

New data on distribution and host plants of some Turkish Nitidulidae and Kateretidae (Coleoptera)*

Paolo AUDISIO** Hikmet ÖZBEK*** Gloria ANTONINI** İrfan ASLAN***

Summary

This paper is aimed to update our present-day knowledge on geographical distribution and insect-host plant relationships of some Turkish species of the pollen-beetle families Nitidulidae and Kateretidae. *Meligethes medvedevi* Kirejtshuk, 1978, endemic to Caucasus and known to date only from SW Russia (Circassia) and Georgia, is first recorded from Turkey (Erzurum province); *Meligethes biondii* Audisio, 1988, endemic to eastern Turkey, and known to date only from the single type locality in the Ağrı province, is recorded from a second locality in the Erzurum province. New interesting localities and new data on the larval host-plants and taxonomy are finally given for other rare little-known Turkish species, such as *Meligethes wittmeri* Jelinek&Audisio, 1977, *M. pectinatus* Schilsky, 1894, and *M. diversus* Schilsky, 1893. Adults and larvae of *M. diversus*, here referred to the *M. nigrescens* species-group, are reported to feed on the buds of *Onobrychis viciifolia* (Fabaceae), occasionally causing severe damages to the host-plants.

Key words: Coleoptera, Nitidulidae, Kateretidae, Turkey, geographical distribution, host-plants

Anahtar sözcükler: Coleoptera, Nitidulidae, Kateretidae, Türkiye, coğrafi dağılışı, konukçu bitki

Introduction

The Turkish fauna of Nitidulidae and Kateretidae has been recently dealt with and extensively discussed by Audisio (1993) and more recently by Audisio et al. (2000). The present paper is mainly intended to update our knowledge on geographical distribution and ecology of these beetle families in Turkey, listing a short series of data mainly collected during a recent fieldtrip to eastern Turkey by one of us (G.A.) or obtained from a long series of applied field researches carried out in the same areas at the end of the past century by H. Özbek and İ. Aslan.

* Zoological researches in the Near East by the Universities of Rome: 201

** Dipartimento di Biologia Animale e dell' Uomo, Università di Roma "La Sapienza", viale dell'Università 32, I-00185, Rome, Italy

*** Atatürk Üniversitesi, Ziraat Fakültesi, Bitki Koruma Bölümü, 25240 Erzurum, Turkey
e-mail: hozbek@atauni.edu.tr

Alınış (Received): 27.11.2001

Acronyms of the studied collections

CAR: P. Audisio Collection, University "La Sapienza", Rome (Italy).

EMET: Entomology Museum, Erzurum, Turkey.

Results

In this study, material belonging to 24 species of Nitidulidae and one species of Kateretidae was examined from Turkey.

Nitidulidae

Xenostrogylus levantinus Audisio & Jelínek, 2001

This species has been first cited by Audisio et al. (2000) under **X.** sp. cfr. **lateralis**. As discussed in a recently published paper (Audisio et al., 2001b), this new species, collected in a single locality on the Amanus Mts (Nur Dag near Yarpuz, Osmaniye Province) is the only true ***Xenostrogylus*** known to date from the Eastern Mediterranean areas.

Meligethes acicularis C. Brisout de Barneville, 1863

All distributional and ecological data on this species reported in Yıldırım et al., (1996) are to be referred to the unrelated ***Meligethes diversus*** Schilsky, 1893, as discussed below.

Meligethes armeniacus Audisio, Jelínek & Stevanovic, 1999

Material Studied: Erzurum, Akşar (Şenkaya), 1550 m, 26.VII.1994, İ. Aslan leg., 7 specimens (EMET); Kop Dag Pass, S slope (Erzurum), 2200 m, 9.VI.2001, L. Gültekin leg., 1 specimen (CAR); road from Horasan to Ağrı, cross-road to Tahir (Ağrı), 2080 m, 10.VI.2001, on ***Cardaria*** sp. (Brassicaceae), 39° 50.08 N/42° 25.18 E, G. Antonini leg., 1 specimen (CAR); Kars (55 km before Kars), 2197 m, 12.VI.2001, on ***Thlaspi*** sp. (Brassicaceae), 40° 49.27 N/42° 51.40 E, G. Antonini leg., 1 specimen (CAR).

Notes: This recently described and rare species is known to date from eastern Turkey and Caucasian areas (Audisio et al., 2000); larval stages associated with ***Thlaspi*** spp. (Brassicaceae).

