Ranunculiphilus faeculentus* (Gyllenhal) and *Ranunculiphilus italicus* (C. Brisout) are new records for the Turkish Thrace Region.

Tribe: Amalini Wagner, 1936

Amalus scortillum (Herbst, 1795)

Material examined: loc.1: 02.V.2011, 1 ♀.

Tribe: Ceutorhynchini Gistel, 1848

Ceutorhynchus assimilis (Paykull, 1792)

Material examined: loc.17: 1 ♂; loc.20: 1 ♂; loc.34: 1 ♀.

Ceutorhynchus chalybaeus Germar, 1824

Material examined: loc.1: 22.IV.2011, 1 ♂; loc.18: 2 ♂♂, 1 ♀; loc.25: 1 ♀; loc.27: 3 ♀♀; loc.29: 1 ♂, 2 ♀♀.

Ceutorhynchus contractus (Marsham, 1802)

Material examined: loc.1: 12.IV.2011, 2 ♂♂, 1 ♀, 22.IV.2011, 3 ♂♂, 8 ♀♀, 02.V.2011, 2 ♀♀; loc.2: 29.IV.2011, 2 ♂♂, 1 ♀; loc.4: 2 ♂♂, 5 ♀♀; loc.5: 2 ♂♂, 5 ♀♀; loc.6: 1 ♂, 5 ♀♀; loc.7: 1 ♀; loc.11: 4 ♂♂, 8 ♀♀; loc.12: 1 ♀; loc.13: 2 ♂♂, 1 ♀; loc.23: 1 ♀; loc.38: 1 ♀.

Ceutorhynchus erysimi (Fabricius, 1787)

Material examined: loc.1: 02.V.2011, 1 ♂; loc.9: 6 ♂♂, 5 ♀♀; loc.11: 1 ♀; loc.13: 1 ♀; loc.14: 1 ♀; loc.16: 4 ♂♂, 1 ♀; loc.17: 1 ♀; loc.26: 1 ♂; loc.27: 2 ♂♂, 3 ♀♀; loc.28: 3 ♂♂; loc.29: 1 ♂; loc.33: 2 ♂♂, 1 ♀; loc.36: 2 ♂♂, 2 ♀♀; loc.37: 4 ♂♂, 1 ♀; loc.38: 2 ♂♂.

Ceutorhynchus hirtulus Germar, 1824

Material examined: loc.1: 12.IV.2011, 1 ♂, 1 ♀; loc.4: 1 ♀; loc.10: 1 ♂; loc.11: 3 ♂♂, 3 ♀♀; loc.12: 1 ♀; loc.13: 1 ♀; loc.17: 1 ♂, 1 ♀; loc.23: 1 ♀.

Ceutorhynchus obstructus (Marsham, 1802)

Material examined: loc.2: 09.IV.2011, 3 ♂♂, 2 ♀♀; loc.3: 1 ♀; loc.4: 3 ♂♂, 1 ♀; loc.5: 3 ♂♂, 1 ♀; loc.6: 7 ♂♂, 1 ♀; loc.7: 1 ♂; loc.17: 4 ♂♂; loc.30: 3 ♂♂, 1 ♀; loc.34: 1 ♂; loc.35: 2 ♂♂, 5 ♀♀.

Ceutorhynchus pallidactylus (Marsham, 1802)

Material examined: loc.2: 09.IV.2011, 1 ♂, 2 ♀♀; loc.6: 2 ♂♂; loc.15: 9 ♂♂, 8 ♀♀; loc.17: 2 ♀♀; loc.24: 1 ♂; loc.30: 3 ♀♀; loc.39: 04.IV.2012, 1 ♂, 3 ♀♀.

Ceutorhynchus picitarsis Gyllenhal, 1837

Material examined: loc.1: 04.VI.2011, 1 ♀; loc.8: 1 ♀; loc.9: 1 ♀; loc.13: 1 ♀; loc.15: 1 ♂; loc.17: 2 ♂♂, 2 ♀♀; loc.19: 1 ♂; loc.20: 3 ♂♂, 2 ♀♀; loc.21: 2 ♂♂, 1 ♀; loc.22: 1 ♂, 1 ♀; loc.25: 1 ♂; loc.31: 1 ♂; loc.34: 1 ♀; loc.35: 1 ♂.

Ceutorhynchus posthumus Germar, 1824

Material examined: loc.2: 01.V.2012, 1 ♂, 1 ♀; loc.11: 1 ♂; loc.17: 3 ♀♀; loc.25: 7 ♂♂, 6 ♀♀; loc.27: 2 ♂♂, 1 ♀; loc.31: 1 ♀.

