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A Survey of the Ichneumonidae (Hymenoptera) of Isparta in Turkey

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A b s t r a c t : The Ichneumonidae fauna of province Isparta was investigated between April 2001-July 2003. Totally 37 species belonging to 25 genera and 12 subfamilies were found; 13 species from Pimplinae, 6 from Tryphoninae, 3 from both Cremastinae and Diplazontinae, 2 from each of Ctenopelmatinae, Ophioninae, Anomaloninae and Banchinae, and 1 from each of Campopleginae, Metopiinae, Acaenitinae and Collyriinae. The synonyms and general distribution of all species were given on the basis of literature, as well as known host and fly period information.

K e y w o r d s : Ichneumonidae, fauna, Isparta, Turkey.

Introduction

Ichneumonidae is the largest family in the Hymenoptera and one of the largest in the Insecta with at least 60.000 species. They are parasitoids of immature holometabolous insects (Coleoptera, Diptera, Hymenoptera, Lepidoptera, Rhaphidioptera, Trichoptera) or Chelicerata (Araneae and Pseudoscorpionida eggs, adult Araneae). The species of Symphyta and Lepidoptera, including a lot of important pests, are the most common hosts.

The Ichneumonidae of Turkey has not been studied well, although it is among the most interesting zoogeographical sections of the Western Palearctic region. Isparta is one of the important refugia of Turkey, possessing different topographic conditions and various kind of climates (GRUEV 2002). In the catalogue of KOLAROV (1995) only 383 species were listed. Lately some new records have been added to this fauna (KOLAROV et al. 1997, 1999; YURTCAN et al. 1999; YURTCAN et al. 2002; ÇORUH et al. 2002, etc.), predominantly from Thrace, Western and Northeastern Turkey.

Material and methods

The Ichneumonidae samples were collected from Isparta Province situated in the western half of Turkey, between April 2001-July 2003. The materials were obtained from grass-type plants by using a standard sweeping-net. The samples are preserved in the collection of the Biology Department at Süleyman Demirel University, Isparta, Turkey.

List of the species

The species 38 of the Ichneumonidae were recorded in Isparta. A list of the species is given below along with dates of collection, some their host and fly period.

***Exeristes roborator* (FABRICIUS 1793) (Pimplinae)**

Ichneumon roborator FABRICIUS 1793 - Entom. Syst. 2: 170.

M a t e r i a l e x a m i n e d : Isparta (37°45'N/30°30'E), 1100 m, 27.02.2002, 1 ♀.

Fly period: IV-X (SEDIVY 1995). Host: *Homoesoma nebulella* HBN. (ÖZDEMİR & KILINÇER 1990).

General Distribution: Palearctic (YU & HORSTMANN 1997).

***Liotryphon caudatus* (RATZEBURG 1848)**

Pimpla caudatus RATZEBURG 1848 - Ichneum. Forstin 2: 92.

M a t e r i a l e x a m i n e d : Isparta Merkez (37°48'N/30°39'E), 1050 m, 26.06.2002, 1 ♂;
Yalvaç (38°25'N/31°15'E) 1000 m, 10.07.2002, 1 ♀.

Fly period: IV-VIII (SEDIVY 1995). Host: *Laspeyresia pomenella* L. (Tortricidae) (KOLAROV 1997a).

General Distribution: Turkey, Europe, Caucasus, Middle Asia and Mongolia (KOLAROV 1997a).

***Endromopoda phragmitidis* (PERKINS 1957)**

Ephialtes (Scambus) phragmitidis PERKINS 1957 - Opusc. Zool.: 2.

M a t e r i a l e x a m i n e d : Keçiöorlu (37°55'N/30°25' E), 1100 m, 06.10.2002, 1 ♀.

Fly period: V-VIII (SEDIVY 1995). Host: *Lipara lucens* MG. (Diptera. Chloropidae).

General Distribution: England, Fransa, East Europe and Turkey (KALOROV 1997a).

