

NEW FLEA BEETLES RECORDS OF *APHTHONA* CHEVROLAT IN TURKEY (CHRYSOMELIDAE: GALERUCINAE: ALTICINI)

Hüseyin Özdikmen*, Neslihan Bal* and Didem Coral Şahin**

* Gazi University, Science Faculty, Department of Biology, 06500 Ankara, TURKEY. E-mails: neslihanbilkin@gmail.com; ozdikmen@gazi.edu.tr

** Directorate of Plant Protection Central Research Institute, Ankara, TURKEY. E-mail: didemsahin@ziraimucadele.gov.tr

[Özdikmen, H., Bal, N. & Coral Şahin, D. 2018. New flea beetles records of *Aphthona* Chevrolat in Turkey (Chrysomelidae: Galerucinae: Alticini). *Munis Entomology & Zoology*, 13 (2): 395-400]

ABSTRACT: We had the opportunity to study material of the genus *Aphthona* (Chrysomelidae: Galerucinae: Alticini) collected during the expedition of Ankara, Bartın, Çankırı, Kayseri and Zonguldak provinces in 2013-2017. *Aphthona* Chevrolat is a subcosmopolitan (except for Nearctic and Neotropical regions) and species rich genus of flea beetles. The imagoes of the genus feed on leaves of herbaceous plants as mostly on Euphorbiaceae (*Euphorbia*), Geraniaceae (*Geranium*, *Erodium*) and Linaceae (*Linum*). They are an economically important group with some species using as biological control agents and several species sometimes causing significant damage to cultivated plants. There are over 330 species worldwide, 186 of which have been recorded in Palaearctic region. Thirty-five species have been recorded in Turkey until now. *Aphthona* flea beetles has been reported only by 1 species [*A. semicyanea* Allard] from Çankırı province, 4 species [*A. euphorbiae* Schrank, *A. franzi* Heikertinger, *A. gracilis* Faldermann and *A. konstantinovi* Lopatin] from Kayseri province and 8 species [*A. euphorbiae* Schrank, *A. flaviceps* Allard, *A. franzi* Heikertinger, *A. fuentei* Reitter, *A. kuntzei* Roubal, *A. nigriceps* Redtenbacher, *A. nigriscutis* Foudras and *A. semicyanea* Allard] from Ankara province until now. Also, the genus has not been reported from Bartın and Zonguldak provinces up to now. In a result of this work, 4 new records [*A. atrocaerulea* (Stephens), *A. kuntzei* Roubal, *A. nigriscutis* Foudras and *A. pallida* (Bach)] of the genus *Aphthona* for the fauna of Çankırı province. *A. atrocaerulea* (Stephens) and *A. nigriscutis* Foudras are also new record for Western Black Sea region of Turkey. 2 new records [*A. atrocaerulea* (Stephens) and *A. pallida* (Bach)] for the fauna of Kayseri province were detected. *A. atrocaerulea* (Stephens) is the first record also for Central Anatolian region of Turkey. 1 new record [*A. pallida* (Bach)] for the fauna of Ankara and Bartın provinces and 1 new record [*A. nigriceps* Redtenbacher] for the fauna of Zonguldak province were detected. Especially, the records of *A. pallida* (Bach) from Ankara, Bartın, Çankırı and Kayseri provinces is the first record for Turkey. Also, *A. atrocaerulea* (Stephens) has been reported only from Erzurum province in Turkey until now. So, the records of Çankırı and Kayseri provinces are the second record from Turkey.

KEY WORDS: Chrysomelidae, Galerucinae, Alticini, *Aphthona*, new records, Çankırı, Kayseri, Turkey

The genus *Aphthona* Chevrolat (Coleoptera: Chrysomelidae: Galerucinae: Alticini) comprises more than 330 species that are distributed in the Palaearctic, Oriental, Afrotropical, and Australian regions (Baselga & Novoa, 2002). The Palaearctic species were revised by Heikertinger (1944) and Konstantinov (1998). According to Löbl & Smetana (2010) the genus included 186 species in Palaearctic region.