Meligethes bidentatus C. Brisout de Barneville, 1863

Material Studied: Ardahan, road from Akşar to Göle, 10 km before Göle, 1740 m, 9.VI.2001, on ***Cardamine*** sp. (Brassicaceae), 40° 43.28 N/32° 30.46 E, G. Antonini leg., 1 specimen (CAR); Erzincan, Sıralıkonak (Kemaliye), 1250 m, 20.VI.1982, H. Özışık leg., 1 specimen (EMET); Erzurum, road from Oltu to Subatık, 1300 m, 20.V.2001, H. Özbek leg., 4 specimens (EMET); Erzurum, University Field, 1850 m, 4.VI.1992, İ. Aslan leg., 3 specimens (EMET); Kars, road from Sarıkamış to Karakurt, 1500 m, 24.V.2001, Ö. Çalmaşur leg., 3 specimens (EMET).

Notes: European species, only recently listed from eastern Turkey, Erzincan province (Audisio et al., 2000); larval stages associated with several Genisteae (Fabaceae).

Meligethes biondii Audisio, 1988

Material Studied: Erzurum, road from Tortum to Narman, Kireçli pas, 2400 m, 40° 21.00 N/41° 41.72 E, 9.VI.2001, on ***Salvia staminea*** Montbret & Aucher (Lamiaceae), G. Antonini leg., 2 specimens (CAR).

Notes: This extremely rare and local species was known to date from a single locality in the Ağrı province (Tahir pass: Audisio, 1988, 1993). The above reported second Turkish locality markedly extends northwards the geographical distribution of this species; larval stages associated with ***Salvia staminea*** Montbret & Aucher (Lamiaceae).

Meligethes brachialis Reitter, 1896

Material Studied: Kars, road from Sarıkamış to Karakurt, 1500 m, 24.V.2001, Ö. Çalmaşur leg., 2 specimens (EMET, CAR).

Notes: Rare Euro-Caucasian species (Audisio et al., 2000); larval stages associated with ***Coronilla*** spp. (Fabaceae).

Meligethes carinulatus Förster, 1849

Material Studied: Artvin, Ormanlı, 12.V.2000, İ. Aslan leg., 2 specimens (EMET); Erzurum, 11.VI.1980, 1850 m, H. Özışık leg., 4 specimens (EMET); Söğütlü (Erzurum), 1800 m, 12.VIII.1993, İ. Aslan leg., 2 specimens (EMET).

Meligethes* sp. cfr. *coracinus

Material Studied: Erzurum, road from Akşar to Şenkaya (1 km before Şenkaya), 1880 m, 40° 34.55 N/42° 20.82 E, 9.VI.2001, sweeping, G. Antonini leg., 1 specimen (CAR); road from Elaziğ to Bingöl, 3.5 km before Kuruca pass (Bingöl), 1673 m, 38° 55.25 N/40° 11.81 E, 7.VI.2001, on ***Erysimum*** sp. (Brassicaceae), G. Antonini leg., 1 specimen (CAR).

Notes: This rare species was first cited under ***Meligethes*** sp. 2 cfr. ***coracinus*** by Audisio et al. (2000, 2001a), based on material collected in a single locality near Sivas. The description of this taxon, probably endemic to eastern Turkey, and associated at larval stage with ***Arabis*** spp. (Brassicaceae), will be included in a next paper dealing with the taxonomical revision of the ***Meligethes coracinus*** species-complex (Audisio et al., in prep.).

Meligethes distinctus Strum, 1845

Material Studied: Erzurum, 1850 m, 16.VIII.1979, H. Özışık leg., 3 specimens (EMET).

Meligethes diversus Schilsky, 1893

Material Studied: 20.VI.1992, İ. Aslan leg., 40 specimens (EMET, CAR); 20.VI.1993, İ. Aslan leg., 30 specimens; 25.VI.1993, İ. Aslan leg., 20 specimens (EMET, CAR); Demirözü, 1600 m, 23.VI.1992, İ. Aslan leg., 9 specimens (EMET,

