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Ichneumonidae (Hymenoptera) from Anatolia II

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Abstract: Thirty ichneumonid samples were collected from northeastern Anatolia (Erzurum-Pazaryolu-Kumaşkaya) during the summer period of 2015. These examples belong to Anomaloninae, Campopleginae, Cryptinae and Diplazontinae subfamilies. A total of 15 species are recorded. Among them *Lissonota (Lissonota) coracina* (GMELIN, 1790) and *Aptesis assimilis* (GRAVENHORST, 1829) are recorded for the first time from Turkey. For each species, individual diversity, geographical distribution, zoogeographical notes and host data are summarised.

Key words: Hymenoptera, Ichneumonidae, new records, Turkey, Erzurum, Kumaşkaya.

Introduction

It has taken over three billion years for life on Earth to evolve to such high complexity that we see today as biodiversity (BARNOSKY et al. 2011). Insecta is one of the most species rich groups of organisms in this biodiversity and those with a parasitoid lifestyle have become exceptionally successful (GAULD et al. 2002; HAMILTON et al. 2010). Parasitoids are species rich in the orders Hymenoptera (bees and wasps) and Diptera (flies).

The Ichneumonidae comprise the largest hymenopteran family with at least 60,000 species, and probably many more. The Ichneumon wasps are one of the most important parasitic species in the role to regulate numbers of pest's scale caterpillar populations belonging to scale caterpillar (Lepidoptera) (KASPARYAN 1981).

Before 1995, there were very few ichneumonid species have been recorded by foreign authors from Turkey. However the biology and behavior of these ichneumonid wasps have not been studied. Also rather little is known of the associate plant of ichneumonids in our country. Studies on Ichneumonidae of Turkey have gained acceleration, particularly, since the last one and a half decades. An intense and systematic series of studies over the last 3 years (KOLAROV 2015; KOLAROV et al. 2015; YURTCAN & KOLAROV 2015; ÇORUH 2016; ÇORUH & ÇALMAŞUR 2016; ÇORUH & KOLAROV 2016; ÇORUH et al. 2016; KOLAROV 2016; KOLAROV et al. 2016; ÖZDAN & GÜRBÜZ 2016; ÇORUH 2017; KOLAROV et al. 2017) has raised this number to 1246. With two new records in this paper, the number is now 1248. The research's aim is to survey the Ichneumonidae species composition and contribute to the Ichneumonidae species richness and detected associate plant data of each species in Anatolia.

In this study, our aims were to contribute to the fauna of Ichneumonidae and add new records and more details to this family.

Material and Methods

The present study is based mainly in northeastern part of Anatolia, (Erzurum- Pazaryolu-Kumaşkaya) during 2015 summer. The collecting site, Kumaşkaya, is a bowl shaped between two mountains. It forms a gateway between Rize and Erzurum and is a region with floral richness. The following plants are dominant in the region: *Achillea biebersteinii* AFAN., *A. millefolium* L., *Amaranthus retroflexus* L., *Carum carvi* L., *Chenopodium album* L., *Cirsium arvense* (L.) SCOP., *Epilobium angustifolium* L., *E. parviflorum* SCHREBER, *Filipendula vulgaris* MOENCH, *Gladiolus atroviolaceus* BOISS., *Heracleum pastinacifolium* K. KOCH, *Lysimachia vulgaris* L., *Malva neglecta* WALLR., *Pedicularis comosa* L., *Plantago lanceolata* L., *P. major* L., *Ranunculus grandiflorus* L., *Rhinanthus angustifolius* C. C. GMELIN, *Rumex acetosella* L., *Silene compacta* FISCHER, *Thalictrum minus* L., *Trifolium pratense* L., *T. repens* L.