The imagoes of the genus *Aphthona* Chevrolat, 1836 feed on leaves of herbaceous plants: mostly on Euphorbiaceae (*Euphorbia*), Geraniaceae (*Geranium*, *Erodium*), Linaceae (*Linum*); rarely on Lythraceae (*Lythrum salicaria*), Cyperaceae (*Carex*), Juncaceae (*Juncus*), Iridaceae (*Iris*) and

Marchantiaceae (*Marchantia*). Larvae occur in leaf axils or in soil on roots (Bieńkowski, 2004).

Some species of the genus *Apthona* Chevrolat, 1836 are pests of cultivated plants (Kryzhanovskiy, 1974).

The aim of the current work is to summarise data on the genus *Apthona* Chevrolat, 1836 in Turkey. New faunistical data on 6 species from Ankara, Çankırı, Kayseri and Zonguldak provinces in Turkey are presented.

Ankara province includes 26 counties as Center, Akyurt, Altındağ, Ayaş, Bala, Beypazarı, Çamlıdere, Çankaya, Çubuk, Elmadağ, Etimesgut, Evren, Gölbaşı, Güdül, Haymana, Kahramankazan, Kalecik, Keçiören, Kızılcahamam, Mamak, Nallıhan, Polatlı, Pursaklar, Sincan, Şereflikoçhisar and Yenimahalle. Almost all counties of Ankara province are placed in Central Anatolian region of Turkey. Bartın province includes 4 counties as Center, Bartın, Kurucaşile and Ulus. All counties of Bartın province are placed in Western Black Sea region of Turkey. Çankırı province includes 12 counties as Center, Atkaracalar, Bayramören, Çerkeş, Eldivan, Ilgaz, Kızılırmak, Korgun, Kurşunlu, Orta, Şabanözü and Yapraklı. Eldivan, Kızılırmak, Şabanözü, Yapraklı and Central counties are placed in Central Anatolian region of Turkey. The remaining 7 counties of Çankırı province are located in Western Black Sea region of Turkey. Kayseri province includes 17 counties as Center, Akkışla, Bünyan, Develi, Felahiye, Hacılar, İncesu, Kocasinan, Melikgazi, Özvatan, Pınarbaşı, Sarıoğlan, Sarız, Talas, Tomarza, Yahyalı and Yeşilhisar. All counties of Kayseri province are placed in Central Anatolian region of Turkey. Zonguldak province includes 8 counties as Center, Alaplı, Çaycuma, Devrek, Karadeniz Ereğli, Gökçebeş, Kilimli and Kozlu. All counties of Zonguldak province are placed in Western Black Sea region of Turkey.

MATERIALS AND METHODS

The available specimens for the present study were collected by the authors from Ankara, Bartın, Çankırı, Kayseri and Zonguldak provinces in Turkey in 2013-2017. As a result of identification, 6 species for the genus *Apthona* were determined. The available specimens for the present study are deposited at Gazi University and Nazife Tuatay Plant Protection Museum (NTM) (Turkey, Ankara).

The Turkish distribution patterns for each species are given only concerning provinces. For distribution data of the taxa, Löbl & Smetana (2010) for World and Ekiz et al. (2013) and Özdikmen (2014) for Turkey are used in the text chiefly.

RESULTS AND DISCUSSIONS

CHRYSOMELIDAE Latreille, 1802

GALERUCINAE Latreille, 1802

ALTICINI Newman, 1834

***APHTHONA* Chevrolat, 1836**

Ekiz et al. (2013) and Özdikmen (2014) mentioned a total of 35 species for fauna of Turkey. 5 of 35 species are endemics for Anatolia as *A. alanyensis* Fritzlär, 2004 (known only from Antalya and Mersin provinces in S Anatolia), *A. bergeali* Fritzlär, 2001 (known only from Antalya, İstanbul and Konya provinces), *A. bergealoides* Fritzlär, 2004 (known only from Antalya province in S Anatolia), *A. crassicornis* Lopatin, 1990 (known only from Van province in E Anatolia) and *A. warchalowskii* Fritzlär, 2001 (known only from Antalya and Isparta provinces in S Anatolia).