CAR); 29.VI.1993, İ. Aslan leg., Dutçu, 1950 m, 20.VI.1993, İ. Aslan leg., 10 specimens (EMET); Bayburt, Aydıntepe, 1500 m, 30.VI.1992, İ. Aslan leg., 8 specimens (EMET); Erzincan, Bahçe Kültürleri Araştırma Enstitüsü, 1200 m, 4.VII.1993, İ. Aslan leg., 14 specimens (EMET, CAR); Artvin, Sarıgöl (Yusufuli), 6.VII.1993, İ. Aslan leg., 5 specimens (EMET); Altıparmak (Yusufuli), 6.VII.1993, İ. Aslan leg., 3 specimens (EMET); 9.VII.1992, İ. Aslan leg., 30 specimens (EMET, CAR); Kopdağı, 10.VII.1992, İ. Aslan leg., 10 specimens (EMET, CAR); Erzurum, University Field, 1850 m, 20 specimens (EMET, CAR); Bayburt, 11.VII.1992, İ. Aslan leg., 10 specimens (EMET, CAR); Süngübayır (Olur), 1800 m, 26.VII.1992, İ. Aslan leg., 18 specimens (EMET, CAR); 10.VIII.1992, İ. Aslan leg., 17 specimens (EMET, CAR); 17.VIII.1992, İ. Aslan leg., 15 specimens (EMET).

Notes: As mentioned above, the adult host-plant relationships given by Yıldırım et al. (1996) between their "*M. acicularis*" and *Onobrychis viciifolia* (Fabaceae) are now to be transferred to *M. diversus*, known to occur from eastern Turkey to Middle Asia (Audisio, 1993; Kirejtshuk, 1997; Audisio et al., 2000). The larval host-plant of the rather isolated *M. diversus* was so far unknown (Audisio, 1993); we have now determined that also the larval stages of *M. diversus* feed on the buds of *O. viciifolia* and both larvae and adults gave severe damages to the host plant, particularly in the field of University, Erzurum (although showing sporadic distribution in *O. viciifolia* fields). *Meligethes diversus* usually appears in eastern Turkey at the beginning of June, mainly in cultivated meadows, damaging the flower buds of its host-plant, *Onobrychis sativa*, when occasionally the beetle abundance is locally high (Yıldırım et al., 1996).

The general aspect of *M. diversus*, including the shape of front tibiae and of the male genitalia, suggested a long-time accepted belief (Easton, 1964; Audisio, 1988, 1993) that this taxon could be included in, or very closely related to, the *Meligethes assimilis* Sturm species-group, comprising species all strictly associated with Lamiaceae at larval stages. In addition, a few adults of this species were occasionally collected in eastern Turkey near the Lake Van on a *Salvia* sp. cf. *limbata* (Lamiaceae) (Audisio, 1993).

Under the new evidence given by Yıldırım et al. (1996), the taxonomic position of *M. diversus* must necessarily change radically; this species, resulting associated with Fabaceae, turns up definitely as a member of the *M. nigrescens* species-group, very likely not distantly related to *M. nigrescens* Stephens, 1830, a very common and widely distributed Holarctic species, to *M. ciliatus* Easton, 1956, a rare North-African endemic (at larval stage both strictly associated with other herbaceous Fabaceae: Audisio, 1993), and to a few other species from Middle Asia and the Himalayan Mts.

Meligethes erysimicola Audisio & De Biase, 2001

Material Studied: Erzurum, Pasinler, 1600 m, 11.VIII.1992, İ. Aslan leg., 3 specimens (EMET).

Notes: This species, only recently identified within the difficult *Meligethes coracinus* species-complex (Audisio et al., 2001a), has a wide south-European

and Anatolian geographic distribution (Audisio et al., 2000, under *Meligethes* sp. 1 cfr. *coracinus*); larval stages strictly associated with *Erysimum* spp. (Brassicaceae).

Meligethes hladili Jelínek, 1982

Material Studied: Bayburt, Kop Dag pass, N slope, 2200 m, 21.VI.2001, L. Gültekin leg., 2 specimens (CAR); Erzurum, Çat, 1879 m, 39° 36.17 N/40° 58.46 E, 8.VI.2001, on *Hesperis* sp. (Brassicaceae), G. Antonini leg., 1 specimen (CAR); Kahramanmaraş, road from Sariz to Göksun, 4 km W of Mehmetbey, 1600 m, 23.V.2001, E. Colonelli leg., 1 specimen (CAR).

Notes: This recently described and rare species is known to date from eastern Turkey, Syria and Caucasian areas (Audisio et al., 2000); larval stages associated with *Teucrium* spp. (Lamiaceae).