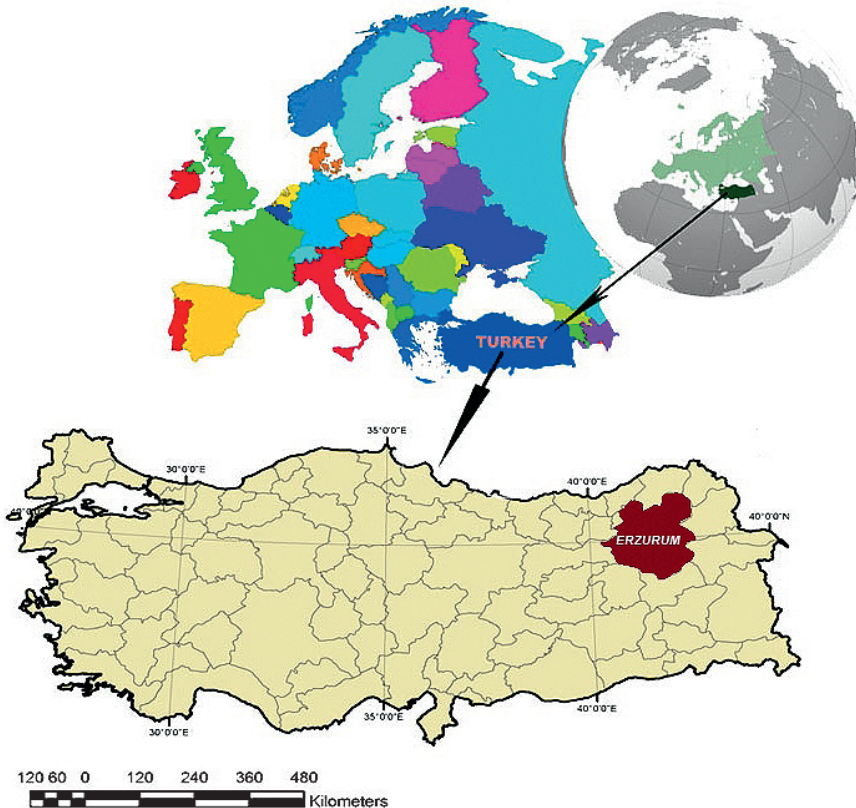


Fig. 1: Map of study area.

Materials used in this study were collected by sweeping by second autor. The Ichneumonid specimens have been identified by Janko Kolarov (Plovdiv University, Bulgaria). Plant specimens were identified according to DAVIS (1965-1988) and the

herbarium of Atatürk University, Faculty of Agriculture, Department of Plant Protection, by the third author.

All specimens are deposited in the insect collection of the Department of Entomology, Erzurum, Turkey (EMET). In table 1 are included, valid taxa names, individual numbers, zoogeographical distribution and reference data. The newly recorded species for the fauna of Turkey is indicated by an asterisk (*) in the text. General distributions of the species were taken from YU et al. (2012).

Results

In total 15 species in 12 genera of Anomaloninae, Campopleginae, Cryptinae and Diplazontinae subfamilies were determined. All materials were collected around Erzurum, Pazaryolu, Kumaşkaya village (40°31'50.523"N, 40°45'16.686"E) from 1450 m a.s.l. altitude by S. Çoruh. Hosts and associate plants of the new records are given below.

Subfamily *A n o m a l o n i n a e* VIERECK, 1918

Anomalon cruentatum (GEOFFROY, 1785)

Material examined: 26.VII.2015, 2♀.

Distribution: Oriental and Palaearctic region.

Subfamily *B a n c h i n a e* WESMAEL, 1845

Exetastes adpressorius (THUNBERG, 1822)

Material examined: 27.VII.2015, 1♀.

Distribution: Oriental and Palaearctic region.

**Lissonota (Lissonota) coracina* (GMELIN, 1790)

Material examined: 27.VII.2015, 1♂ 1♀.

Distribution: Holarctic region.

Host: Hymenoptera, Tenthredinidae: *Pachynematus extensicornis*, *Pontania proxima*, *Synanthedon tipuliformis*. Lepidoptera, Crambidae: *Agriphila vulgivaella*, *Crambus perllellus*, *Mecyna asinalis*; Psychidae: *Epichnopterix plumella*; Tortricidae: *Cydia splendana*, *Epinotia caprana*, *Epinotia nigricana*; Notodontidae: *Thaumatopoea processionea* on *Angelica sylvestris*, *Chaerophyllum aromaticum*, *Chaerophyllum bulbosum*, *Cornus mas*, *Corylus avellana*, *Daucus carota*, *Epilobium angustifolium*, *Heracleum sphondylium*, *Juniperus communis*, *Listera ovata*, *Parnassia caroliniana*, *Peucedanum oreoselinum*, *Picea abies*, *Picea excelsa*, *Rubus idaeus*, *Tilia platyphyllos*, *Urtica dioica*.

Remark: this species was collected on *Daucus carota* while feeding in study area.