One Asiatic-European + Oriental species, *A. abdominalis* Duftschmid, 1825, was reported firstly by Csiki & Heikertinger (1940) from only Anatolia without any exact locality. The same data was repeated by Gruev & Döberl (1997), Aslan et al. (1999), Gruev (2004), Ekiz et al. (2013) and Özdikmen (2014).

Also, 11 species were recorded by various authors from only a single province of Turkey as Europeo-Mediterranean species *A. atrocaerulea* (Stephens, 1831) (known only from Erzurum province in NE Anatolia), C and E-European species *A. atrovirens* Förster, 1849 (known only from Isparta province in S Anatolia), Mediterranean species *A. carbonaria* Rosenhauer, 1856 (known only from Gaziantep province in S Anatolia), European + Nearctic species *A. cyparissiae* Koch, 1803 (known only from Konya province in C Anatolia), E-European species *A. konstantinovi* Lopatin, 1998 (known only from Kayseri province in C Anatolia), C and E-European species *A. lacertosa* Rosenhauer, 1847 (known only from Edirne province in European Turkey), C and E-European species *A. ovata* Foudras, 1860 (known only from İstanbul province in NW Turkey), E-Mediterranean (Aegean) species *A. rhodiensis* Heikertinger, 1944 (known only from Hakkari province in SE Anatolia), E-European species *A. rugipennis* Ogloblin, 1926 (known only from Erzurum province in NE Anatolia), Turano-Mediterranean (Balkano-Anatolian) species *A. valachica* Heikertinger, 1944 (known only from Antalya province in S Anatolia) and Sibero-European species *A. violacea* (Koch, 1803) (known only from Yalova province in NW Anatolia).

Moreover 2 species were reported by various authors from only 2 provinces of Turkey as C and E-European + Nearctic species *A. flava* Guillebeau, 1895 (known only from Erzurum province in NE Anatolia and Isparta province in S Anatolia) and Afrotropico-Mediterranean species *A. fuentei* Reitter, 1901 (known only from Adana province in S Anatolia and Ankara province in C Anatolia).

The remaining 16 species are more or less widely distributed in Turkey as S-European species *A. aeneomicans* Allard, 1875 (known from Antalya, Isparta and Konya provinces), E-Mediterranean species *A. bonvouloiri* Allard, 1861 (known from Adana, Antalya, Bilecik, Eskişehir, Erzurum, Isparta, İstanbul, Konya and Mersin provinces), Palearctic species *A. euphorbiae* Schrank, 1781 (known from Adana, Amasya, Ankara, Çorum, Denizli, Edirne, Erzurum, İstanbul, Kayseri and Mersin provinces), Centralasiatic-Mediterranean species *A. flaviceps* Allard, 1859 (known from Adana, Ankara, Antalya, Erzurum, Isparta, İstanbul, Konya and Mersin provinces), Sibero-European species *A. franzi* Heikertinger, 1944 (known from Amasya, Ankara, Artvin, Erzincan, Erzurum, Kayseri and Kars provinces), Sibero-European species *A. gracilis* Faldermann, 1837 (known from Bayburt, Erzurum and Kayseri provinces), E-Mediterranean species *A. kuntzei* Roubal, 1931 (known from Ankara, Erzurum, Isparta, Konya and Kars provinces), Sibero-European + Arabian species *A. lutescens* Gyllenhal, 1813 (known from Antalya, Eskişehir, Erzurum, İstanbul and Konya provinces), Turano-Mediterranean (Turano-Balkan) species *A. maculata* Allard, 1876 (known from Adana, Antalya, Gaziantep, İzmir, Kilis and Siirt provinces), Europeo-Mediterranean species *A. nigriceps* Redtenbacher, 1842 (known from Ankara, Edirne, Erzurum and Isparta provinces), Sibero-European + Nearctic species *A. nigriscutis* Foudras, 1860 (known from Ankara, Erzurum, Gümüşhane, Isparta, Kars, Mersin and Nevşehir provinces), W-Palearctic species *A. nonstriata* Goeze, 1777 (known from İstanbul, Kırklareli, Konya and Samsun provinces), Europeo-Mediterranean species *A. pygmaea* (Kutschera, 1861) (known from Adana, Antalya, Edirne, Erzincan, Erzurum, Isparta, İzmir, Mersin and Sakarya provinces), Sibero-European species *A. semicyanea* Allard, 1859 (known from Ankara, Bursa, Çankırı, Çorum, Denizli, Erzurum, Nevşehir, Samsun and Yozgat provinces), E-Mediterranean (Palaestino-

