

Study of the subfamilies Cryptinae and Ichneumoninae (Hymenoptera: Ichneumonidae) from Mazandaran province, with record of five species new to Iran

*H. Hooshyar*¹, *R. Vafaei-Shoushtari*^{1*}, *A. Mohammadi-Khoramabadi*², *Sh. Goldasteh*¹,
*E. Sanatgar*¹, *R. Jussila*³

1- Islamic Azad University, Arak branch, Agricultural Faculty, Entomology Department, P.O. Box 38135/567, Arak, Iran

2- Department of Plant Production, College of Agriculture and Natural Resources of Darab, Shiraz University, Darab, Iran

3- Zoological Museum, Section of Biodiversity and Environmental Sciences, Department of Biology, FI-20014 University of Turku, Finland

Abstract

The fauna the subfamilies Ichneumoninae and Cryptinae (Hymenoptera: Ichneumonidae) was studied in Mazandaran province, north of Iran during 2016. Sampling was done using 8 Malaise traps which were installed in three altitude layers. Totally, 126 and 64 specimens were collected from the subfamilies Cryptinae and Ichneumoninae, respectively representing 25 species into 20 genera. Of them four genera and five species are recorded for the first time from Iran as following: *Acrolyta Förster*, 1869, *Ceratophygadeuon Viereck*, 1924, *Eudelus Förster*, 1869 and *Mevesia Holmgren*, 1890, *Ceratophygadeuon varicornis* (Thomson, 1884), *Chirotica maculipennis* (Gravenhorst, 1829), *Eudelus gumperdensis* (Schmiedeknecht, 1893), *Mevesia arguta* (Wesmael, 1845) and *Virgichneumon albilineatus* (Gravenhorst, 1829). Also a checklist of subfamilies Ichneumoninae and Cryptinae in Iran is provided. With new data of current research, the number of identified species of the subfamily Cryptinae of Iran and of the Hyrcanian forests biome increased to 128 and 39 species and for Ichneumoninae increased to 191 and 115, respectively.

Keywords: Ichneumonidae, new records, Hyrcanian forests

* Corresponding Author, E-mail: r-vafaei@iau.arak.ac.ir

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Introduction

Cryptinae and Ichneumoninae are the two most speciose subfamilies of hymenopterous parasitic wasps of the family Ichneumonidae. Cryptinae is the largest subfamily of Ichneumonidae comprising more than 395 identified genera and more than 4500 species (Quick, 2015). Cryptines show a variety of biological strategies in their parasitic life. Most species of Cryptinae are idiobiont ectoparasitoids on pupae or prepupae of holometabolous insects including Diptera, Lepidoptera, Coleoptera, Neuroptera, Trichoptera and Hymenoptera but some genera are koinobiont or endoparasitoid and a few prey egg sacs of spiders (Townes, 1970).

The subfamily Ichneumoninae is the second largest subfamily of Ichneumonidae with 394 valid genera and almost 4300 known species. Ichneumoninae members are special endoparasitoids of larvae, prepupae or pupae of Lepidoptera but always emerge from their pupa (Heinrich, G.H. 1961).

Study of the fauna of the subfamilies Cryptinae and Ichneumoninae have been received more attention in recent decade. Up to now, there have been reported 125 and 174 species of the subfamilies Cryptinae and Ichneumoninae from Iran, respectively (Barahoei *et al.* 2012; 2015; Ghahari and Jussila, 2016a,b; Mahyabadi *et al.*, 2016; Mohebban *et al.*, 2016; Mohammadi-Shirzadegan *et al.*, 2017; 2018; Khoramabadi *et al.*, 2018; Kolarov and Ghahari, 2008; Ghahari and Jussila, 2010; Firuzi Jahantighi *et al.*, 2011; Ghahari and Jussila, 2011; Barahoei *et al.*, 2012; Hooshyar *et al.*, 2012; Ghahari and Jussila, 2014; Barahoei *et al.*, 2015; Ghahari and Gadallah, 2015; Mohebban *et al.*, 2016; Ghahari and Jussila, 2016a; 2016b; Ghahari, 2016; Shirzadegan *et al.*, 2017; 2018; Mohammadi-Khoramabadi *et al.*, 2018; Mohebban *et al.*, 2018).

The Hyrcanian forests extended along the southern shores of the Caspian Sea from the Talish region in Ardebil province to Guilan, Mazandaran and Golestan provinces, Iran (Fig. 1) (Akhani *et al.*, 2010). This ecosystem in this region are amongst the most important and incomparable temperate deciduous broadleaved forests in the world (Haghdoust *et al.*, 2011). This forest zone is limited to the Caspian Sea shores northwards and to the Alborz Mountain southwards. An ongoing project on the species diversity of the parasitoid wasps of the family Ichneumonidae has been started from 2011 in the Hyrcanian forests. In this study we present new data on the two subfamilies Ichneumoninae and Cryptinae in Mazandaran province, northern Iran.

Material and Methods

Study area: The study was carried out in Amol county (N 52° 21' 23" E 36° 29' 36" to N 52° 21' 16" E 36° 26' 13") Mazandaran province, north of Iran (Fig. 1) from May to November 2016. Sampling was done using eight Malaise traps. These traps were set in four localities including Noabad, Kelerd, Shahandasht and Niak. Geographical characteristics of the studied localities and their vegetation type are shown in Table 1.