***Tromatobia oculatoria* (FABRICIUS 1798)**

Ichneumon oculatoria (FABRICIUS 1798) - Suppl. Ent. Syst.: 221.

M a t e r i a l e x a m i n e d : Yenişerbademli (37°50'N/31°25'E), 1250 m, 19.05.2002, 1 ♀.

Fly period: II-V (SEDIVY 1995). Host: *Areneus diadematus* CL., *A. umbraticus* CL., *A. cucurbitinus* CL., *Cylosa conica* PALL., *Zilla calophylla* WALCK. (Aranidae), *Philodromus aureolus* CL., *Ph. Cespitum* WALCK. (Thomisidae) (KOLAROV 1997a).

General Distribution: West Europe and Caucasus (KOLAROV 1998).

***Tromatobia ornata* (GRAVENHORST 1890)**

Pimpla ornata GRAVENHORST 1890 - Ichn. 3: 158.

M a t e r i a l e x a m i n e d : Gonen. (37°55'N/30°15'E), 1100 m, 05.10.02, 1 ♀.

Fly period: IV-X (SEDIVY 1995). Host: *Latrodectus tredecimguttatus* ROSSI (Theridiidae), *Aaneus umbraticus* CL., *Argiope bruennichi* SCOP. (Areneidae) (KOLAROV 1997a).

General Distribution: Europe, Caucasus-Kazakhstan and MiddleAsia (KOLAROV 1997a).

Distribution in Turkey: Recently recorded from Turkey (GÜRBÜZ & AKSOYLAR 2005).

***Tromatobia variabilis* (HOLMGREN 1856)**

Pimpla variabilis HOLMGREN 1856 - Sandnsk. Andt. Akad. Handl., 1854, p.88.

Material examined: Şarkikaraağaç (37°55'N/31°40'E), 1200 m, 13.07.2001, 1 ♀, 20.10.2001, 1 ♂.

Fly period: IV-X (SEDIVY 1995). Host: *Araneus cornutus* CL. (Araneidae) (KOLAROV 1997a).

General Distribution: Holarctis (YU & HORSTMANN 1997).

***Zaglyptus varipes* (GRAVENHORST 1829)**

Polysphincta varipes GRAVENHORST 1829 - Ichn., eur., 3, p. 117

Material examined: Gönen (37°55'N/30°05'E), 1100 m, 14.04.2002, 1 ♀; Eğirdir (37°30'N/30°55'E) 1150 m 10.06.2002, 1 ♀; Eğirdir (37°40'N/30°50'E) 1150 m 21.07.2002, 1 ♀.

Fly period: VI-VIII (SEDIVY 1995). Host: *Araneus cucurbitinus* CL. (Araneidae), *Chiracanthium erraticum* WALCK. (Clubionidae).

General Distribution: Holarctis (KOLAROV 1997a).

***Itopectis alternans* (GRAVENHORST 1829)**

Pimpla alternans GRAVENHORST 1829 - Ichn. Eur. 3, p. 201.

Material examined: Eğirdir (37°40'N/30°50'E), 1100 m, 25.06.2002, 1 ♂.

Fly period: III-XI (SEDIVY 1995). Host: Microlepidoptera, Hymenoptera, Coleoptera and Diptera (Tachinidae) (KOLAROV 2000).

General Distribution: Europe, Turkey, Caucasus, Ural and Altai (KOLAROV 2000, KASPARYAN 1973).

***Itopectis maculator* FABRICIUS 1775**

Itopectis maculator FABRICIUS 1775 - Entom. System., p. 337.

Material examined: Eğirdir (37°40'N/30°50'E), 1100 m, 15.06.2001, 2 ♀ ♂, 08.07.2002, 1 ♂.

Fly period: IV-XII (SEDIVY 1995). Host: Lepidoptera, Coleoptera, Hymenoptera and Diptera (KOLAROV 1997a).