Meligethes incanus Sturm, 1845

Material Studied: Erzurum, İspir, 1300 m, 6.VII.1980, H. Özışık leg., 2 specimens; Süngübayır (Olur), 20.VI.1992, İ. Aslan leg., 3 specimens (EMET); Pasinler, 1600 m, 11.VIII.1992, İ. Aslan leg., 3 specimens (EMET); Dutçu, 1900 m, 20.VI.1993, İ. Aslan leg., 3 specimens (EMET); Narman, 1400 m, 8.VIII.1980, H. Özışık leg., 2 specimens (EMET).

Meligethes jordanis Jelinek & Spornraft, 1979

Material Studied: Erzurum, Ormanlı (Şenkaya), 1350 m, 20.V.1994, E. Yıldırım leg, 2 specimens (EMET).

Meligethes klinzorani Kirejtshuk, 1979

Material Studied: Erzurum, road from Akşar to Şenkaya (4.3 km before Şenkaya), 1754 m, 40° 35.78 N/42° 20.92 E, 9.VI.2001, on *Hesperis* sp. / Brassicaceae, G. Antonini leg., 2 specimens (CAR); road from Akşar to Şenkaya (1 km before Şenkaya), 1880 m, 40° 34.55 N/42° 20.82 E, 9.VI.2001, sweeping, G. Antonini leg., 1 specimen (CAR).

Notes: This recently described and rare species is known to date from Turkey and Caucasian areas (Audisio et al., 2000); larval stages associated with *Salvia staminea* Montbret & Aucher (Lamiaceae).

Meligethes longulus Schilsky, 1984

Material Studied: Bayburt, Aydıntepe, 1500 m, 30.VI.1992, İ. Aslan leg., 5 specimens (EMET, CAR); Demirözü, 1600 m, 23.VI.1992, İ. Aslan leg., 2 specimens (EMET); 31 km S of Bayburt, 1750 m, 12.VI.2001, on *Tchihatchewia isatidea* Boiss. (Brassicaceae), B. Korotyaev leg., 1 specimen (CAR).

Notes: This rare and little-known species, frequently confused with other members of the *Meligethes coracinus* Sturm species -complex (Audisio et al., 2001a), was known to occur from the Erzincan, Erzurum, Sivas and Tunceli provinces (Audisio et al., 2000). Larval stages on *Tchihatchewia isatidea* Boiss. (Brassicaceae).

Meligethes medvedevi Kirejtshuk, 1978

Material Studied: Erzurum, road from Karlıova to Çat, 80 km SW of Erzurum, 2100 m, 39° 28.10 N/41° 03.23 E, 8.VI.2001, on ***Lamium album*** L. (Lamiaceae), G. Antonini leg., 2 specimens (CAR).

Notes: This rare species was known to date only from SW Russia (Circassia) and Georgia (Kirejtshuk, 1978; Audisio et al., 2000); new species for the Turkish fauna. Caucasian specimens were collected on ***Stachys macrantha*** (C. Koch) and on ***Lamium album*** L. (Lamiaceae) (Kirejtshuk, 1978); the new Turkish data seem to support the possibility that larval stages of this species develop on ***Lamium album*** L.

Meligethes mithra Jelinek, 1978

Material Studied: Hatay, 5 km S of Belen (Iskenderun), 397 m, 36° 29.88 N/36 10.30 E, 5.VI.2001, G. Antonini leg., 1 specimen (CAR); Nevşehir, 10 km N of Gülşehir, 910 m, 38° 45.96 N/34° 35.93 E, 2.VI.2001, on ***Matthiola*** sp. (Brassicaceae), G. Antonini leg., 1 specimen (CAR).

Notes: This recently described and uncommon species is known to date from Turkey, Jordan and Israel (Audisio et al., 2000); larval stages especially (or may be exclusively) associated with ***Matthiola*** spp. (Brassicaceae).

Meligethes pectinatus Schilsky, 1894

Material Studied: Erzurum, 18.VII.1979, H. Özişik leg., 3 specimens (EMET); Kop Dag pass above Aşkale, 1750 m, 29.V.2001, M. Volkovitsh leg., 1 specimen (CAR); 25-30 km E-NE of Horasan, 1500-1600 m, 1.VI.2001, M. Volkovitsh leg., 1 specimen; Kahramanmaraş, road from Sariz to Göksun, 4 km W of Mehmetbey, 1600 m, 23.V.2001, E. Colonnelli leg., 1 specimen (CAR).