Taurian) species *A. syriaca* Heikertinger, 1944 (known from Erzurum, İzmir and Kars provinces) and European species *A. venustula* (Kutschera, 1861) (known from Eskişehir, Edirne and Erzurum provinces).

As mentioned above, the genus has been represented with 35 species in the fauna of Turkey up to now. 19 (incl. 5 endemic species) of 35 species have a narrow distribution in Turkey. They are known from only 1 or 2 provinces. The remaining 16 species are more or less widely distributed in Turkey. New faunistic data on 6 species with a new record for Turkey are presented as follows:

***Aphthona atrocaerulea* (Stephens, 1831)**

This species has Europeo-Mediterranean chorotype. It is distributed in Europe, North Africa (Algeria and Morocco), Asian Turkey (Anatolia) and Iran. It is a rare species for Turkey. It has been recorded only by Aslan et al. (2004) from Erzurum province in Eastern Anatolian region of Turkey until now. So the records in this work are the new records for Çankırı and Kayseri provinces and hereby Western Black Sea Region and Central Anatolian Region of Turkey, and the second record for fauna of Turkey.

Material examined: **Çankırı:** Ilgaz, Exit of Kayı village, 40°53'44" N 33°28'33" E, 1182 m, 22.IV.2013, 1 specimen; Korgun, Entry of İldızım village, 40°42'31" N 33°28'3" E, 1031 m, 23.IV.2013, 2 specimens; Çerkeş, Akbaş village, 40°53'26" N 32°49'36" E, 1230 m, 25.VIII.2013, 1 specimen; Çerkeş, between Yıpçak-Tohumlar villages, 40°55'1" N 32°48'34" E, 1153 m, 26.VIII.2013, 18 specimens; Çerkeş, between Dodurga-Karacahöyük villages, 40°56'34" N 33°0'52" E, 1023 m, 26.VIII.2013, 1 specimen; Çerkeş, between Avşar-İncügez villages, 40°54'14,8" N 33°00'42,5" E, 1476 m, 10.VIII.2014, 1 specimen; Çerkeş, Ahırlar village, 40°53'6" N 32°46'26" E, 1237 m, 20.IV.2015, 1 specimen; **Kayseri:** Kocasinan, Boğazköprü, 1040 m, 23.VI.2016, 1 specimen; Yahyalı, Kapuzbaşı road, 37°50'21" N 35°28'37" E, 697 m, 12.IV.2018, 1 specimen.

***Aphthona gracilis* Faldermann, 1837**

This species has Sibero-European chorotype. It is distributed in Eastern Europe, Caucasus, Israel, Iraq, Iran, Siberia, Afghanistan, Kazakhstan, Mongolia, Tadjikistan, Turkmenistan, Uzbekistan and Asian Turkey (Anatolia). It was firstly recorded by Heikertinger (1930) and Leonardi (1976) from Turkey and Asian Turkey without any real locality. Then, it was reported by Gruev & Kasap (1985) from Kayseri province (Kocasinan: Gömeç station). Latter, it was recorded by Aslan et al. (1999) from Bayburt province in Eastern Black Sea region of Turkey and Erzurum province in Eastern Anatolian region of Turkey.