General Distribution: Europe, North Africa, Canary islands, Turkey, introduced in North America (KOLAROV 1997a).

***Pimpla hypochondriaca* (RETZIUS 1783)**

Ichneumon hypochondriaca RETZIUS 1783 - Lipsiae. 220pp.

Material examined: Isparta (37°45'N/30°35'E), 1150 m, 10.10.2002, 1 ♀.

Fly period: IV-XI (SEDIVY 1995). Host: Lepidoptera. Cultured Host: *Cacocecia xylosteana* L., *Lymentria dispar* L., *Euproctis chrysorrhoea* L., *Phalora bucephala* L., *Mamestra oleracea* L., *Laspeyresia pomonella* L., *Stilpnotia salicis* L. and *Olethreutus variegana* DENIS & SCHIFF. (Lepidoptera) (KOLAROV 1997a).

General Distribution: Palearctic (KOLAROV 1998).

***Pimpla spuria* GRAVENHORST 1829**

Pimpla spuria GRAVENHORST 1829 - Ichn. eur. 3: 179.

Material examined: Gölcük (37°35'N/30°30'E), 1250 m 18.05.2001, 1 ♂; Gönen (37°55'N/30°05'E) 1100 m, 08.10.2002, 1 ♂; Sav (37°45'N/30°30'E) 1100 m, 10.10.2002, 1 ♂.

Host: *Scolimus hispanicus* L., *Ostrinia nubilalis* HB., *Lobesia botrana* DENIS & SCHIFF. (KOLAROV 1995).

General Distribution: Europe, Caucasus, Turkey, Kazakhstan, Middle Asia, Altai and Iran (KOLAROV 1998).

***Pimpla turionellae* (LINNAEUS 1758)**

Ichneumon turionella LINNAEUS 1758 - Systema Naturae, Ed. 10, p. 564.

M a t e r i a l e x a m i n e d : Isparta (37°48'N/30°39'E), 1100 m, 26.06.2002, 1 ♀.

Host: *Lymantria obfuscata*, *Dendrolimus punctatus*, *Yponomeuta malinellus* ZELL., *Y. padellus* L., *Y. rorellus* HBN. (KOLAROV 1997a).

General Distribution: Palearctic and Oriental Region (KASPARYAN 1974).

***Strongylopsis abdominalis* KASPARYAN 1974**

Strongylopsis abdominalis KASPARYAN 1974 – Zoologicheskii Zhurnal. 53 (10): 1574-1576.

M a t e r i a l e x a m i n e d : Gölcük (37°35'N/30°30'E), 1200 m, 10.05.2002, 1 ♂.

Fly period: VII. (SEDIVY 1995).

General Distribution: South European part of Russia and Turkey (KOLAROV 1997a).

Distribution in Turkey: Recently recorded from Turkey (GÜRBÜZ & AKSOYLAR 2005).

***Netelia fuscicornis* (Holmgren 1860) (Tryphoninae)**

Paniscus fuscicornis HOLMGREN 1860 - Sandnska Andtensk. Akad. Hendl. (n.f) 2 (8): 32.

M a t e r i a l e x a m i n e d : Aksu (37°48'N/31°04'E), 1200 m, 30.05.2001, 1 ♂.

General Distribution: Palearctic, Nepal, India, Pakistan and Birma.

***Tryphon atriceps* STEPHENS 1835**

Tryphon atriceps STEPHENS, 1835 - III. Of. Brit. Ent., Mandibulata 7: 262

M a t e r i a l e x a m i n e d : Isparta (37°40'N/30°35'E), 1150 m, 25.05.2002, 1 ♀.

General Distribution: Europe, Caucasus, Turkey and Middle Asia.

***Tryphon signator* GRAVENHORST 1829**

Tryphon (Tryphon) signator GRAVENHORST 1829 - Ichneum. Europ. 2: 301.

M a t e r i a l e x a m i n e d : Isparta (37°40'N/30°35'E), 1150 m, 29.06.2002, 1 ♂.