Ceutorhynchus sulcicollis (Paykull, 1800)

Material examined: loc.2: 09.IV.2011, 1 ♀; loc.12: 1 ♂; loc.20: 1 ♂, 1 ♀; loc.30: 1 ♂.

Ethelcus denticulatus (Schrank, 1781)

Material examined: loc.2: 01.V.2012, 1 ♂; loc.40: 1 ♂, 2 ♀♀.

Hadroplontus trimaculatus (Fabricius, 1775)

Material examined: loc.14: 1 ♀; loc.29: 1 ♀; loc.35: 1 ♀.

Microplontus rugulosus (Herbst, 1795)

Material examined: loc.1: 08.IV.2011, 1 ♀; loc.2: 10.IV.2011, 1 ♀; loc.5: 1 ♂, 4 ♀♀; loc.6: 2 ♀♀; loc.19: 1 ♀; loc.32: 1 ♀; loc.39: 09.V.2012, 1 ♀.

Mogulones beckeri (Schultze, 1900)

Material examined: loc.1: 02.V.2011, 1 ♂.

Mogulones geographicus (Goeze, 1777)

Material examined: loc.1: 22.IV.2011, 1 ♀; loc.35: 1 ♂.

Mogulones korbi (Schultze, 1901)

Material examined: loc.1: 22.IV.2011, 1 ♀.

Neoglocianus albovittatus (Germar, 1824)

Material examined: loc.40: 4 ♀♀.

Oprohinus consputus (Germar, 1824)

Material examined: loc.23: 3 ♂♂; loc.39: 16.V.2012, 1 ♀.

Ranunculiphilus faeculentus (Gyllenhal, 1837)

Material examined: loc.21: 1 ♂.

Ranunculiphilus italicus (C. Brisout, 1869)

Material examined: loc.25: 1 ♀.

Trichosirocalus troglodytes (Fabricius, 1787)

Material examined: loc.9: 1 ♂.

Tribe: Phytobiini Gistel, 1848

Rhinoncus pericarpus (Linnaeus, 1758)

Material examined: loc.26: 1 ♀; loc.39: 23.III.2012, 1 ♂.

Rhinoncus perpendicularis (Reich, 1797)

Material examined: loc.1: 20.VI.2012, 1 ♂; loc.9: 1 ♂.

Discussion

Present study reports 24 species of Ceutorhynchinae within 11 genera of 3 tribes existed in the study area, Edirne province in Turkish Thrace Region. Four species of them, *C. posthumus*, *O. consputus*, *R. faeculentus* and *R. italicus* are first recorded from the Turkish Thrace Region. While the presences of *C. posthumus* and *O. consputus* are reported from most countries of Europe, these species are known from only Turkey (Anatolian part) in Asia at the present (Colonnelli, 2004, 2013). Furthermore, the occurrence of *O. consputus* is known from Algeria in the north of Africa. Distribution of *R. faeculentus* reaches from France in Europe to Turkmenistan in Asia. Another species of genus *Ranunculiphilus*, *R. italicus*, is distributed along coast of Mediterranean sea in Europe and its range reaches to Turkmenistan and Uzbekistan in Asia. This species also is recorded from two countries (Morocco and Tunisia) in the north of Africa (Colonnelli, 2004, 2013).

Although the colour of elytra of *C. erysimi* within recorded species is given as often metallic blue in identification key (Morris, 2008), it is seen that species can also include specimens with metallic green elytra (Hoffmann, 1954). While most of the specimens collected in the present study possessed metallic dark blue elytra, elytra of only one specimen is metallic green.

Lodos et al. (1978) gave the records of two species within Ceutorhynchinae, *Mogulones beckeri* and *Neoglocianus albovittatus*, from Edirne province in their study including Aegean and Marmara regions. These two species were found in the present study as well and new localities were added to their known distributions. Lodos et al. (1978) indicated that *M. beckeri* can be collected on *Medicago sativa* L. plants. Colonnelli (2004) gives the genus *Echium* L. as the host plant of *M. beckeri*. In this study, *M. beckeri* was found in meadow area, in which there are small plants including *Echium* species around

Balkan Campus, Trakya University (Edirne-Center). *N. albovittatus* was collected on *Salix* sp. by Lodos et al. (1978), and it was indicated that this species is harmful of poppy in fact, and its larvae live in the capsules of poppy. Host plants of *N. albovittatus* in World Catalogue of Ceutorhynchinae are *Papaver hybridum* L., *P. rhoeas* L. and *P. somniferum* L. (Colonnelli, 2004). *N. albovittatus* specimens in the study area were collected on corn-poppy belonging to genus *Papaver* L. occurred densely in road borders.