Material examined: **Kayseri:** Kocasinan, Çavuşağa, 1152 m, 14.VII.2016, 1 specimen.

***Aphthona kuntzei* Roubal, 1931**

This species has E-Mediterranean chorotype. It is distributed in Balkan Peninsula, Cyprus, Middle East (Israel, Jordan, Lebanon and Syria) and Asian Turkey (Anatolia). It was firstly recorded by Gruev & Döberl (1997) from Ankara province in Central Anatolian Region of Turkey. Then, it was reported by Aslan et al. (1999) from Erzurum and Kars provinces in Eastern Anatolian Region of Turkey and Şen & Gök (2009) from Isparta province in Western Mediterranean region of Turkey. Latter, it was recorded by Özdikmen (2014) from Konya province in Central Anatolian region of Turkey. So the records in this work are the first record for Çankırı province of Turkey.

Material examined: **Çankırı:** Eldivan, Entry of Hisarcikkayı village, 40°24'50" N 33°28'41" E, 1084 m, 24.IV.2013, 1 specimen; Çankırı: Center, between Tuzlu-Dede villages, 40°36'18" N 33°40'36" E, 874 m, 26.IV.2014, 1 specimen.

Apthona nigriceps Redtenbacher, 1842

This species has Europeo-Mediterranean chorotype. It is distributed in Europe, North Africa (Algeria, Morocco, Tunisia), European Turkey (Thrace) and Asian Turkey (Anatolia). It was firstly recorded by Kral (1967) from Edirne province in European Turkey. Then, it was reported by Scherer (1972) from Ankara province (Gerede) in Central Anatolian region of Turkey and by Aslan et al. (1999) from Erzurum province in Eastern Anatolian region of Turkey. Latter, it was recorded by Çilbiroğlu (2003) from Isparta province in Southern Anatolia of Turkey. So the records in this work are the new records for Çankırı and Zonguldak provinces and hereby Western Black Sea Region of Turkey.

Material examined: **Çankırı:** Çerkeş, Çaylı village, 40°55'14" N 32°54'6" E, 931 m, 20.IV.2015, 1 specimen; **Zonguldak:** Center, Beycuma, Yörükler, 232 m, 02.VI.2016, 1 specimen.

Apthona nigriscutis Foudras, 1860

This species has Sibero-European + Nearctic chorotype. It is distributed in Europe, Asian Turkey (Anatolia), Iran, Kazakhstan, Eastern Siberia and North America. It was firstly recorded by Kral (1967) from Ankara province in Central Anatolian region of Turkey. Then, it was reported by Tomov & Gruev (1975) from Ankara and Nevşehir provinces in Central Anatolian region of Turkey and by Gruev & Kasap (1985) from Ankara province in Central Anatolian region of Turkey and by Aslan et al. (1999) from Erzurum and Kars provinces in Eastern Anatolian region of Turkey, Gümüşhane province in Eastern Black Sea Region of Turkey and Mersin province in Eastern Mediterranean region of Turkey. Latter, it was recorded by Çilbiroğlu (2003), Aslan & Gök (2006) and Şen & Gök (2009) from Isparta province in Western Mediterranean region of Turkey. So the record in this work is the first record for Çankırı province and hereby Western Black Sea Region of Turkey.

Material examined: **Çankırı:** Çerkeş, between Kadılar-Dikenli valleys, 40°47'35" N 32°44'35" E, 1449 m, 28.VIII.2013, 1 specimen.

Apthona pallida (Bach, 1859)

This species has European chorotype. It is distributed in Europe and Caucasus. The species has not been reported from Turkey up to now. So the records in this work are the first record for Turkey.