The captured specimens in each trap were extracted and separated by an interval of two weeks. They were then dried, pinned or card mounted. Identification was done by Dr. R. Jussila, University of Turku, Finland.

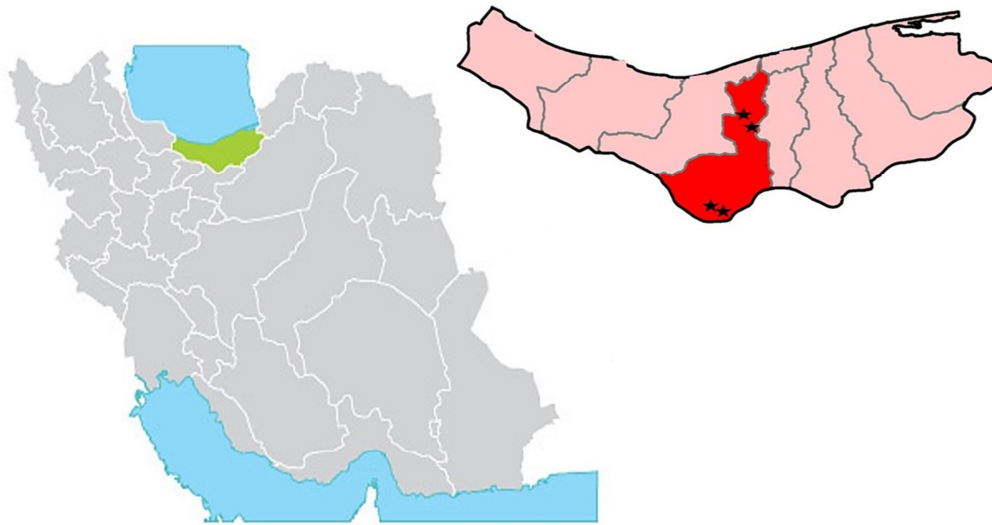


Fig. 1- Position of Amol county in Mazandaran province, Northern Iran, sampling localities are shown by star.

شکل ۱- موقعیت شهرستان آمل در استان مازندران، شمال ایران. محل‌های نمونه‌برداری با ستاره مشخص شدند.

Table 1- Geographical characteristics of the studied localities in Mazandaran province, Iran, 2016.

جدول ۱- ویژگی‌های جغرافیایی محل‌های مورد مطالعه در استان مازندران، ایران، ۱۳۹۵-۱۳۹۶.

Malaise traps	Altitude	Latitude (m)	vegetation
Noabad	N 40° 30' 96" E 62° 70' 74"	119	Citrus garden
Kelerd 1	N 40° 14' 67" E 62° 28' 96"	408	Forest
Kelerd 2	N 40° 14' 67" E 62° 28' 36"	438	Forest
Shahandasht 1	N 39° 75' 00" E 61° 35' 46"	1530	Fruit garden
Shahandasht 3	N 39° 75' 04" E 61° 35' 81"	1545	Fruit garden
Shahandasht 2	N 39° 75' 02" E 61° 35' 79"	1537	Fruit garden
Niak 1	N 39° 71' 27" E 60° 72' 11"	1710	Lawn
Niak 2	N 39° 71' 26" E 60° 72' 32"	1715	Lawn

Results

A total of 188 specimens of Cryptinae and Ichneumoninae were collected which of them 58 specimens have been yet identified representing 25 species into 20 genera. As a result four new genera and five new species are recorded for the first time from Iran which are marked with an asterisk (*). Also eight new genera and seven new species are new for Mazandaran province.

Ichneumoninae

Tribe Ichneumonini

Barichneumon plagiarius (Weamael, 1848)

Material examined: Mazandaran province, Amol, Niak (N 39° 71' 27" E 60° 72' 11"), 1♂ 22.VII.2016; leg. H. Hooshyar.

Distribution within Iran: Qazvin (Ghahari and Schwarz, 2012), The genus is new for Mazandaran province.

General distribution: Holarctic, Belarus, Belgium, Bulgaria, Finland, France, Germany, Hungary, Poland, Portugal, Romania, Serbia, Montenegro, Spain, Turkey, United Kingdom (Yu *et al.*, 2012).

Barichneumon sp. 1

Material examined: Mazandaran province, Amol, Niak (N 39° 71' 26" E 60° 72' 32"), 1♂ 24.VI.2016, leg. H. Hooshyar.

Barichneumon sp. 2

Material examined: Mazandaran province, Amol, Kelerd (N 40° 14' 67" E 62° 28' 36"), 1♂ 10.VI.2016, leg. H. Hooshyar.

Ichneumon sarcitorius Linnaeus, 1758

Material examined: Mazandaran province, Amol, Noabad (N 40° 30' 96" E 62° 70' 74"), 1♂ 31.VII.2016, leg. H. Hooshyar.

Distribution in Iran: Golestan (Mojeni and Sedivy, 2001), Azerbaijan-e-Sharghi (Masnadi and Jussila, 2008), Semnan, Guilan, Mazandaran, Golestan (Kolarov and Ghahari, 2005, 2008), Kerman (Mohebban *et al.*, 2018).

General distribution: This species is present in most of Europe, in the Near East, in the Oriental ecozone and in North Africa (Selfa, 1996; Yu *et al.*, 2012).

