



Egyptian Journal of Plant  
Protection Research Institute

www.ejppri.eg.net



New records of Ichneumonidae (Hymenoptera) from the Middle East

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ARTICLE INFO

Article History

Received: 20/10/2024

Accepted: 22/12/2024

Keywords

Ichneumonidae, fauna,  
new records, Iran, Syria  
and Middle East.

Abstract

In total, 17 species of Ichneumonidae (Hymenoptera: Ichneumonoidea) in the subfamilies Acaenitinae, Anomaloninae, Banchinae, Campopleginae, Ctenopelmatinae, Ichneumoninae, Metopiinae, Orthocentrinae and Tryphoninae are recorded from Iran or Syria for the first time. In total, 13 species are new records for the fauna of the Middle East.

Introduction

The family Ichneumonidae is one of the most diverse families of the animal kingdom, comprising over 25,000 described species in more than 1,600 genera (Yu *et al.*, 2016). They are efficient parasitoids of other holometabolous insects and spiders (Gauld, 1991 and Quicke, 2015).

The purpose of this paper is to introduce 13 new species records for the fauna of the Middle East as part of ongoing faunistic studies of Ichneumonidae in this region.

Materials and methods

This paper is based on the ichneumonid material collected from different areas of Iran and Syria by Malaise traps, light traps, and sweeping nets. The specimens were placed in 75% ethanol, mounted on triangular labels, and then sorted to subfamily level based on Broad *et al.* (2018) and genus level by

different identification keys (e.g., Townes, 1969, 1970a, b and 1971 and Bennett, 2015). Most of the specimens were identified by the authors and some by D.R. Kasparyan (Russia), and V.I. Tolkanitz (Ukraine). The materials are preserved in the insect collections of the determiners. Classification, nomenclature, distributional and host data suggested by Yu *et al.* (2016) have been followed, and in other cases, the related references are given.

List of species

In this faunistic paper, a total of 17 species of Ichneumonidae were collected from different regions of Iran (14 species) and Syria (3 species). The list of species with 13 new records for the Middle East is given below.

1. Subfamily Acaenitinae Förster, 1869

1.1. Genus *Phaenolobus* Förster, 1869

**1.1.1. *Phaenolobus fulvicornis* (Gravenhorst, 1829)**

**Material examined:** Syria, Ghouta, near Damasco, 1♀, 2.v.1953.

**Distribution:** Albania, Algeria, Austria, Belarus, Bulgaria, Croatia, Czech Republic, France, Georgia, Germany, Hungary, Iran, Israel, Italy, Latvia, Lithuania, Morocco, Netherlands, Poland, Portugal, Romania, Russia, Serbia, Slovakia, Spain, Switzerland, Turkey, Ukraine, and United Kingdom (Yu et al., 2016).

**Host records:** Recorded by Scaramozzino (1982 and 1986) as being a parasitoid of *Phytoecia cephalotes* Küster and *P. coerulea* (Scopoli) (Coleoptera: Cerambycidae).

**2. Subfamily Anomaloninae Viereck, 1918**

**2.1. Genus *Erigorgus* Förster, 1869**

**2.1.1. *Erigorgus fibulator* (Gravenhorst, 1829)**

**Material examined:** Syria, Hayjanah, near Damasco, 6♀♀, 1.iv.1955.

**Distribution:** Armenia, Austria, Azerbaijan, Belgium, Bulgaria, Croatia, Czech Republic, Finland, France, Germany, Greece, Hungary, Kazakhstan, Moldova, Norway, Poland, Romania, Russia, Spain, Sweden, Switzerland, Tajikistan, Turkey, United Kingdom, Uzbekistan (Yu et al., 2016) and , Ukraine (Varga, 2024).

**Host records:** Summarized by Yu et al. (2016) as being a parasitoid of the lasiocampid *Malacosoma castrense* (Linnaeus); the noctuids *Autographa gamma* (Linnaeus) and *Diloba caeruleocephala* (Linnaeus); the sphingid *Smerinthus ocellatus* (Linnaeus); and the zygaenids *Zygaena ephialtes* (Linnaeus) and *Zygaena filipendulae* (Linnaeus).