Lissonota (Loxonota) cruentator (PANZER, 1809)

Material examined: 29.VII.2015, 1♀.

Distribution: Palaearctic region.

***Lissonota (Loxonota) flavovariegata* (LUCAS, 1849)**

Material examined: 28.VII.2015, 1♂ 7♀♀.

Distribution: Algeria, Europe, Turkey, Armenia and Iran.

Subfamily Campopleginae FÖRSTER, 1869***Campoletis crassicornis* (TSCHEK, 1871)**

Material examined: 29.VII.2015, 1♂.

Distribution: Tunisia, Europe, Turkey and Syria.

***Campoletis latrator* (GRAVENHORST, 1829)**

Material examined: 28.VII.2015, 1♂ 2♀♀.

Distribution: Europe and Turkey.

***Meloboris collector* (THUNBERG, 1822)**

Material examined: 26.VII.2015, 1♂ 1♀.

Distribution: Palaearctic region, introduced into South Africa.

Subfamily Cryptinae KIRBY, 1837***Acroricnus stylator* (THUNBERG, 1822)**

Material examined: 27.VII.2015, 2♂♂ 1♀.

Distribution: Holarctic region.

****Aptesis assimilis* (GRAVENHORST, 1829)**

Material examined: 28.VII.2015, 2♀♀.

Distribution: Europe.

Host: on *Listera ovata*, *Pastinaca sativa*.

Remark: this species is new record from Turkey.

***Aritranis director* (THUNBERG, 1822)**

Material examined: 27.VII.2015, 1♂.

Distribution: Europe, Turkey, Israel, Iran and North America.

***Cryptus viduatorius* FABRICIUS, 1804**

Material examined: 26.VII.2015, 1♀.

Distribution: Europe, Siberia, Turkey, Iran and Tadjikistan.

***Glyphicnemis vagabunda* (GRAVENHORST, 1829)**

Material examined: 29.VII.2015, 1♀.

Distribution: Europe, Georgia, Azerbaijan, Turkey and Iran.

***Mesostenus grammicus* GRAVENHORST, 1829**

Material examined: 29.VII.2015, 1♂.

Distribution: Morocco, Tunisia, Algeria, Europe, Azerbaijan, Turkey, Iran, Afghanistan, Tajikistan, Turkmenistan and Uzbekistan.

Subfamily Diplazontinae VIERECK, 1918***Syrphophilus bizonarius* (GRAVENHORST, 1829)**

Material examined: 29.VII.2015, 1♀.

Distribution: Holarctic and Oriental region

Table 1. Faunistic evaluations of Ichneumonidae species.

Collected species (Erzurum, Pazaryolu, Kumaşkaya Village (40°31'50.523"N, 40°45'16.686"E), 26-29.VII.2015, 1450 m a.s.l.)					
Name of species	IN		Distribution in Turkey	Distribution in World	NR
	♂	♀			
Subfamily Anomaloninae VIERECK, 1918					
<i>Anomalon cruentatum</i> (GEOFFROY, 1785)		2	Afyon, Antalya, Bayburt, Bingöl, Diyarbakır, Erzincan, Erzurum, Iğdır, Isparta, Kahramanmaraş, Kars, Adıyaman, Batman, Diyarbakır, Elazığ, Malatya, Mardin, Muğla, Tunceli	Oriental and Palaearctic region.	
Subfamily Banchinae WESMAEL, 1845					
<i>Exetastes adpressorius</i> (THUNBERG, 1822)		1	Isparta, Tunceli	Oriental and Palaearctic region	
<i>Lissonota (Lissonota) coracina</i> (GMELIN, 1790)	1	1	Erzurum	Holarctic region	X
<i>Lissonota (Loxonota) cruentator</i> (PANZER, 1809)		1	Edirne, Erzincan, Erzurum, Kars	Palaearctic region	
<i>Lissonota (Loxonota) flavovariegata</i> (LUCAS, 1849)	1	7	Ankara, Bayburt, Bolu, Çankırı, Erzincan, Erzurum, Kars, Kırşehir, Konya, Nevşehir, Trabzon, Yozgat	Algeria, Europe, Turkey, Armenia and Iran	
Subfamily Campopleginae FÖRSTER, 1869					
<i>Campoletis crassicornis</i> (TSCHEK, 1871)	1		Adana, Burdur	Holarctic region	
<i>Campoletis latrator</i> (GRAVENHORST, 1829)	1	2	Adana, Edirne, Elazığ, Erzurum, Gaziantep, Isparta, Rize, Tunceli	Holarctic region	
<i>Meloboris collector</i> (THUNBERG, 1822)	1	1	Adana, Ankara, Erzurum, Gaziantep, Hatay, Isparta, Trabzon	Palaearctic region, introduced into South Africa	
Subfamily Cryptinae KIRBY, 1837					
<i>Acroricnus stylator</i> (THUNBERG, 1822)	2	1	Istanbul	Holarctic region	
<i>Aptesis assimilis</i> (GRAVENHORST, 1829)		2	Erzurum	Europe	X