Fly period: V-VI. (SEVIDY 1995).

General Distribution: Europe, Caucasus, Turkey, Western Siberia to Baykal lake.

***Tryphon auricularis* THOMSON 1883**

Tryphon auricularis THOMSON 1883 - Entom. Lund IX: 873-936.

M a t e r i a l e x a m i n e d : Şarkikaraağaç (37°55'N/31°40'E), 1200 m, 19.05.2001, 1 ♂.

General Distribution: Palearctic (YU & HORSTMANN 1997).

Distribution in Turkey: Recently recorded from Turkey (GÜRBÜZ & AKSOYLAR 2005).

***Monoblastus brachyacanthus* (GMELIN 1790)**

Ichneumon brachyacanthus GMELIN 1790 - Carol a Linne Systema Nature (ed. III) Lipsiae, 1, Pars V: 2705.

M a t e r i a l e x a m i n e d : Gelincik (37°55'N/30°42'E), 1150 m, 10.05.2002, 1 ♂; Keçiöborlu (37°55'N/30°25'E). 1100 m, 31.05.2002, 1 ♀.

Fly period: V-VI (SEDIVY 1995).

General Distribution: Middle and South Europe, North Africa, Caucasus, Turkey, Eastern Kazakhstan, South Siberia and China.

***Thibetoides acerbus* VICTOROV 1964**

Thibetoides acerbus VICTOROV 1964 - Entm. Oboz. 43 (1): 182-184.

M a t e r i a l e x a m i n e d : Keçiborlu (37°55'N/30°28'E), 1100 m, 31.05.2002, 1 ♀.

General Distribution: Palearctic (YU & HORSTMANN 1997).

Distribution in Turkey: Recently recorded from Turkey (GÜRBÜZ & AKSOYLAR 2005).

***Dimophora nitens* (GRAVENHORST 1829) (Cremastinae)**

Campoplex nitens GRAVENHORST 1829 - Ichn. eur. 2: 437.

M a t e r i a l e x a m i n e d : Kirazlıdere (37°47'N/30°39'E), 1150 m, 18.04.2002, 1 ♂.

General Distribution: Sweden, Denmark, England, Germany, Bulgarian, West Europe (KOLAROV 1995).

***Temelucha tricolorata* SEDIVY 1968**

Temelucha tricolorata SEDIVY 1968 - Casopis Moravského Musea 53 (Supp.): 249-272.

M a t e r i a l e x a m i n e d : Isparta (37°40'N/30°35'E), 1100 m, 29.06.2002, 1 ♂.

General Distribution: Palearctic (YU & HORSTMANN 1997).

Distribution in Turkey: Recently recorded from Turkey (GÜRBÜZ & AKSOYLAR 2005).

***Cremastus spectator* GRAVENHORST 1829**

Cremastus spectator GRAVENHORST 1829 - Ichn. eur. 3, p. 740.

M a t e r i a l e x a m i n e d : Yalvaç (38°15'N/31°05'E), 950 m, 22.05.2002, 1 ♀

Fly period: VII-VIII (SEDIVY 1995).

General Distribution: Sweden, Denmark, England, Spain, France, Germany, Italy, Czech Republic, Montenegro, Yugoslavian countries, Bulgaria, Turkey and Siberia-Irkutsk region (KOLAROV 1997b).

***Labrossytus scotoptera* (GRAVENHORST 1820) (Ctenopelmatinae)**

Ichneumon scotopterus GRAVENHORST 1820 – Memorie della Reale Academia dell Scienze di Torino 24: 275-388.

M a t e r i a l e x a m i n e d : Gönen (37°55'N/30°05'E), 1100 m, 31.05.2002, 1 ♂.

General Distribution: South Europe, West Africa (KASPARYAN 1981).

***Pion crassipes* HOMGREN 1857**

Pion crassipes HOMGREN 1857 - Sandn. Andten. Hand. N.F. (1): 93-246.