**3. Subfamily Banchinae Wesmael, 1845**

**3.1. Genus *Glypta* Gravenhorst, 1829**

**3.1.1. *Glypta scalaris* Gravenhorst, 1829**

**Material examined:** Semnan province, Shahrood, Jangal-e Abr, 1♂, June 2011. New record for the Middle East.

**Distribution:** Belgium, Bulgaria, Czech Republic, Denmark, Finland, France, Germany, Ireland, Italy, Lithuania, Luxembourg, Mongolia, Netherlands, Norway, Poland, Romania, Russia, Spain and, Sweden (Yu et al., 2016).

**Host records:** Summarized by Yu et al. (2016) as being a parasitoid of the gelechiid *Anacampsis temerella* (Lienig & Zeller), pyralid *Ortholepis vacciniella* (Lienig & Zeller), and tortricids *Cydia nigricana* (Fabricius) and *Metendothenia atropunctana* (Zetterstedt).

**3.2. Genus *Lissonota* Gravenhorst, 1829**

**3.2.1. *Lissonota linearis* Gravenhorst, 1829**

**Material examined:** Ardabil province, Aslanduz, 1♀, July 2013.

**Distribution:** Austria, Belgium, Bulgaria, Czech Republic, France, Germany, Hungary, Ireland, Lithuania, Poland, Romania, Tunisia, Turkey, United Kingdom (Yu et al., 2016), Switzerland (Klopfstein et al., 2019), Netherlands and , Slovenia (Johansson, 2024).

**Host records:** Hedwig (1958) and Aubert (1978) reported it as a parasitoid of the psychid *Loebelia crassicornis* (Staudinger), which seems to be the most likely host (Johansson 2024) and Brock (2017) listed also the psychids *Epichnopteryx plumella* (Denis and Schiffermüller) and *Whittleia retinella* (Newman).

**3.3. Genus *Odinophora* Förster, 1869**

**3.3.1. *Odinophora mediterranea* (Schmiedeknecht, 1900)**

**Material examined:** Syria, Damasco, Mezzeh, 1♀, 28.iii.1955. New record for the Middle East.

**Distribution:** Algeria, Spain and, Tunisia (Yu et al., 2016).

**Host records:** Unknown.

**4. Subfamily Campopleginae Förster, 1869**

**4.1. Genus *Dusona* Cameron, 1901**

**4.1.1. *Dusona sobolicida* (Förster, 1868)**

**Material examined:** Golestan province, Golestan National Park, 2♂♂, August 2009. New record for the Middle East.

**Distribution:** Austria, Belarus, Belgium, Bulgaria, Czech Republic, Finland, France, Germany, Hungary, Italy, Kazakhstan, Kyrgyzstan, Moldova, Netherlands, Norway, Poland, Romania, Russia, Spain, Sweden, Switzerland, Ukraine, United Kingdom (Yu *et al.*, 2016) and , Georgia (Riedel and Japoshvili, 2021 and Riedel *et al.*, 2023).

**Host records:** Recorded as parasitoid of the geometrids (Geometridae) *Hypomecis punctinalis* (Scopoli) (Tereshkin, 2003 and Hinz and Horstmann, 2004), *Ematurga atomaria* (Linnaeus), and *Isturgia roraria* (Fabricius) (Horstmann, 2011).

#### 4.1.2. *Dusona xenocampta* (Förster, 1868)

**Material examined:** Golestan province, Golestan National Park, 1♂, 1♀, August 2009. New record for the Middle East.

**Distribution:** Austria, Belarus, Bulgaria, Finland, France, Georgia, Germany, Hungary, Italy, Japan, Kazakhstan, Kyrgyzstan, Latvia, Moldova, Montenegro, Netherlands, Poland, Romania, Russia, Spain, Sweden, Switzerland, Ukraine, United Kingdom (Yu *et al.*, 2016), Czech Republic and , Slovakia (Holý and Zeman, 2018).

**Host records:** The only reliable record is by Horstmann (2011), who reported it as being a parasitoid of the geometrid *Cleora cinctaria* (Denis and Schiffermüller).

#### 4.2. Genus *Rhimphoctona* Förster, 1869

##### 4.2.1. *Rhimphoctona melanura* (Holmgren, 1860)

**Material examined:** East Azarbaijan province, Horand, 1♀, September 2008. New record for the Middle East.

**Distribution:** Austria, Belgium, Bulgaria, Czech Republic, Finland, France, Germany, Latvia, Norway, Poland, Romania, Russia, Sweden, United Kingdom (Yu *et al.*, 2016) and , Netherlands (Verheyde *et al.*, 2021).