Ichneumon sp.

Material examined: Mazandaran province, Amol, Shahandasht (N 39° 75' 02" E 61° 35' 79"), 1♂ 08.VII.2016, leg. H. Hooshyar.

Stenobarichneumon citator (Thunberg, 1824)

Material examined: Mazandaran province, Amol, Kelerd (N 40° 14' 67" E 62° 28' 96"), 1♀ 28.VI.2016, leg. Hengameh Hooshyar.

Distribution in Iran: Mazandaran, Golestan, Yazd, Khuzestan (Kolarov and Ghahari, 2008).

General distribution: Bulgaria, Czechoslovakia, Finland, France, Germany, Lithuania, Netherlands, Norway, Norway-main, Poland, Romania, Spain, Sweden, United Kingdom (Yu *et al.*, 2012).

Virgichneumon albilineatus (Gravenhorst, 1829)

Material examined: Mazandaran province, Amol, Kelerd (N 40° 14' 67" E 62° 28' 36"), 1♂ 02.VI.2016, 1♂ 04.VI.2016, Noabad (N 40° 30' 96" E 62° 70' 74"), 1♂ 24.VI.2016, 1♂ 06.VI.2016, Niak (N 39° 71' 26" E 60° 72' 32"), 1♂ 24.VI.2016, leg. H. Hooshyar.

Distribution in Iran: The species is recorded for the first from Iran.

General distribution: Austria, Belarus, Belgium, Bulgaria, China, Croatia, Czechoslovakia, Finland, France, Germany, Hungary, Italy, Japan, Korea, Latvia, Netherlands, Norway, Poland, Romania, Russia, Spain, Sweden, Turkey, United Kingdom (Yu et al., 2012).

Tribe Phaeogenini

Herpestomus arridens (Gravenhorst, 1829)

Material examined: Mazandaran province, Amol, Shahandasht (N 39° 75' 02" E 61° 35' 79"), 1♂ 10.VI.2016, leg. Hengameh Hooshyar.

Distribution in Iran: West Azerbaijan (Kolarov and Ghahari, 2008) and Mazandaran province (current study).

General distribution: Algeria, Austria, Azerbaijan, Belgium, Bulgaria, Czechoslovakia, Denmark, Finland, France, Georgia, Germany, Greece, Greece-main, Hungary, Ireland, Israel, Italy, Latvia, Netherlands, Norway, Poland, Portugal, Romania, Russia, Spain, Sweden, Switzerland, Ukraine, United Kingdom (Yu et al., 2012).

Herpestomus sp.

Material examined: Mazandaran province, Amol, Shahandasht (N 39° 75' 02" E 61° 35' 79"), 1♂ 10.VI.2016, leg. H. Hooshyar.

Mevesia arguta (Wesmael, 1845)*

Material examined: Mazandaran province, Amol, Kelerd (N 40° 14' 67" E 62° 28' 96"), 1♀ 10.VI.2016, Kelerd (N 40° 14' 67" E 62° 28' 36"), 1♀ 02.VI.2016, leg. Hengameh Hooshyar.

Distribution in Iran: Mazandaran province (Current study). The genus and species are new for Iran.

General distribution: Europe, Western Palaearctic (Yu et al., 2012).

Tribe Platylabini

Apaeleticus inimicus (Gravenhorst, 1820)

Material examined: Mazandaran province, Amol, Shahandasht (N 39° 75' 00" E 61° 35' 46"), 1♀ 10.VI.2016, 1♀ 28.VI.2016, Shahandasht (N 39° 75' 02" E 61° 35' 79"), 1♀ 10.VI.2016, leg. Hengameh Hooshyar.

Distribution in Iran: Alborz, Guilan (Shirzadegan *et al.*, 2017) and Mazandaran province (current study).

General distribution: Algeria, Austria, Azerbaijan, Belgium, Bulgaria, Czechoslovakia, Denmark, Finland, France, Georgia, Germany, Greece, Hungary, Ireland, Israel, Italy, Latvia, Netherlands, Norway, Poland, Portugal, Romania, Russia, Spain, Sweden, Switzerland, Ukraine, United Kingdom (Yu et al., 2012).

Cryptinae

Tribe Cryptini

Mesostenus grammicus Gravenhorst, 1829

Material examined: Mazandaran province, Amol, Niak (N 39° 71' 26" E 60° 72' 32"), 1♀ 08.IX.2016, leg. Hengameh Hooshyar.

Distribution in Iran: Fars (Barahoei *et al.* 2012), Kerman (Mahyabadi *et al.* 2016a,b) and Mazandaran province (current study).

General distribution: Eastern Palaearctic, Europe, Nearctic, Neotropical, Oceanic, Oriental, Western Palaearctic (Yu et al., 2012).

Cryptus armator Fabricius, 1804

Material examined: Mazandaran province, Amol, Kelerd (N 40° 14' 67" E 62° 28' 36"), 2♀♀ 02.VI.2016, leg. Hengameh Hooshyar.

Distribution in Iran: Kerman (Mahyabadi *et al.* 2016b), and Mazandaran province (current study).

General distribution: Finland.

Trychosis atripes (Gravenhorst, 1829)

Material examined: Mazandaran province, Amol, Niak (N 39° 71' 27" E 60° 72' 11"), 1♀ 22.VII.2016, leg. Hengameh Hooshyar.