Notes: Rare species, known to occur in Caucasian areas and in north-eastern Turkey, westwards to the Ankara province (Audisio et al., 2000); the above listed locality near Göksun is the southernmost of its known geographic distribution. Larval stages on ***Onosma*** spp. (Boraginaceae).

Meligethes punctatissimus Reitter, 1896

Material Studied: Erzincan, Kemah, 1250 m, 25.V.2001, H. Özbek leg., 4 specimens (EMET, CAR).

Notes: Rare eastern Anatolian-Caucasian species (Audisio et al., 2000); larval stages associated with ***Anchusa italica*** Retz. (Boraginaceae).

Meligethes saxatilis Audisio, 1988

Material Studied: Erzurum, 5 km E-NE of Aşkale, 1717 m, 39° 56. 69 N/40° 45.72 E, 10.VI.2001, G. Antonini leg., 1 specimen (CAR).

Notes: Uncommon species, known to occur in eastern Turkey, southwards and westwards to the Adana province (Audisio et al., 2000). Larval stages on ***Stachys*** spp. (Lamiaceae).

Meligethes subrugosus (Gyllenhal, 1808)

Material Studied: Erzurum, Madenköprübaşı (İspir), 1100 m, 18.VI.1994, İ. Aslan leg., 2 specimens (EMET).

Meligethes sulcatus C. Brisout de Barneville, 1863

Material Studied: Osmaniye, Nur Mts above Zorkun, 1600 m, 29.V.2001, G. Gobbi leg., 2 specimens (CAR).

Notes: Uncommon species, known to occur from northern Spain to Middle Asia (Audisio, 1993), in Turkey known from the northern and south-western provinces (Audisio et al., 2000). Larval stages on ***Lamium*** spp. (Lamiaceae).

Meligethes wittmeri Jelinek & Audisio, 1977

Material Studied: Bayburt (31 km South of Bayburt), 12.VI.2001, B. Korotyaev leg., 2 specimens (CAR), Erzurum, Çat, 1879 m, 39° 36.17 N/40° 58.46 E, 8.VI.2001, on ***Hesperis*** sp. (Brassicaceae), G. Antonini leg., 3 specimens (CAR); 5 km E-NE to Aşkale, 1717 m, 39° 56.69 N/40° 45.72 E, 10.VI.2001, on ***Hesperis*** sp. (Brassicaceae), G. Antonini leg., 10 specimens (CAR).

Notes: This relatively recently described and very rare species is known to date only from a few localities in eastern Turkey and Armenia (Jelinek, 1982; Audisio et al., 2000). The larval stages of this species, as very recently discovered, are exclusively associated with ***Hesperis*** spp. (Brassicaceae), especially ***H. bicuspidata*** (Willd.) Poiret. These biological data are particularly interesting, when linked to the parallel discovery (Audisio, unpublished) of ***Matthiola*** spp. (Brassicaceae) as probably being the larval host plants of the exceptionally rare ***Meligethes coerulescens*** Kraatz, 1858 (endemic to Greece, and representing the sister-species of ***M. wittmeri***: Jelinek & Audisio, 1977). In fact, the genera ***Hesperis*** and ***Matthiola*** are very closely related, and sister-groups in a phylogenetic perspective (Moggi, 1965). Within the ***Meligethes coerulescens*** species-complex, only the larval ecology of the rare ***M. tener*** Reitter was known to date (associated with ***Alyssum*** spp., Brassicaceae: Jelinek and Audisio, 1977; Audisio, 1993).

Kateretidae

Brachypterus urticae (Fabricius, 1792)

Material Studied: Osmaniye, Nur Mts above Zorkun, 1600 m, 29.V.2001, G. Gobbi leg., 2 specimens (CAR).

Notes: Very common and widespread Holarctic species, in Turkey previously known to occur from western and northern provinces only.