**Host records:** Summarized by Yu *et al.* (2016) as being a parasitoid of *Atlantoraphidia maculicollis* (Stephens) (Raphidioptera: Raphidiidae), and the cerambycids *Acmaeops septentrionis* (Thomson), *Callidium violaceum* (Linnaeus), *Mesosa nebulosa* (Fabricius) and *Pyrrhidium sanguineum* Linnaeus.

#### 5. Subfamily Ctenopelmatinae Förster, 1869

##### 5.1. Genus *Rhorus* Förster, 1869

##### 5.1.1. *Rhorus chrysopus* (Gmelin, 1790)

**Material examined:** Qazvin province, Eastern Alamoot, 1♂, 2♀♀, September 2011. New record for the Middle East.

**Distribution:** Armenia, Azerbaijan, Belgium, Bulgaria, Czech Republic, Estonia, Finland, France, Germany, Hungary, Lithuania, Netherlands, Norway, Poland, Romania, Russia, Ukraine, United Kingdom (Yu *et al.*, 2016), Georgia (Riedel *et al.*, 2018 and 2023) and , Switzerland (Klopfstein *et al.*, 2019).

**Host records:** Summarized by Yu *et al.* (2016) as being a parasitoid of the tenthredinids *Aglaostigma fulvipes* (Scopoli), *Macrophya albicincta* (Schrank), *Macrophya alboannulata* Costa, *Pachyprotasis simulans* (Klug), and *Tenthredo rubricoxis* (Enslin).

##### 5.2. Genus *Scopesis* Förster, 1869

##### 5.2.1. *Scopesis gesticulator* (Thunberg, 1824)

**Material examined:** West Azarbaijan province, Piranshahr, Pardanan Forest, 2♀♀, July 2016. New record for the Middle East.

**Distribution:** Austria, Belarus, Belgium, Bulgaria, Canada, Croatia, Czech Republic, Finland, France, Germany, Hungary, Ireland, Italy, Latvia, Netherlands, Norway, Poland, Romania, Russia, Sweden, Switzerland, USA, Ukraine and, United Kingdom (Yu *et al.*, 2016).

**Host records:** Unknown.

#### 6. Subfamily Ichneumoninae Latreille, 1802

##### 6.1. Genus *Coelichneumon* Thomson, 1893

### 6.1.1. *Coelichneumon sinister* (Wesmael, 1848)

**Material examined:** Qazvin province, Eastern Alamoot, 3♀♀, September 2011. New record for the Middle East.

**Distribution:** Austria, Belarus, Belgium, Croatia, Finland, France, Germany, Hungary, Italy, Korea, Netherlands, Norway, Poland, Romania, Russia, Spain, Sweden, Switzerland, Tunisia, United Kingdom (Yu *et al.*, 2016) and , Ukraine (Varga, 2024).

**Host records:** Summarized by Yu *et al.* (2016) as being a parasitoid of some lepidopteran species, *Atolmis rubricollis* (Linnaeus) (Erebidae), *Cerapteryx graminis* (Linnaeus), *Polia hepatica* (Clerck) (Noctuidae), *Deilephila elpenor* (Linnaeus), *Laothoe populi* (Linnaeus), *Smerinthus ocellatus* (Linnaeus), *Sphinx ligustri* Linnaeus, *Sphinx pinastri* Linnaeus (Sphingidae).

## 6.2. Genus *Tricholabus* Thomson, 1894

### 6.2.1. *Tricholabus strigatorius* (Gravenhorst, 1829)

**Material examined:** Semnan province, Shahrood, Jangal-e Abr, 2♂♂, June 2011. New record for the Middle East.

**Distribution:** Austria, Belarus, Belgium, Bulgaria, China, Croatia, Czech Republic, Denmark, Finland, France, Germany, Hungary, Ireland, Italy, Japan, Kazakhstan, Korea, Latvia, Lithuania, Netherlands, Norway, Poland, Romania, Russia, Spain, Switzerland, Sweden and, United Kingdom (Yu *et al.*, 2016).