Collected species (Erzurum, Pazaryolu, Kumaşkaya Village (40°31'50.523"N, 40°45'16.686"E), 26-29.VII.2015, 1450 m a.s.l.)					
Name of species	IN		Distribution in Turkey	Distribution in World	NR
	♂	♀			
<i>Aritranis director</i> (THUNBERG, 1822)	1		Antalya, Burdur, Denizli, Isparta	Europe, Turkey, Israel, Iran and North America	
<i>Cryptus viduatorius</i> FABRICIUS, 1804		1	Erzurum, Kırklareli, İçel, Isparta, Istanbul, Rize	Europe, Siberia, Turkey, Iran and Tadjikistan	
<i>Glyphicnemis vagabunda</i> (GRAVENHORST, 1829)		1	Isparta, Erzurum	Europe, Georgia, Azerbaijan, Turkey and Iran	
<i>Mesostenus grammicus</i> GRAVENHORST, 1829	1		Çanakkale, Elazığ, Istanbul, Isparta, Kırklareli	Morocco, Tunisia, Algeria, Europe, Azerbaijan, Turkey, Iran, Afghanistan, Tajikistan, Turkmenistan and Uzbekistan	
Subfamily: Diplazontinae VIREECK, 1918					
<i>Syrphophilus bizonarius</i> (GRAVENHORST, 1829)		1	Adana, Ankara, Burdur, Çankırı, Eskişehir, Giresun, Hatay, Isparta, Konya, Niğde Sinop, Rize	Holarctic and Oriental region	

(IN): Individual numbers; (NR): New record

The zoogeographical characterization mainly follows the chorotype classification of the Near East fauna proposed by TAGLIANTI et al. (1999). After investigation of the recent-geographic distribution of the species listed above, they can be divided into the following groups:

With more wide ranges along Palaearctic/Holarctic and Oriental region are the species *Anomalon cruentatum* and *Syrphophilus bizonarius*.

Holarctic range have the species *Lissonota (Lissonota) coracina*, *Acrorycnus stylator* and *Aritranis director*.

Three species have Palaearctic ranges – *Exetastes adpressorius*, *Lissonota (Lissonota) cruentator* and *Meloboris colector*.

One species – *Cryptus viduatorius*, has the Sibero-European range.

Central Asian-European-Mediterranean range has the species *Mesostenus grammicus*.

Turano-European-Mediterranean range has the species *Lissonota (Lissonota) flavovariegata*.

With Turano-European range is the species *Glyphicnemis vagabunda*.

Three species – *Campoletis crassicornis*, *C. latrator* and *Aptesis assimilis* have European ranges. The last of them is distributed also in Tunisia and Syria.

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Zusammenfassung

Vorliegende Arbeit resultiert auf Basis von 30 Ichneumoniden-Aufsammlungen im Sommer 2015 im Nordosten Anatoliens (Erzurum-Pazaryolu-Kumaşkaya). 15 Arten der Unterfamilien Anomaloninae, Campopleginae, Cryptinae und Diplazontinae konnten nachgewiesen werden. *Lissonota* (*Lissonota*) *coracina* (GMELIN, 1790) und *Aptesis assimilis* (GRAVENHORST, 1829) stellen Erstinachweise für die Türkei dar. Informationen zur Verbreitung und Wirtsangaben werden den einzelnen Arten beigelegt.