Özet

Türkiye'deki bazı Nitidulidae ve Kateretidae (Coleoptera) türlerinin dağılımları ve konukçuları

Polen böcekleri olarak bilinen Nitidulidae ve Kateretidae familyalarına giren bazı türlerin dağılımları ve konukçularının tespitinin amaçlandığı bu çalışmada; Kafkasya bölgesi için endemik olan ve sadece Güney Batı Rusya ve Gürcistan'da bulunduğu belirtilen

Meligethes medvedevi Kirejtshuk, ilk defa Erzurum'dan tespit edilmiştir. Türkiye için endemik olan *Meligethes biondii* Audisio'nun tip lokalitesi Ağrı iken Erzurum'da da bulunduğu belirlenmiştir. *Meligethes wittmeri* Jelinek&Audisio, *M. pectinatus* Schilsky ve *M. diversus* Schilsky gibi az bilinen türler için yeni lokaliteler ve larva konukçuları belirlenmiştir. Özellikle *M. diversus*'un larvalarının korunganın çiçek tomurcuklarının içinde beslendiği saptanmış, ergin ve larvaların bu bitkinin önemli zararlısı olduğu tespit edilmiştir.

Acknowledgements

Sincere thanks are due to the several friends and colleagues, who collected with us and for us several interesting species in Turkey, during common or independent fieldtrips in the whole study area: E. Colonnelli (Rome), G. Gobbi (Rome), B. Korotyaev (St. Petersburg), M. Volkovitch (St. Petersburg), C. Tronci (Rome), H. Özışık and L. Gültekin (Erzurum).

References

- Audisio, P., 1988. Tassonomia, ecologia e distribuzione geografica di alcuni Kateretidae e Nitidulidae ovest-paleartici. **Fragm. Entomol., Roma, 20(2):** 189-231.
- Audisio, P., 1993. Coleoptera Nitidulidae-Kateretidae. Fauna d'Italia, vol. 32, Calderini ed., Bologna, XVI +971 pp.
- Audisio, P., J. Jelinek, A. Mariotti & A. de Biase, 2000. The Coleoptera Nitidulidae and Kateretidae from Anatolian, Caucasian and Middle East regions. **Biogeographia, Lav. Soc. it. Biogeogr., 21:** 241-354.
- Audisio, P., A. de Biase, G. Antonini, C. Belfiore&M. Oliverio, 2001a. Morphological, molecular, and ecological evidence of a new Euro-Anatolian species of the *Meligethes coracinus* complex (Coleoptera: Nitidulidae). **Insect Systematics and Evolution, 31:** 361-385.
- Audisio, P., A. Mariotti, J. Jelinek & A. de Biase, 2001b. *Xenostrogylus levantinus* sp. n. from Eastern Mediterranean, with notes on the generic classification of *Xenostrogylus* Wollaston, 1854 and *Strogylloides* Kirejtshuk, 1992 (Coleoptera: Nitidulidae). **Ann. Soc. Ent. Fr.,** (in press).
- Easton, A.M., 1964. *Meligethes rosenbaueri* Reitter, *M. assimilis* Sturm and related species (Coleoptera: Nitidulidae). **Proc. R. Ent. Soc. London, (B), 33(1-2):** 1-6.
- Jelinek, J., 1982. New and little known species of the genus *Meligethes* from Turkey and neighbouring countries (Coleoptera: Nitidulidae). **Türk. Bit. Kor. Derg., 5(4):** 201-214.
- Jelinek, J., & P. Audisio, 1977. Tassonomia e distribuzione geografica di *Meligethes coerulescens* Kraatz e specie correlate (Coleoptera: Nitidulidae). **Boll. Mus. Zool. Univ. Torino, 1:** 1-14.
- Kirejtshuk, A.G., 1978. New species of the genus *Meligethes* Stephens (Coleoptera: Nitidulidae). from the USSR and review of the group of species related to *Meligethes umbrosus* Sturm. (In Russian). **Ent. Obozr., 57(3):** 578-595.
- Kirejtshuk, A.G., 1997. New Palaearctic nitidulid beetles, with notes on synonymy and systematic position of some species (Coleoptera: Nitidulidae). **Zoosystematica Rossica, 6:** 255-268.
- Moggi, G., 1965. Osservazioni tassonomiche e corologiche sulle Hesperidae (Cruciferae). **Webbia, 241-273.**
- Yıldırım, E., İ. Aslan & H. Özbek, 1996. Ülkemiz için yeni bir korunga (*Onobrychis sativa* Lam.) zararlısı, *Meligethes acicularis* Briston (Coleoptera: Nitidulidae). Türkiye 3. Çayır-Mera ve Yembitkileri Kongresi, 17-19 Haziran 1996, Erzurum, 810-815.