M a t e r i a l e x a m i n e d : Kirazlıdere (37°47'N/30°39'E), 1200 m, 18.04.02, 1 ♀.

General Distribution: West Europe (KOLAROV 1998).

Distribution in Turkey: Recently recorded from Turkey (GÜRBÜZ & AKSOYLAR 2005).

***Chromoplex picticollis* (THOMSON 1887) (Campopleginae)**

Anilasta picticollis THOMSON 1887 - Obsc. Ent. Lund. XI: 1043-1182.

M a t e r i a l e x a m i n e d : Şarkikaraağaç (37°55'N/31°40'E), 1200 m, 20.10.2001, 1♂.

General Distribution: France, former Yugoslavia (Dalmatia), Greece, Bulgaria, Turkey, Israel and Egypt (ÖZBEK et. al. 2000).

***Anomalon cruentatum* (GEOFFRAY 1785) (Anomaloninae)**

Ichneumon cruentatus, GEOFFRAY 1785 - Entm. Paris. 544 pp.

M a t e r i a l e x a m i n e d : Isparta (37°46'N/30°37'E), 1100 m, 16.05.98, 1♀; Kirazlıdere (37°47'N/30°39'E) 1150 m, 07.07.02, 1♀; Gönen (37°55'N/30°05'E) 1100 m, 08.10.02 1♀, 1♂.

General Distribution: Palearctic (YU & HORSTMANN 1997).

***Barylypa delictor* (THUNBERG 1822)**

Ichneumon delictor THUNBERG 1822 - Ichn. Ins. Hym. III. 8: 249-281.

M a t e r i a l e x a m i n e d : Direkli (37°45'N/30°40'E), 1200 m, 27.09.2002, 1♀; Koçtepe (37°40'N/30°35'E), 1100 m, 14.04.2002, 1♂; Gökdere (37°35'N/30°45'E) 1150 m, 03.05.2003, 1♂.

Fly period: V-IX (SEDIVY 1995).

General Distribution: Turkey, Caucasus, Kazakhstan, Kyrgyzstan, and Tadzhikistan (KOLAROV 1995).

***Enicospilus ramidulus* (LINNAEUS 1758) (Ophioninae)**

Ichneumon ramidulus LINNAEUS 1758. - Sys. Nat. Tomus. I. Holmiae. 824pp.

M a t e r i a l e x a m i n e d : Aksu (37°48'N/31°04'E), 1200 m, 06.05.2001, 1♀; Gölcük (37°35'N/30°30'E), 1250 m, 09.07.2001, 1♀; Yalvaç (38°25'N/31°15'E), 1000 m, 10.07.2002, 1♀.

Fly period: IV-IX (SEDIVY 1995).

General Distribution: Palearctic (KOLAROV 1994).

***Ophion obscuratus* FABRICIUS 1798**

Ophion obscuratus FABRICIUS 1798 - Sup. Entm. Syst. Hafn. 572pp.

M a t e r i a l e x a m i n e d : Davraz (37°45'N/30°45'E), 1800 m, 15.03.2002, 1♂.

Fly period: IV-VIII (SEDIVY 1995).

General Distribution: Europe (KOLAROV 1994).

***Diplozan laetatorius* (FABRICIUS 1781) (Diplazontinae)**

Ichneumon laetatorius FABRICIUS 1781 - spec. Ins. 1: 41.

M a t e r i a l e x a m i n e d : Şarkikaraağaç (37°55'N/31°40'E), 1250 m, 28.05.2001, 1♂; Gelincik (37°53'N/30°42'E), 1200 m, 02.10.2002, 1♂; Sav (37°45'N/30°30'E), 1100 m, 10.10.2002, 3♂; Gönen (37°55'N/30°05'E), 1100 m, 10.06.2003, 1♀.

General Distribution: Almost all over the world (KOLAROV 1998).