The most common species sampled in the present study is *C. erysimi* found in 15 localities, followed by *C. picitarsis* in 14 localities, *C. contractus* in 11 localities and *C. obstrictus* in 10 localities. The wide distribution of these species can be explained with the wide distribution of their host plants or their wide hostess fan. *C. erysimi* is a wide distributed species occurred primarily in Europe, and also Asia, Africa and America. Distributional range of *C. erysimi* shows parallelism with *Capsella bursa pastoris* L. which is the host plant of monophagus *C. erysimi* and has a cosmopolitan distribution in moderate band (Davis, 1965). Whereas *C. picitarsis*, *C. contractus* and *C. obstrictus* are polyphagus species. *C. contractus* have a very wide hostess list with species belong to Brassicaceae, Resedeceae and Capparidaceae and the species of *Papaver*, *Tropaeolum* L. and *Limnanthes* R. Br. There is a similar case for *C. picitarsis*, a guest on species of Brassicaceae and Resedeceae, and *C. obstrictus*, a guest on species of Brassicaceae as well. These species display a wide distribution in the world, particularly in Europe and Asia, and also are known from Turkish Thrace and Anatolia (Colonnelli, 2004; Velázquez de Castro, 2013).

Species of Hypurini Schultze and Mononychini LeConte tribes could not be found in the present study. Tribe Hypurini is represented with only one species in Turkey, and is distributed in the northeastern Turkey and Azarbaijan. At the present, total 19 species belonging to Hypurini in Europe (including Azarbaijan and Armenia) are known, and most of records are from the west and middle of Europe in Mediterranean Region (Colonnelli, 2013). Actually, when host plants of species of tribe Hypurini recorded in Europe are considered, it is possible to find members of this tribe in Eastern Europe and also in Turkish Thrace.

Currently, 8 species of Mononychini tribe (one from the north of Africa, 6 from Asia and 5 from Europe) are known in the world (Colonnelli, 2013) and only two species of this tribe were recorded from Turkey so far. Of these two species, *Mononychus schoenherrii* Kolenati occurs in Caucasus and the other species, *M. punctumalbum* (Herbst) occurs in Bulgaria and Greece close to Edirne, and has a wide distribution in the western Palaearctic including Turkish Thrace (Colonnelli, 2004; Velázquez de Castro, 2013). Distribution of its host plants, *Iris* species, is known from Edirne (Ersoy, 1998). The reason of absence of *M. punctumalbum* in the present study might be due to an insufficient investigation of the host plant in May when its mature individuals are found. *M. punctumalbum*, which has a wide distribution in the western Palearctic, is a species expected to be recorded from the study area in the future (Gültekin & Korotyaev, 2012).

Ceutorhynchus obstrictus and *Ethelcus denticulatus* are economically important species. *C. obstrictus* causes economic losses and gives harms by feeding on *Brassicca napus* L. (Canola plant) in Europe and in many countries in the world (Süzer, 2008). This species recorded in 10 localities in the south and middle areas of Edirne province could not be found in the north of study area. According to the report of Edirne provincial directorate of agriculture (Yenigün, 2010), 88% of Canola cultivated areas located in the north and middle of Edirne which explains the distribution of *C. obstrictus* in these areas. Study materials were collected mostly from grassland-meadow habitats and agriculture fields found in places cultivated with canola plant. Also, the presence of this species in habitats except agriculture fields can be explained by possible visit of specimens in canola areas to these habitats or they might be feeding on different plants belonging to Brassicaceae (Colonnelli, 2004). In order to prevent harms of *C. obstrictus* on this culture plant in Turkey, only chemical methods are currently being applied (Süzer,

2008). However adult and larval populations of *C. obstrictus* can be kept under control biologically with the help of bees, which are parasitoids on adult and larvae of this species in Europe and America (Muller, 2006; Dossdall et al., 2001). At this moment, information on distribution of this pest species obtained with taxonomic studies will provide important data for biological control studies.

Ethelcus denticulatus widely known in Turkey is an important pest of opium poppy (Giray, 1985). Adults and larvae of the species were determined to drill leaves and bore roots, thus reduce plant growth and cause yield loss (Zümreoğlu & Akbulut, 1984). The known host plants of *E. denticulatus* are *Papaver somniferum*, *P. rhoeas* (Poppy), *Glaucium flavum* Crantz and *G. luteum* Scop. (Colonnelli, 2004). Specimens recorded from two localities in Edirne were collected from the flower of poppy by hand. It is known that *E. denticulatus* caused to yield loss on opium poppy in Anatolia (Zümreoğlu & Akbulut, 1984; Giray, 1985). Since this plant is not cultivated in Edirne, economic loss due to *E. denticulatus* is not expected here.

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