Material examined: **Ankara:** Beypazarı, Dibecik, 531 m, 29.V.2014, 1 specimen; Ankara: Kazan, Cimşit, 850 m, 15.IX.2015, 1 specimen; Çamlıdere, Meşeler, 1279 m, 29.VII.2016, 4 specimens; **Bartın:** Amasra, Makaracı, 41°43'68" N 32°26'66" E, 11.V.2017, 187 m, 1 specimen; **Çankırı:** Korgun, between Karatekin-Yolkaya villages, 40°41'30" N 33°29'20" E, 957 m, 22.IV.2013, 1 specimen; Entry of Çerkeş, Kiremitçi village, 40°48'4" N 32°51'51" E, 1128 m, 28.VIII.2013, 1 specimen; Çerkeş, Kirenözü return, 40°54'18" N 32°47'21" E, 942 m, 20.IV.2015, 1 specimen; Kurşunlu, Exit of Çaylıca village, 40°54'45" N 36°16'11" E, 983 m, 25.IV.2015, 1 specimen; Yapraklı, between Yenice-Yüklü villages, 40°40'23" N 33°48'34" E, 926 m, 27.IV.2015, 1 specimen; Orta, Entry of Ortabayındır village, 40°34'30" N 32°59'45" E, 1351 m, 11.V.2015, 1 specimen; Eldivan, Sarıtarla return, 40°34'33" N 33°30'29" E, 837 m, 14.V.2015, 1 specimen; **Kayseri:** Yahyalı, Kırızlı, 1345 m, 21.VI.2016, 1 specimen; Yeşilhisar, Kavakyolu, 1460 m, 11.VII.2016, 1 specimen; Talas, Ardıç, 1549 m, 12.VII.2016, 1 specimen; İncesu, Kızılören, 1583 m, 13.VII.2016, 2 specimens; Yahyalı, Sarıoğlan, 1120 m, 14.VII.2016, 1 specimen; Aladağlar, Kapuzbaşı env., 37°47'19" N 35°21'57" E, 877 m, 14.IX.2017, 2 specimens; Yahyalı, Dikmen, 38°01'14" N 35°31'56" E, 1418 m, 14.IX.2017, 5 specimens; Himmetdede, 38°55'23" N 35°04'42" E, 19.IX.2016, 1213 m, 1 specimen; Yahyalı, Ağcaşar, 38°11'21" N 35°24'15" E, 20.IX.2016, 1100 m, 1 specimen; Bünyan, Sümer, 38°49'03" N 35°55'17" E, 1407 m, 21.IX.2016, 3 specimens; Özvatan, Küpeli, 39°06'47" N 35°42'50" E, 21.IX.2016, 1337 m, 2 specimens; İncesu, Süksün, Zafer district, 38°47'52" N 35°11'07" E, 1101 m, 10.IV.2018, 4 specimens;

Yahyalı, Balçıcakırı, 37°50'34" N 35°29'06" E, 670 m, 11.IV.2018, 2 specimens; Yahyalı, Kapuzbaşı road, 37°50'21" N 35°28'37" E, 697 m, 12.IV.2018, 14 specimens.