Distribution in Iran: West Azerbaijan (Barahoei *et al.* 2012), and Mazandaran province (current study).

General distribution: Austria, France, Germany, Hungary, Romania, Spain (Yu *et al.*, 2012).

Trychosis tristator (Thomson, 1873)

Material examined: Mazandaran province, Amol, Niak (N 39° 71' 27" E 60° 72' 11"), 1♀ 12.IX.2016, 1♀ 26.V.2016, Niak (N 39° 71' 26" E 60° 72' 32"), 1♀ 05.VIII.2016, Kelerd (N 40° 14' 67" E 62° 28' 96"), 1♀ 10.VI.2016, leg. Hengameh Hooshyar.

Distribution in Iran: West Azerbaijan (Barahoei *et al.* 2012), and Mazandaran province (current study).

General distribution: Austria, Azerbaijan, Belarus, Belgium, Bulgaria, Croatia, Czechoslovakia, Denmark, Finland, France, Germany, Greece, Hungary, Lithuania, Moldova, Netherlands, Norway, Poland, Romania, Spain, Sweden, Switzerland, Turkey, United Kingdom (Yu *et al.*, 2012).

Agrothereutes sp.

Material examined: Mazandaran province, Amol, Kelerd (N 40° 14' 67" E 62° 28' 36"), 2♂♂ 02.VI.2016, Niak (N 39° 71' 26" E 60° 72' 32"); 1♂ 08.VII.2016, Shahandasht (N 39° 75' 00" E 61° 35' 46"), 1♂ 10.VI.2016, Noabad (N 40° 30' 96" E 62° 70' 74"), 1♂ 16.V.2016, leg. Hengameh Hooshyar.

Distribution in Iran: Semnan, West Azerbaijan, East Azerbaijan (Barahoei *et al.* 2012). The genus is new for Mazandaran province.

Tribe Phygadeuontini

Endasys sp.

Material examined: Mazandaran province, Amol, Shahandasht (N 39° 75' 04" E 61° 35' 81"), 1♂ 10.VI.2016, leg. Hengameh Hooshyar.

Distribution in Iran: Hamadan (Barahoei *et al.* 2012). The genus is new for Mazandaran province.

Dichrogaster aestivalis (Gravenhorst, 1829)

Material examined: Mazandaran, Amol, Shahandasht (N 39° 75' 00" E 61° 35' 46"), 1♂ + 2♀♀ 28.X.2016, leg. Hengameh Hooshyar.

Distribution in Iran: Khorasan-e Razavi, East Azerbaijan (Barahoei *et al.* 2012; Ghahari and Jussila, 2010), and Mazandaran province (current study).

General distribution: Austria, Azerbaijan, Belgium, Bulgaria, Czech Republic, Czechoslovakia, Egypt, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Moldova, Netherlands, Norway, Poland, Romania, Russia, Spain, Sweden, Turkey, Ukraine, United Kingdom (Yu et al., 2012).

Gelis sp.

Material examined: Mazandaran province, Amol, Niak (N 39° 71' 27" E 60° 72' 11"), 6 ♂♂ 10.VI.2016, 08.VII.2016, 19.VIII.2016, 08.IX.2016; Shahandasht (N 39° 75' 00" E 61° 35' 46"), 1 ♂, 28.X.2016; Kelerd (N 40° 14' 67" E 62° 28' 36"), 2 ♂♂ 10.X.2016, leg. Hengameh Hooshyar.

Distribution in Iran: Golestan (Ghahari and Jussila, 2010), Qazvin (Barahoei *et al.* 2012; Ghahari and Schwarz, 2012), East Azerbaijan, Sistan-o Baluchistan, Kerman, Ardabil, Golestan (Barahoei *et al.* 2012), Kerman (Barahoei *et al.* 2012; Mahyabadi *et al.* 2016a,b), Khorasan-e Razavi (Ghahari *et al.*, 2014), Isfahan (Barahoei *et al.* 2015), Lorestan (Ghahari and Gadallah, 2015). The genus is new for Mazandaran province.

Chirotica maculipennis (Gravenhorst, 1829)*

Material examined: Mazandaran province, Amol, Kelerd (N 40° 14' 67" E 62° 28' 96"), 1 ♂ 24.VI.2016, leg. Hengameh Hooshyar.

Distribution in Iran: Mazandaran province (current study).

General distribution: Austria, Bulgaria, Czech Republic, Czechoslovakia, Finland, France, Germany, Hungary, Italy, Latvia, Libya, Moldova, Norway, Poland, Portugal, Russia, Spain, Sweden, Switzerland, United Kingdom (Yu et al., 2012),.

Acrolyta sp.*

Material examined: Mazandaran province, Amol, Niak (N 39° 71' 26" E 60° 72' 32"), 1 ♀ 10.VI.2016, leg. H. Hooshyar.

Distribution in Iran: The genus is new for Iran.

Lysibia nana (Gravenhorst, 1829)

Material examined: Mazandaran province, Amol, Niak (N 39° 71' 27" E 60° 72' 11"), 1 ♀ 22.VII.2016, leg. H. Hooshyar.