**Host records:** *Callistege mi* (Clerck) (Lepidoptera: Erebidae) and *Heliothis virescens* (Hufnagel) (Lepidoptera: Noctuidae) (Yu *et al.*, 2016).

## 7. Subfamily Metopiinae Förster, 1869

### 7.1. Genus *Exochus* Gravenhorst, 1829

#### 7.1.1. *Exochus flavomarginatus* Holmgren, 1856

**Material examined:** Isfahan province, Najaf-Abad, Lavark Research Farm, 1♂, 2♀♀, May 2001.

**Distribution:** Austria, Azerbaijan, Belgium, Bulgaria, Czech Republic, Finland, France, Georgia, Germany, Greece, Hungary, Ireland, Italy, Japan, Lithuania, Moldova, Mongolia, Netherlands, Norway, Poland, Romania, Russia, Spain, Sweden, Turkey, Ukraine, United Kingdom (Yu *et al.*, 2016), Slovakia (Holý and Zeman, 2018), South Korea (Choi *et al.*, 2016) and , Switzerland (Klopfstein *et al.*, 2019).

**Host records:** *Eudonia truncicolella* (Stainton) (Lepidoptera: Crambidae) (Yu *et al.*, 2016).

## 8. Subfamily Orthocentrinae Förster, 1869

### 8.1. Genus *Plectiscidea* Viereck, 1914

#### 8.1.1. *Plectiscidea helvola* (Förster, 1871)

**Material examined:** Guilan province, Talesh, Subatan, 1♀, July 2012. New record for the Middle East.

**Distribution:** Austria, Azerbaijan, Georgia, Germany, Lithuania, Montenegro, Netherlands, Poland, Romania, Russia and, Serbia (Yu *et al.*, 2016).

**Host records:** Unknown.

### 8.2. Genus *Proclitus* Förster, 1869

#### 8.2.1. *Proclitus attentus* Förster, 1871

**Material examined:** Alborz province, Taleghan, Naryan, 2♂♂, 1♀, June 2016. New record for the Middle East.

**Distribution:** Austria, Bulgaria, Finland, France, Germany, Hungary, Kazakhstan, Lithuania, Montenegro, Netherlands, Norway, Poland, Romania, Russia, Sweden, Ukraine, United Kingdom (Yu *et al.*, 2016) and , Switzerland (Klopfstein *et al.*, 2019).

**Host records:** *Allodia* sp., *Exechia fusca* (Meigen), *Mycetophila fungorum* (De Geer) (Diptera: Mycetophilidae) (Yu *et al.*, 2016).

## 9. Subfamily Tryphoninae Shuckard, 1840

### 9.1. Genus *Ctenochira* Förster, 1869

#### 9.1.1. *Ctenochira genalis* (Thomson, 1883)

**Material examined:** Mazandaran province, Mahmood-Abd, Roodposht, 2♂♂, June 2016. New record for the Middle East.

**Distribution:** Austria, Belarus, Bulgaria, Czech Republic, Finland, France, Germany,

Ireland, Latvia, Norway, Poland, Romania, Russia, Spain, Sweden, Ukraine, United Kingdom (Yu *et al.*, 2016), Georgia (Riedel *et al.*, 2023), Italy (Di Giovanni and Reshchikov, 2016), Netherland (Verheyde *et al.*, 2021) and, Switzerland (Klopfstein *et al.*, 2019).

**Host records:** Unknown.

**9.1.2. *Ctenochira rufipes* (Gravenhorst, 1829)**

**Material examined:** Guilan province, Astara, Asgar-Abad, 2♀♀, August 2015. New record for the Middle East.

**Distribution:** Austria, Belgium, Czech Republic, Finland, France, Germany, Latvia, Mongolia, Netherlands, Norway, Poland, Russia, Spain, Sweden, Switzerland and, United Kingdom (Yu *et al.*, 2016).

**Host records:** *Nematus melanocephalus* (Hartig) and *Pachynematus scutellatus* (Hartig) (Hymenoptera: Tenthredinidae) (Yu *et al.*, 2016).

**Acknowledgments**

This research was supported by Islamic Azad University (Iran), University of Plovdiv (Bulgaria), and University of Siena (Italy). We would like to thank two anonymous reviewers for their constructive suggestions.

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