

**NEW FOOD PLANTS AND NEW RECORDS OF
TWO SPECIES OF *EPITRIX* FOUDRAS IN TURKEY
(CHRYSOMELIDAE: GALERUCINAE: ALTICINI)**

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ABSTRACT: *Epitrix* species in Alticini tribe are generally known as potato flea beetles in the world and they are recorded to cause damage especially in the Solanaceae family plants. While this taxon contains more than 100 species, it has 17 species in Palearctic region and 7 species in Turkey. Two species of *Epitrix* were determined in the studies conducted in Ankara, Bartın, Çankırı, Ordu and Zonguldak provinces in 2014-2016. *Epitrix hirtipennis* (Melsheimer, 1947) is known as tobacco flea beetle, its damage in cucumber, pepper, tomatoes, melon, eggplant and beet were also known. In this study, cabbage (Brassicaceae: *Brassica oleracea*) and potato (Solanaceae: *Solanum tuberosum*) were determined as a new food plants of this species. It was determined from Ankara and Zonguldak provinces and so it is a new record to Zonguldak province. New food plants of *Epitrix pubescens* (Koch, 1803) were observed and determined as radish (Brassicaceae: *Raphanus sativus*), maize (Poaceae: *Zea mays*), bean (Fabaceae: *Phaseolus vulgaris*), cabbage (Brassicaceae: *Brassica oleracea*) ve potato (Solanaceae: *Solanum tuberosum*). It was determined from Ankara, Bartın, Çankırı, Ordu and Zonguldak provinces and so it is new record to Bartın, Çankırı, Ordu and Zonguldak provinces.

KEY WORDS: Chrysomelidae, Alticini, *Epitrix*, new host plants, new records, Turkey

Alticini species, called as flea beetles and the biggest subfamily of Chrysomelidae family. It is represented by approximately 500 genera including more than 8000 species in worldwide, 90 genera including 1388 species in Palearctic region (Konstantinov & Vandenberg, 1996). In Turkey, the subfamily includes 343 species group taxon (314 species and 29 subspecies) belonging to 22 genera (Özdikmen et al., 2014; Aslan & Alkan, 2015). Alticini species generally phytophagous insect and feed on herbaceous plants and they are one of the major pests of the vegetable, industrial and other cultural plants. Alticini species feed on above ground organs of plants, especially leaves and also stem, flowers and fruits. Instead of direct damage, flea beetles also give indirect damage by transferring viruses and bacteria, which cause important plant diseases.

Epitrix species in Alticini tribe are generally known as potato flea beetles in the world and they are recorded to cause damage especially in the Solanaceae family plants. Although this genus is represented by more than 100 species in worldwide, it includes 17 species in Palearctic Region and only 7 species in Turkey. In addition, four *Epitrix* species (*E. cucumeris*, *E. subcrinita*, *E. similaris* and *E. tuberosis*) are found in EPPO A1 and A2 lists of quarantine species but they have not been found in Turkey.

MATERIALS AND METHODS

This study was performed in Ankara, Bartın, Çankırı, Ordu and Zonguldak provinces in 2014-2016. *Epitrix* specimens were collected by using net and aspirator from the host plants. Specimens were taken into tubes contained %70 alcohol in them. Specimens were identified by using identification key of Warchalowski (2010). In addition, in identification studies the first author's collection were used as reference material. Insect samples were kept in Nazife Tuatay Plant Protection Museum in Plant Protection Central Research Institute and at Gazi University.

RESULTS AND DISCUSSION

Two species of *Epitrix* were determined in the studies conducted in Ankara, Bartın, Çankırı, Ordu and Zonguldak provinces. *Epitrix pubescens* (Koch, 1803) was determined from Ankara, Bartın, Çankırı, Ordu and Zonguldak provinces and so it is new record to Bartın, Çankırı, Ordu and Zonguldak provinces. *Epitrix hirtipennis* (Melsheimer, 1947) was determined from Ankara and Zonguldak provinces and so it is a new record to Zonguldak province.

Epitrix pubescens (Koch, 1803)

(Fig. 1)

Material examined: **Ankara:** Ankara: Haymana, Soğulca, 39°22'26"N, 32°21'03"E, 02.VI.2015, 948 m, *Phaseolus vulgaris* L. (Bean), 40 specimens, *Solanum melongena* L. (Eggplant), 1 specimen, *Raphanus sativus* L.(Turp) 1 specimen; **Kazan, Sancar,** 40°13'57"N, 32°46'14"E, 03.V.2016, 917 m, 1 specimen; **Bartın:** Karasu, 41°39'23"N, 32°14'07"E, 12.V.2015, 38 m, 4 specimens; **Çankırı** Ilgaz, Belsöğüt Köyü, 40° 56' 51,6" N, 33° 36' 13" E, 17.VII.2014, 1019m, 8 specimens; **Ordu:** Fatsa, Bolaman, 23.VII.2016, 180 m, 7 specimens; **Zonguldak :** Devrek, 20.IV.2016, *Brassica* sp.(Cabbage), 1 specimen; Beycuma, Yörükler, 41°20'44"N, 31°58'04"E, 02.VI.2016, 232 m, *Zea mays* L. (Maize), 1specimens; Devrak, Yılanlıca, 41°15'60"N, 31°58'98"E, 02.VI.2016, 124 m, Maize, 1 specimen; Devrek, Yılanlıca, 41°15'60"N, 31°58'98"E, 15.VI.2016, 124 m, Cabbage, 1 specimen.