Distribution in Iran: Mazandaran (Barahoei *et al.* 2012), Isfahan (Barahoei *et al.* 2015), Kerman (Mohebban *et al.* 2015, 2016; Mahyabadi *et al.* 2016a,b), Golestan, Qazvin (Ghahari and Jussila, 2015; Ghahari and Schwarz, 2012).

General distribution: Afghanistan, Austria, Azerbaijan, Belarus, Belgium, Bulgaria, Canary Islands, China, Czech Republic, Denmark, Finland, France, Georgia, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Moldova, Morocco, Netherlands, New Zealand, Norway, Pakistan, Poland, Romania, Portugal, Russia, Slovenia, Spain, Sweden, Switzerland, Turkey, U.S.A., Ukraine, United Kingdom, Yugoslavia.

Eudelus gumperdensis (Schmiedeknecht, 1893)*

Material examined: Mazandaran province, Amol, Shahandasht (N 39° 75' 04" E 61° 35' 81"), 1 ♂ 10.VI.2016, leg. Hengameh Hooshyar.

Distribution in Iran: The genus and species are new for Iran.

General distribution: Bulgaria; Germany (Yu et al., 2012)

Ceratophygadeuon varicornis (Thomson, 1884)*

Material examined: Mazandaran province, Amol, Kelerd (N 40° 14' 67" E 62° 28' 96"), 1♂ 22.VII.2016, leg. Hengameh Hooshyar.

Distribution in Iran: Mazandaran province (current study).

General distribution: Austria, Bulgaria, France, Germany, Italy, Poland, Romania, Russia, Ukraine, United Kingdom (Yu *et al.*, 2012).

Phygadeuon sp.

Material examined: Mazandaran province, Amol, Shahandasht (N 39° 75' 00" E 61° 35' 46"), 1♀ 22.VII.2016, 1♀ 27.V.2016, Kelerd (N 40° 14' 67" E 62° 28' 36"), 1♀ + 2♂♂ 10.X.2016, Shahandasht (N 39° 75' 00" E 61° 35' 46"), 1♂ 08.VII.2016, Niak (N 39° 71' 26" E 60° 72' 32"), 1♂ 10.VI.2016, Shahandasht (N 39° 75' 04" E 61° 35' 81"), 1♀ 24.VI.2016, 1♀ 28.X.2016, leg. Hengameh Hooshyar.

Distribution in Iran: East Azerbaijan, Tehran, Fars (Barahoei *et al.* 2012), Kerman (Mahyabadi *et al.* 2016b).

Discussion:

Four genera and five species were found newly for the Iranian fauna of Ichneumonidae. The number of identified species of the subfamily Cryptinae of Iran and of the Hyrcanian forests biome increased to 128 and 39 species and for Ichneumoninae increased to 191 and 115, respectively (Table 2). Eight genera and seven species are added to the ichneumon fauna of Mazandaran province. Previous to this study, 14 species and 10 genera of Cryptinae were recorded from Mazandaran province (Table 2). By adding the new taxa of present study, these numbers increase to 24 species and 18 genera. In Mazandaran province, 36 species and 17 genera of Ichneumoninae have been reported up to now (Table 2). With the new contributions given in the present study, these numbers increase to 45 species and 22 genera (Table 2). More sampling will reveal a more complete picture of the species richness of the family Ichneumonidae in the Hyrcanian forests.

Among the studied localities, the minimum number of captured specimens was occurred in the Malaise trap installed in Noabad as only 4 specimens were obtained from Noabad locality. This few number could be a result of pesticide spraying in Citrus orchard that has a lethal effect on natural enemies including Ichneumonidae family.

The altitudinal distribution of identified specimens was significant. We can divide sampling sites into two faction according to altitude: 1- regions in high altitude (more than 1500 m) and 2- regions in low altitude (less than 500). Species of Ichneumoninae which were found in high altitudes include *Barichneumon plagiarius*, *Barichneumon* sp. 1, *Ichneumon* sp., *Herpestomus arridens*, *Herpestomus* sp. and *Apaeleticus inimicus*. In low altitudes *Ichneumon sarcitorius*, *Barichneumon* sp. 2, *Stenobarichneumon citator* and *Mevesia arguta* were collected. Also *Virgichneumon albilineatus* occurred in both high and low altitudes. Çoruh *et al.* (2014) had a survey on Ichneumonidae fauna of Turkey and provided some information on their altitudinal distribution. They made this arrangement for altitude: low altitude (0-1250 m) and high altitude (1250-2500 m). Two species *B. plagiarius* and *A. inimicus* were found in high altitude, as we did it. They collected *I. sarcitorius* in both high and low altitudes, but we found it just in low altitude. Also they collected *V. albilineatus* in high altitude, but we found it in both high and low altitudes.

Amongst Cryptinae species *Mesostenus grammicus*, *Trychosis atripes*, *Acrolyta* sp., *Lysibia nana*, *Endasys* sp., *Dichrogaster aestivalis* and *Eudelus gumperdensis* were collected in high altitudes and *Cryptus armatus*, *Chirotica maculipennis* and *Ceratophygadeuon varicornis* were found in low altitudes. Some species like *Trychosis tristator*, *Agrothereutes* sp., *Gelis* sp. and *Phygadeuon* sp. were collected in low and high altitudes. The species *L. nana* occurs in high altitude in Turkey as well as in our investigation region. We collected *T. tristator* and *Agrothereutes* sp. in both high and low altitude, but in Turkey, *T. tristator* was found in low altitude and *Agrothereutes* spp. were found in high altitude (Çoruh *et al.*, 2014).