***Diplozan tibiatorius* (THUNBERG 1822)**

Ichneumon tibiatorius THUNBERG 1822 - Ichn. Ins. Hym. III. 9: 285-368.

M a t e r i a l e x a m i n e d : Direkli (37°45'N/30°30'D), 1150 m, 27.09.2002, 1♀; Gökdere (37°30'N/30°35'E), 1150 m, 03.08.2003, 1♂.

Host: Syrphidae (ÖNCÜER 1991).

General Distribution: Nearctic and Palearctic (YU & HORSTMANN 1997).

***Syrphophilus bizonairus* (GRAVENHORST 1829)**

Basusu bizonairus GRAVENHORST 1829 - Ichn. Eurp. Pars III. Vratis. 1097pp.

M a t e r i a l e x a m i n e d : Gökdere (37°30'N/30°35'E), 1150 m, 03.05.2002, 2♂♂; Sav (37°45'N/30°30'E), 1100, 16.10.2002, 1♂; Uluborlu (37°55'N/30°10'E), 1000 m, 27.10.2002, 1♂.

Fly period: VIII-IX (SEDIVY 1995).

General Distribution: Nearctic and Palearctic (YU & HORSTMANN 1997).

***Lissonota cruentator* (PANZER 1809) (Banchinae)**

Alomia cruentator PANZER 1809 - Faun. Ins. Germ. In. 102: 21.

M a t e r i a l e x a m i n e d : Şarkikaraağaç (37°55'N/31°40'E), 1250 m, 13.07.2001, 1♀.

General Distribution: West Europe (KOLAROV 1994).

***Lissonota (Loxonata) lineolator* (AUBERT 1972)**

Mesoleptus flavovariegatus LUCAS 1849 - Sci. Physiq. Zool. 3: 334.

M a t e r i a l e x a m i n e d : Yalvaç (38°25'N/31°15'E), 1000 m, 10.07.2002, 1♀; Gökdere (37°30'N/30°35'E), 1150 m, 03.05.2003, 1♂.

General Distribution: Bulgaria, Spain, France, Greece, Italy, Iran, Romania, Russia, formerly Yugoslavia (KOLAROV 1995).

***Hypsicera femoralis* (GEOFFRAY 1785) (Metopiinae)**

Ichneumon femoralis GEOFFRAY 1785 - Ent. Paris: 396.

M a t e r i a l e x a m i n e d : Isparta (37°46'N/30°37'E), 1100 m, 18.05.2001, 1♂.

General Distribution: Palearctic (YU & HORSTMANN 1997).

***Phaenolobus fulvicornis* (GRAVENHORST 1829) (Acaenitinae)**

Acoenites fulvicornis GRAVENHORST 1829 - Ichn. eur. 3: 809.

M a t e r i a l e x a m i n e d : Gönen (37°55'N/30°05'E), 1100 m, 31.05.2002, 1♀; 10.07.2003, 1♀.

Fly period: VI-VII (SEDIVY 1995).

General Distribution: Middle and South Europe, Turkey, West Africa, Israel, Gagauz and Kazakhstan (KOLAROV 1997a).

***Collyria coxator* (VILLERS 1789) (Collyrinae)**

Ichneumon coxator VILLERS 1789 - Car. Linn. Ent. 3: 193.

M a t e r i a l e x a m i n e d : Ayazmana (37°45'N/30°40'E), 1100 m, 23.04.2001, 2♀♀; Şarkikaraağaç (37°42'N/30°58'E), 950 m, 19.05.2001, 1♂; Sütcüler (37°55'N/31°40'E), 1500 m, 09.05.2002, 3♀♀; Yalvaç (38°25'N/31°15'E), 1000 m, 22.05.2003, 2♂♂.

Fly period: III-VII (SEDIVY 1995). Host: *Cephus pygmaeus* L., *Trachelus tabidus* F. (Cephidae).

General Distribution: Middle and South Europe, Caucasus, West America (KOLAROV 1997a).