References

- BARNOSKY A.D., MATZKE N., TOMIYA S., WOGAN G.O.U., SWARTZ B., QUENTAL T.B., MARSHALL C., MCGUIRE J.L., LINDSEY E.L. & K.C. MAGUIRE (2011): Has the Earth's sixth mass extinction already arrived? — *Nature* **471**: 51-57.
- ÇORUH S. (2016): Biogeography and host evaluation of the subfamily Pimplinae (Hymenoptera: Ichneumonidae) in Turkey. — *Journal of Entomological Research Society* **18** (2): 33-66.
- ÇORUH S. (2017): Taxonomical and biogeographical evaluation of the subfamily Ichneumoninae (Hymenoptera: Ichneumonidae) in Turkey. — *Entomofauna* **38**: 425-476.
- ÇORUH S. & Ö. ÇALMAŞUR (2016): A new and additional records of the Ichneumonidae (Hymenoptera) from Turkey. — *Turkish Journal of Zoology* **40** (4): 625-629.
- ÇORUH S. & J. KOLAROV (2016): Faunistic notes on the Ichneumonidae (Hymenoptera) of Turkey with a new record. — *Acta Entomologica Serbica* **21**: 123-132.
- ÇORUH S., KOLAROV J. & I. ÇORUH (2016): A study of Ichneumonidae (Hymenoptera) from northeastern Anatolia II, with new records. — *Turkish Journal of Entomology* **40** (3): 265-280.
- DAVIS P.H. (1965-1988): *Flora of Turkey and the East Aegean Islands*. — Edinburgh, UK: Edinburgh University Press, 1-10.
- GAULD I., GODOY C., SITHOLE R. & J. UGALDE GÓMEZ (2002): The Ichneumonidae of Costa Rica 4. — *Memoirs American Entomological Institute* **66**: 1-768.
- HAMILTON A.J., BASSET Y., BENKE K.K., GRIMBACHER P.S., MILLER S.E., NOVOTNÝ V., SAMUELSON G.A., STORK N.E., WEIBLEN G.D. & J.D.L. YEN (2010): Quantifying uncertainty in estimation of tropical arthropod species richness. — *American Naturalist* **176**: 90-95.
- KASPARYAN D.R. (1981): A guide to the insects of the European part of the USSR. Hymenoptera, Ichneumonidae. — *Opredeliteli Faune SSSR*. **3** (3): 1-688. (In Russian).
- KOLAROV J. (2015): Diplazontinae species (Hymenoptera, Ichneumonidae) from Balkan Peninsula, Turkey and Iran. — *Entomofauna* **36** (24): 297-304.
- KOLAROV J. (2016): Cremastinae (Hymenoptera, Ichneumonidae) from Turkey and adjacent countries with description of a new species. — *Linzer biologische Beiträge* **48** (2): 1321-1326.
- KOLAROV J., ÇORUH S. & I. ÇORUH (2017): A study of Ichneumonidae (Hymenoptera) from Northeastern Anatolia III, with new records and description male of *Temelucha pseudocaudata* KOLAROV, 1982. — *Turkish Journal of Entomology* **41** (2): 125-146.
- KOLAROV J., ÇORUH S. & I. ÇORUH (2015): Oxytorinae, a new subfamily for the Turkish fauna. — *Turkish Journal of Zoology* **39**: 832-835.
- KOLAROV J., ÇORUH S. & I. ÇORUH (2016): Contribution to the knowledge of the Ichneumonidae (Hymenoptera) fauna of Turkey from northeastern Anatolia, Part I. — *Turkish Journal of Zoology* **40**: 40-56.

- ÖZDAN A. & M.F. GURBUZ (2016): Ichneumonidae (Hymenoptera) fauna of Gelincik Mountain Natural Park Isparta, Turkey). — Turkish Journal of Entomology **40** (4): 425-444.
- TAGLIANTI V.A., AUDISIO P.A., BIONDI M., BOLOGNA M.A., CARPANETO G.M., BIASE A. De, FATTORINI S., PIATTELLA E., SINDACO R., VENCHI A. & M. ZAPPAROLI (1999). A proposal for a chorotype classification of the Near East fauna, in the framework of the Western Palearctic region. — Biogeographia **20**: 31-59.
- YU D., van ACHTERBERG C. & K. HORSTMANN (2012): Taxapad 2012, Ichneumonoidea 2011. — Database on flash-drive. www.taxapad.com, Ottawa, Ontario, Canada.
- YURTCAN M. & J. KOLAROV (2015): A new species and additional records of the genus *Collyria* SCHIODTE, 1839 (Hymenoptera, Ichneumonidae) from Turkey. — Zootaxa **3985**: 17-124.

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