Vegetation of low altitude regions include citrus garden and Hyrcanian forests. *Virgichneumon albilineatus* (Ichneumoninae), *Ichneumon sarcitorius* (Ichneumoninae) and *Agrothereutes* sp. (Cryptinae) were collected from citrus garden. According to Sullivan *et al.* (2010) *V. albilineatus* is a parasitoid of overwintering *Hyphantria cunea* (Drury) (Lepidoptera: Arctiidae) pupae in hazelnut plantations of the central Black Sea region of Turkey. In current survey it is found in Citrus garden. So it might be a parasitoid of some of Citrus pest. *Agrothereutes* spp. were reported as parasitoids of Lepidoptera and Hymenoptera species (Quicke and Sahw, 2004). We found this genus from forest regions, Citrus garden, fruit garden and lawns. It shows that this genus occurs in various habitats. *Barichneumon* sp. 2, *Virgichneumon albilineatus*, *Stenobarichneumon citator*, *Mevesia arguta* (Ichneumoninae), *Cryptus armatus*, *Trychosis tristator*, *Agrothereutes* sp., *Gelis* sp., *Chirotica maculipennis* and *Ceratophygadeuon varicornis* and *Phygadeuon* sp. (Cryptinae) were found in forests. Vegetation of high altitude regions includes grass, walnut, plum, cherry, pear, apple and, grape trees.

جدول ۲- فهرست گونه‌های زیرخانواده‌های Ichneumoninae و Cryptinae در ایران، جنگل‌های هیرکانی و استان مازندران.

Table 2. Checklist of the subfamilies Cryptinae and Ichneumoninae species in Iran, the Hyrcanian forests and Mazandaran province

Species name	Iran	The Hyrcanian forests	Mazandaran province	Reference
Subfamily Cryptinae				
<i>Acroricnus (seductor) elegans</i> (Mocsáry, 1883)	Golestan, Guilan, Mazandaran, West Azerbaijan	*	*	Barahoei <i>et al.</i> (2012)
<i>Acroricnus stylator</i> (Thunberg, 1822)	Lorestan, Mazandaran	*	*	Ghahari and Gadallah (2015); Barahoei <i>et al.</i> (2012)
<i>Acrolyta</i> sp.	Mazandaran	*	*	Current study
<i>Agrothereutes abbreviatus</i> (Fabricius, 1794)	Semnan			Barahoei <i>et al.</i> (2012)
<i>Agrothereutes adustus</i> (Gravenhorst, 1829)	West Azerbaijan			Barahoei <i>et al.</i> (2012)
<i>Agrothereutes fumipennis</i> (Gravenhorst, 1829)	East Azerbaijan			Barahoei <i>et al.</i> (2012)
<i>Agrothereutes hospes</i> (Tschek, 1871)	Semnan			Barahoei <i>et al.</i> (2012)

<i>Agrothereutes parvulus</i> (Habermehl, 1926)	West Azerbaijan			Barahoei <i>et al.</i> (2012)
<i>Aritranis claviventris</i> (Kriechbaumer, 1894)	West Azerbaijan			Barahoei <i>et al.</i> (2012)
<i>Aritranis director</i> (Thunberg, 1824)	West Azerbaijan			Barahoei <i>et al.</i> (2012)
<i>Aritranis nigrifemur</i> (Szepligeti, 1916)	West Azerbaijan			Barahoei <i>et al.</i> (2012)
<i>Aritranis occisor</i> (Gravenhorst, 1829)	West Azerbaijan			Barahoei <i>et al.</i> (2012)
<i>Buathra laborator</i> (Thunberg, 1824)	Ardabil, Mazandaran, Tehran	*	*	Barahoei <i>et al.</i> (2012); Ghahari (2016)
<i>Buathra tarsoleucos</i> (Schrank, 1781)	Lorestan, Tehran			Ghahari and Gadallah (2015); Barahoei <i>et al.</i> (2012)
<i>Cryptus armator</i> Fabricius, 1804	Kerman, Mazandaran	*	*	Mohebban <i>et al.</i> (2016) Current study
<i>Cryptus diana</i> Gravenhorst, 1829	West Azerbaijan			Barahoei <i>et al.</i> (2012)
<i>Cryptus inculcator</i> (Linnaeus, 1758)	Kerman, Alborz, Sistan-o Baluchistan, Yazd, Fars, Isfahan, Khorasan-e Razavi			Mohebban <i>et al.</i> (2015, 2016); Mahyabadai <i>et al.</i> (2016a,b); Barahoei <i>et al.</i> (2012, 2013, 2014, 2015); Sarafi <i>et al.</i> (2015);
<i>Cryptus inquisitor</i> Tschek, 1871	West Azerbaijan			Barahoei <i>et al.</i> (2012)
<i>Cryptus macellus</i> Tschek, 1871	Semnan			Barahoei <i>et al.</i> (2012)
<i>Cryptus medius</i> Szépligeti, 1916	Fars			Barahoei <i>et al.</i> (2012)
<i>Cryptus nigropictus</i> Cameron, 1905	Mazandaran	*	*	Barahoei <i>et al.</i> (2012)
<i>Cryptus spinosus</i> Gravenhorst, 1829	Fars, Yazd, Khorasan-e Razavi			Barahoei <i>et al.</i> (2012); Ghahari <i>et al.</i> (2014)
<i>Cryptus spiralis</i> (Geoffroy, 1785)	Semnan			Barahoei <i>et al.</i> (2012)
<i>Cryptus subspinosus</i> Smits van Burgst, 1913	West Azerbaijan			Barahoei <i>et al.</i> (2012)
<i>Cryptus triguttatus</i> Gravenhorst, 1829	East Azerbaijan, West Azerbaijan			Barahoei <i>et al.</i> (2012)