Records in Turkey: Anatolian: Balıkesir, Bilecik, Denizli, Düzce, Eskişehir, Erzurum, İstanbul and Europe: Kırklareli (Ekiz et al., 2013; Özdikmen, 2014).

Range: Kazakhstan, Kirghizistan, West Siberia, Caucasia, Iran, Turkey, Cyprus, Israel (Löbl & Smetana, 2010; Özdikmen, 2014).

Chorotype: Sibero-Europea (Özdikmen, 2014).

Remarks: In the study, new food plants of *Epitrix pubescens* (Koch, 1803) were observed and determined as radish (Brassicaceae: *Raphanus sativus*), maize (Poaceae: *Zea mays*), bean (Fabaceae: *Phaseolus vulgaris*), cabbage (Brassicaceae: *Brassica oleracea*) ve potato (Solanaceae: *Solanum tuberosum*). It was determined that this species give damage to leaves of these cultured plants.

This species is a new record for Bartın, Çankırı, Ordu and Zonguldak provinces.

***Epitrix hirtipennis* (Melsheimer, 1847)**

(Fig. 2)

Material examined: **Ankara:** Haymana, Soğulca, 39°22'24"N, 32°21'01"E, 17.VIII.2015, 930 m, *Solanum melongena* L. (Eggplant), 2 specimens; **Zonguldak:** Devrek, 20.IV.2016, *Brassica* sp. (Cabbage), 1 specimen; Devrek, 41°15'60"N, 31°58'98"E, 02.VI.2016, 124 m, *Solanum tuberosum* L. (Potato), 3 specimens.

Records in Turkey: İzmir, Mardin, Ankara (Ekiz et al., 2013; Özdikmen, 2014).

Range: North America, Canada, Mexico, Italy, Bulgaria, Greece, Turkey, Syria (Löbl & Smetana, 2010; Özdikmen, 2014).

Chorotype: Turano-Mediterranean (Turano-Apenninian) + Nearctic + Neotropical (Özdikmen, 2014).

Remarks: *E. hirtipennis* is a pest of tobacco typically. In the World, it is known as a pest of tobacco, potato, tomato and eggplant mostly. In addition, it is also observed that this species feeds on pea, cabbage, pepper and radish (Capinera, 2001). As an American originated species, it has been distributed from Canada to Mexico and then it entered to Europe from Italy in 1984. Other host plants in abroad are tomato, cucumber, melon, Russian turnip and some weeds and ornamental plants (Turanlı & Kismalı, 1996a,b). In Turkey, according to study performed by Turanlı & Kismalı (1996a,b) it made an epidemy in 1993 and it caused serious product lost in tobacco production area. Despite of intense disinfection in the area, the species dispersion and its damage could not be stopped.

In the study, it was determined from Ankara and Zonguldak provinces. It is a new record to Zonguldak province. Cabbage (Brassicaceae: *Brassica oleracea*) and potato (Solanaceae: *Solanum tuberosum*) were determined as food plants of this species.

Note: This study presented in International Conference on Biological Sciences (ICBS) Konya, TURKEY (October 21-23, 2016) as a poster presentation.

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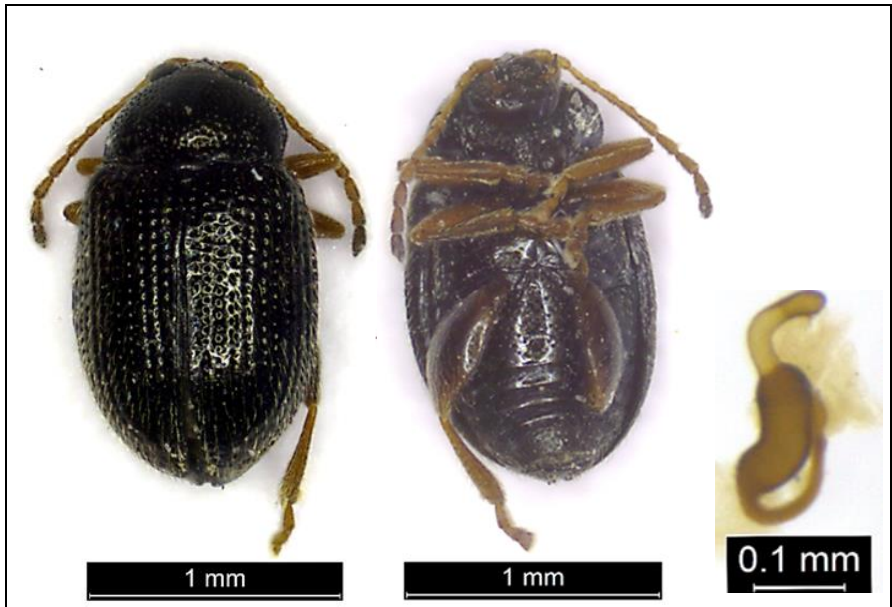


Figure 1. *Epitrix pubescens* (Koch, 1803): Dorsal (left), Ventral (middle), spermatheca (right).



Figure 2. *Epitrix hirtipennis* (Melsheimer, 1847): Dorsal (left), Ventral (middle), spermatheca (right).