Discussion

In the Palearctic region there are 391 Pimplinae species (DICKY & YU 1997). About half of these occur in Western Palearctics. Turkish Pimplinae reaches 62 species and this is

approximately the half of the total known species in W.P. The dominant species are *Pimpla spuria* GRAV. and *Itopectis maculator* F.

In the Palearctic region there are 450 Tryphoninae species (KASPARYAN & TOLKANITZ 1999). Almost half of them occur in Western Palearctics. There are 58 Tryphoninae species in Turkish fauna. The dominant species are *Monoblastus brachyacanthus* GRAV., *Otoblastus luteomarginatus* GRAV. and *Tryphon (T.) atriceps* STEPHENS.

Three species from Tryphoninae and Ctenopelmatinae belong to European element; *Pion crassipes* restricted to Europe, *Tromatobia ornata* and *Tryphon auricularis* reaching further east (to Chelyabinsk region of Russia and Middle Asia). *Strongylopsis abdominalis* (Pimplinae) has been known only from north of Black Sea (former Russia) so far, but it is not accepted as a Mediterranean element (FITTON et al. 1988). Probably it is a sub-Iranian element as is *Temelucha tricolorata* SEDIVY (Cremastinae). *Thibetoides acerbus* (Tryphoninae) has been known from the Steppe region of Russia and Caucasus countries, thus having a Pre-Asian type of distribution.

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Zusammenfassung

Die Ichneumonidae-Fauna der türkischen Provinz Isparta wurde im Zeitraum April 2001 bis Juli 2003 untersucht. 37 Arten aus 25 Gattungen und 12 Unterfamilien konnten nachgewiesen werden, davon gehören 13 Arten zu Pimplinae, 6 zu Tryphoninae, 3 jeweils zu Cremastinae und Diplazontinae, 2 jeweils zu Ctenopelmatinae, Ophioninae, Anomaloninae und Banchinae sowie 1 Art jeweils zu Campopleginae, Metopiinae, Acaenitinae und Collyriinae. Angeführt wurden weiters Synonyme, Angaben zur Verbreitung nach Literaturangaben und phänologische Notizen.

References

- ÇORUH S., ÖZBEK H. & J. KOLAROV (2002): New and rare Taxa of Ichneumonidae (Hymenoptera) from Turkey. — J. Ent. Res. Soc. 4 (1): 1-4.
- FITTON M., SHAW M.R. & I.D. GAULD (1988): Pimplinae Ichneumon-Flies Hymenoptera Ichneumonidae(Pimplinae). — Royal Entomological Society of London. 7 (1): 109.
- GRUEV B.A. (2002): A Comparatiand Study on Alticinae (Coleoptera, Chrysomelidae) in the Balkan Peninsula and Asiatic Turkey. Causes of The Similarites and The Differences of The Fauna. — Trav. Sci. Univ. Plovdiv, Animalia. 38 (6): 49-79.
- GÜRBÜZ M.F. & M.Y. AKSOYLAR (2005): New Records of Ichneumonidae (Hymenoptera) Species from Turkey. — Phytoparasitica. 32 (3): 121-122.
- KASPARYAN D.R. (1973): Fauna of U.S.S.R. Insecta Hymenoptera, Ichneumonidae Subfamily Tryphoninae: *Tryphonini*. — Nauka Leningrad 3 (1): 9-233.
- KASPARYAN D.R. (1974): A review of Palaearctic species of The Tribe Pimplini (Hym., Ichneumonidae). The Genus *Pimpla*. — Entmologicheskoe Obez. 53 (2): 102-117.