<i>Cryptus tuberculatus</i> Gravenhorst, 1829	Fars			Barahoei <i>et al.</i> (2012)
<i>Cryptus viduatorius</i> Fabricious, 1804	Guilan, West Azerbaijan, Yazd, Khorasan-e- Razavi, Lorestan			Barahoei <i>et al.</i> (2012, 2014); Ghahari and Gadallah (2015)
<i>Gambrus carnifex</i> (Gravenhorst, 1829)	Golestan	*		Barahoei <i>et al.</i> (2012)
<i>Gambrus incubitor</i> (Linnaeus, 1758)	Golestan, Lorestan Tehran	*		Barahoei <i>et al.</i> (2012); Ghahari and Gadallah (2015) Ghahari (2016)
<i>Gambrus ornatus</i> (Gravenhorst, 1829)	Lorestan			Ghahari and Gadallah (2015)
<i>Goryphus</i> sp.	Kerman			Mahyabadai <i>et al.</i> (2016a)
<i>Hidryta sordida</i> (Tschek, 1871)	West Azerbaijan			Barahoei <i>et al.</i> (2012)
<i>Hoplocryptus bellosus</i> (Curtis, 1837)	Fars			Barahoei <i>et al.</i> (2012)
<i>Hoplocryptus bohemani</i> (Holmgren, 1856)	Lorestan			Ghahari and Gadallah (2015)
<i>Hoplocryptus confector</i> (Gravenhorst, 1829)	West Azerbaijan			Barahoei <i>et al.</i> (2012)
<i>Hoplocryptus coxator</i> (Tschek, 1871)	Not exactly defined			Barahoei <i>et al.</i> (2012)
<i>Hoplocryptus femoralis</i> (Gravenhorst, 1829)	Not exactly defined			Barahoei <i>et al.</i> (2012)
<i>Hoplocryptus heliophilus</i> (Tschek, 1871)	Kerman, Sistan- o-Baluchistan			Mahyabadai <i>et al.</i> (2016a,b), Barahoei <i>et al.</i> (2012, 2013)
<i>Hoplocryptus murarius</i> (Borner, 1782)	West Azerbaijan			Barahoei <i>et al.</i> (2012)
<i>Idiolispa analis</i> (Gravenhorst, 1807)	West Azerbaijan Golestan	*		Barahoei <i>et al.</i> (2012) Ghahari and Jussila (2016)
<i>Ischnus agitator</i> (Olivier, 1792)	East Azerbaijan, Mazandaran	*	*	Barahoei <i>et al.</i> (2012)
<i>Ischnus alternator</i> (Gravenhorst, 1829)	Mazandaran	*	*	Barahoei <i>et al.</i> (2012)
<i>Ischnus inquisitorius</i> (Muller, 1776)	North Khorasan			Ghahari <i>et al.</i> (2014)
<i>Listrognathus furax</i> (Tschek, 1871)	Alborz			Barahoei <i>et al.</i> (2012)
<i>Listrognathus mactator</i> (Thunberg, 1822)	Alborz, Golestan	*		Barahoei <i>et al.</i> (2012)

<i>Listrognathus orientalis</i> Horstmann, 1989	Not exactly defined			Barahoei <i>et al.</i> (2012)
<i>Meringopus calescens</i> (Gravenhorst, 1829)	Fars, Mazandaran, Semnan, Tehran, Yazd, Lorestan	*	*	Barahoei <i>et al.</i> (2012); Ghahari and Gadallah (2015)
<i>Meringopus cyanator</i> (Gravenhorst, 1829)	East Azerbaijan			Barahoei <i>et al.</i> (2012)
<i>Meringopus naitor</i> Aubert, 1986	Fars, Yazd			Barahoei <i>et al.</i> (2012)
<i>Meringopus palmipes</i> (Kokujev, 1905)	East Azerbaijan, Tehran			Barahoei <i>et al.</i> (2012)
<i>Meringopus pseudonymus</i> (Tschek, 1872)	West Azerbaijan, Lorestan			Barahoei <i>et al.</i> (2012); Ghahari and Gadallah (2015)
<i>Meringopus sogdianus</i> (Maljavin, 1968)	Kerman			Barahoei <i>et al.</i> (2012)
<i>Meringopus titillator</i> (Linnaeus, 1758)	Fars, Alborz, Mazandaran, Tehran	*	*	Barahoei <i>et al.</i> (2012)
<i>Meringopus turanus</i> (Habermehl, 1918)	Ardabil, Guilan, East Azerbaijan	*		Barahoei <i>et al.</i> (2012)
<i>Mesostenus albinotatus</i> Gravenhorst, 1829	Kerman, Mazandaran	*	*	Mohebban <i>et al.</i> (2015, 2016) Mahyabadai <i>et al.</i> (2016a,b) Current study
<i>Mesostenus grammicus</i> Gravenhorst, 182	Fars, Kerman Golestan, Mazandaran	*	*	Mahyabadai <i>et al.</i> (2016a,b) Barahoei <i>et al.</i> (2012) Ghahar and Jussila (2016)
<i>Mesostenus transfuga</i> Gravenhorst, 1829	Fars, Guilan, Mazandaran, Isfahan, Kerman, Khorasan-e Razavi, Lorestan, Qazvin	*	*	Mahyabadai <i>et al.</i> (2016a,b), Barahoei <i>et al.</i> (2012, 2014, 2015); Ghahari and Gadallah (2015); Ghahari and Schwarz (2012)
<i>Myrmeleonostenus italicus</i> (Gravenhorst, 1829)	Fars			Barahoei <i>et al.</i> (2012)
<i>Pycnocyrtodes reticulator</i> Aubert, 1971	West Azerbaijan			Barahoei <i>et al.</i> (2012)
<i>Schreineria cingulipes</i> (Förster, 1888)	Khorasan-e Razavi			Barahoei <i>et al.</i> (2012)
<i>Schreineria populnea</i> (Giraud, 1872)	Hamadan			Barahoei <i>et al.</i> (2012)
<i>Sphecophaga vesparum</i> (Curtis, 1828)	Fars			Barahoei <i>et al.</i> (2012)