LITERATURE CITED

- Aslan, İ., Gruев, B. A. & Özbek, H.** 1999. A preliminary review of the subfamily Alticinae (Coleoptera, Chrysomelidae) in Turkey. *Turkish Journal of Zoology*, 23: 373-414.
- Aslan, İ., Özbek, H. & Warchalowski, A.** 2004. Five new records, new localities and new host plants for the Turkish flea-beetle fauna (Coleoptera, Chrysomelidae, Alticinae). *Entomologica Fennica*, 15: 138-141.
- Aslan, E. G. & Gök, A.** 2006. Host-plant relationships of 65 flea beetles species from Turkey, with new associations (Coleoptera: Chrysomelidae: Alticinae). *Entomological News*, 117 (3): 297-308.
- Baselga, A. & Novoa, F.** 2002. New species of *Aphthona* (Coleoptera: Chrysomelidae: Alticinae) and key to Iberian species of *Aphthona hammarstroemi* group. *The Canadian Entomologist*, 134: 1-7.
- Bieñkowski, A. O.** 2004. Leaf-beetles (Coleoptera: Chrysomelidae) of the Eastern Europe. New key to subfamilies, genera and species. Moscow: Mikron-print.
- Çilbırođlu, E. G.** 2003. Isparta İli Alticinae (Coleoptera: Chrysomelidae) türlerinin ekofaunas. [Yüksek Lisans Tezi], Isparta: Süleyman Demirel Üniversitesi.
- Csiki, E. & Heikertinger, F.** 1940. Chrysomelidae, Halticinae, in: Junk, W. and Schenkling, S., *Coleopterorum catalogus*, 's-Gravenshage (1911-1940), 59: 1-215.
- Ekiz, A. N., Şen, İ., Aslan, E. G. & Gök, A.** 2013. Checklist of leaf beetles (Coleoptera: Chrysomelidae) of Turkey, excluding Bruchinae. *Journal of Natural History*, 47 (33-34): 2213-2287.
- Gruев, B.** 2004. The leaf beetles (Insecta: Coleoptera: Chrysomelidae) of the Sredna Gora Mountains (Bulgaria), fauna and zoogeography. *Trav. Sci. Univ. Plovdiv Animalia*, 40 (6): 77-96.
- Gruев, B. & Döberl, M.** 1997. General distribution of the flea beetles in the Palaearctic subregion (Coleoptera, Chrysomelidae: Alticinae). *Scoplia*, 37: 1-496.
- Gruев, B. & Kasap, H.** 1985. A list of some Alticinae from Turkey with descriptions of two new species (Coleoptera, Chrysomelidae). *Deutsche entomologische Zeitschrift, N.F.*, 32 (1-3): 59-73.
- Heikertinger, F.** 1930. Halticinae, in: Winkler, A., *Catalogus coleopterorum regionis palaearticae*. *Wien. Pars* 11: 1317-1352.
- Heikertinger, F.** 1944. Bestimmungstabelle der palarktischen *Aphthona*-Arten. *Koleopterologische Rundschau*, 30 (1-3, 4-6): 37-124.
- Konstantinov, A.** 1998. Revision of the Palearctic species of *Aphthona* Chevrolat and cladistic classification of the Aphthonini (Coleoptera: Chrysomelidae: Alticinae). Gainesville, Florida: Associated Publishers.
- Kral, J.** 1967. Wissenschaftlichen Ergebnis der zoologischen Expedition des Nationalmuseums in Prag nach der Türkei, Coleoptera, Alticinae. *Acta Entomol. Mus. Nat.*, 37: 261-268.
- Kryzhanovskiy, O. L. (ed.)** 1974. Insects and ticks-the pests of agricultural cultures. II. Coleoptera. Leningrad: Nauka.
- Leonardi, C.** 1976. Ricerche coleotterologiche sul litorale ionico della Puglia, Lucania e Calabria campagne 1956, 1957, 1958. XVII: Coleoptera, Chrysomelidae, Alticinae. *Atti Soc. Ital. Sc. Nat. e Museo Civ. St. Nat. Milano*, 117 (1-2): 46-58.
- Löbl, I. & Smetana, A. (ed.)** 2010. *Catalogue of Palaearctic Coleoptera*, Vol. 6. Chrysomeloidea. Stenstrup: Apollo Books, 924 pp.
- Özdikmen, H.** 2014. Chorotype identification for Turkish Chrysomeloidea (Coleoptera) Part VIII – Chrysomelidae: Alticinae. *Munis Entomology & Zoology*, 9 (1): 325-375.
- Scherer, G.** 1972. Coleoptera aus Nordostafrika. Chrysomelidae: Alticinae. *Notulae Entomologicae*, 52: 1-17.
- Şen, İ. & Gök, A.** 2009. Leaf beetle communities (Coleoptera: Chrysomelidae) of two mixed forest ecosystems dominated by pine-oak-hawthorn in Isparta province, Turkey. *Ann. Zool. Fenn.*, 46: 217-232.
- Tomov, V. & Gruев, B.** 1975. Chrysomelidae (Coleoptera) collected by K. M. Guichard in Turkey, Greece and Yugoslavia. *Trav. Sci. Univ. Plovdiv, Bulgaria. Biol.*, 13 (4): 133-151.