- KASPARYAN D.R. (1981): *Opredelitel Nasekomich Europeiskoy Casti U.S.S.R.* — *Prepontchatokrilie* 3: 1-688.
- KASPARYAN D.R. & V.I. TOLKANITZ (1999): Fauna of Russia and neighbouring countries, Insecta Hymenoptera Vol. III, N. 3. Ichneumonidae Subfamily Tryphoninae: Tribes Sphinctini, Phytodietini, Oedemopsini, Tryphonini, Idiogrammatini. Subfamilies Eucerotinae, Adelognathinae, Townesioninae. — Leningrad Nauka Publishing House: 1-404.
- KOLAROV J. (1994): Nocturnal Ichneumonidae from Bulgaria and Turkey with description of a new species. — *Entomofauna* 15: 93-97.
- KOLAROV J. (1995): A catalogue of the Turkish Ichneumonidae (Hymenoptera). — *Entomofauna* 7: 137-188.
- KOLAROV J. (1997a): Fauna Bulgarica 25 V. Hymenoptera, Ichneumonidae Part 1. Pimplinae, Xoridinae, Acaenitinae, Collyriinae. — In: *Aedibus Academie Scientiarum Bulgaricae*. Sofia: 1-320.
- KOLAROV J. (1997b): A review of the Cremastinae of the Balcan Peninsula, Turkey and Cyprus with zoogeographical notes. — *Beitr. Ent.* 47 (1): 169-199.
- KOLAROV J., BEYARSLAN A. & M. YURTCAN (1997): New and Rare Ichneumonidae (Hymenoptera) from Turkey. I. Pimplinae, Tryphoninae, Phydeuontinae, Banchinae and Ctenopelmatinae. — *Acta. Zoo. Bulg.* 3-4: 10-12.
- KOLAROV J. (1998): New and Rare Ichneumonidae (Hymenoptera) from Greece and Bulgaria, *Acta. Zoo. Bulg.* 50 (1): 65-70.
- KOLAROV J., ÖZBEK H. & E. YILDIRIM (1999): New Distributional Data of The Turkish Ichneumonidae (Hymenoptera). I. Pimplinae and Tryphoninae. — *J. Ent. Soc. Res.* 1 (2): 9-15.
- KOLAROV J. (2000): Fauna and Zoogeography of The Balkan Peninsula Pimplini (Hymenoptera, Ichneumonidae). II. Genus *Itoplectis* FOERSTER. — *Annu. Sofia Univ. Fac. Biology. Book 1- Zoology Volum* 91: 25-37.
- ÖNCÜER C. (1991): A Catalogue of The Parasites and Predators of Insect Pests of Turkey. *Ege Üniv. Ziraat. Fak. Yayınları* 505: 1-354.
- ÖZBEK H., PEKEL S. & J. KOLAROV (2000): New Distributional Data of the Turkish Ichneumonidae (Hymenoptera). II. Ctenopelmatinae and Campopleginae. — *J. Ent. Soc. Res.* 2 (1): 17-24.
- ÖZDEMİR Y. & N. KILINÇER (1990): The Species of Pimplinae and Ophioninae from Central Anatolia. — *Türk II. Bio. Müc. Kong. Ankara*: 309-318.
- SEDIVY J. (1995): Ichneumonoidea 3. — In: ROZKOSNY R. & J. VANHARA (eds), *Terrestrial Invertebrates of the Palava Biosphere Reserve of UNESCO*, II. — *Folia Fac. Sci. Nat. Uni. Masaryk. Brun., Biol.* 93: 261-269.
- YU D. & K. HORSTMANN (1997): Catalogue of World Ichneumonidae (Hymenoptera). — *The Amer. Ent. Inst. Part* 1, 2: 1-1558.
- YURTCAN M., BEYARSLAN A. & J. KOLAROV (1999): Inandstigations on the Ichneumonidae (Hymenoptera) Fauna of Turkey. V. Diplazontinae and Ichneumoninae. — *Acta. Zoo. Bulg.* 1: 36.
- YURTCAN M., BEYARSLAN A. & J. KOLAROV (2002): The Species of Tryphoninae (Hymenoptera: Ichneumonidae) in Turkish Thrace. — *Turk J. Zool.* 26: 77-95.

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