<i>Stenarella domator</i> (Poda, 1761)	Hamadan			Barahoei <i>et al.</i> (2012)
<i>Synechocryptus levaillantii</i> (Lucas, 1849)	Golestan, Yazd	*		Barahoei <i>et al.</i> (2012)
<i>Synechocryptus persicator</i> Aubert, 1986	Fars, Mazandaran	*	*	Barahoei <i>et al.</i> (2012)
<i>Synechocryptus sanguinolentus</i> (Gravenhorst, 1829)	Fars, Isfahan, Hormozgan, Khuzestan, Semnan			Barahoei <i>et al.</i> (2012)
<i>Trychosis atripes</i> (Gravenhorst, 1829)	West Azerbaijan, Mazandaran	*	*	Barahoei <i>et al.</i> (2012) Current study
<i>Trychosis ingrata</i> (Tschek, 1871)	Lorestan			Ghahari and Gadallah (2015)
<i>Trychosis neglecta</i> (Tschek, 1871)	Lorestan			Ghahari and Gadallah (2015)
<i>Trychosis legator</i> (Thunberg, 1824)	Fars, Kerman, Sistan-o Baluchistan, West Azerbaijan, Khorasan-e Razavi, Qazvin			Mahyabadai <i>et al.</i> (2016a) Barahoei <i>et al.</i> (2012, 2014); Ghahari and Schwarz (2012)
<i>Trychosis paupe</i> (Tschek, 1871)	Sistan-o Baluchistan, West Azerbaijan			Barahoei <i>et al.</i> (2012)
<i>Trychosis priesneri</i> Rossem, 1971	Khorasan-e-Razavi			Barahoei <i>et al.</i> (2015)
<i>Trychosis tristator</i> (Tschek, 1871)	West Azerbaijan, Mazandaran	*	*	Barahoei <i>et al.</i> (2012) Current study
<i>Xylophrurus nigricornis</i> (Thomson, 1885)	West Azerbaijan			Barahoei <i>et al.</i> (2012)
<i>Aclastus micator</i> (Gravenhorst, 1807)	North Khorasan			Barahoei <i>et al.</i> (2012)
<i>Aclastus solutus</i> (Thomson, 1884)	Golestan, Lorestan	*		Barahoei <i>et al.</i> (2012); Ghahari and Gadallah (2015)
<i>Atractodes</i> sp.	Sistan-o Baluchistan			Barahoei <i>et al.</i> (2012, 2013)
<i>Bathythrix maculata</i> (Hellén, 1957)	Kerman			Barahoei <i>et al.</i> (2012)
<i>Bathythrix pellucidator</i> (Gravenhorst, 1829)	Not exactly defined			Mahyabadai <i>et al.</i> (2016)
<i>Bathythrix thomasi</i> (Kerrich, 1942)	Lorestan			Ghahari and Gadallah (2015)
<i>Blapsidotes vicinus</i> (Gravenhorst, 1829)	West Azerbaijan, Qazvin, Tehran			Barahoei <i>et al.</i> (2012); Ghahari and Schwarz (2012) Ghahari (2016)

<i>Ceratophygadeuon varicornis</i> (Thomson, 1884)	Mazandaran	*	*	Current study
<i>Chirotica decorator</i> (Villers, 1789)	Qazvin			Ghahari and Schwarz (2012)
<i>Chirotica maculipennis</i> (Gravenhorst, 1829)	Mazandaran	*	*	Current study
<i>Chirotica ruficeps</i> Horstmann, 1983	Fars			Barahoei <i>et al.</i> (2012)
<i>Chirotica terebrator</i> Horstmann, 1983	Fars			Barahoei <i>et al.</i> (2012)
<i>Dichrogaster aestivalis</i> (Gravenhorst, 1829)	Khorasan-e Razavi, East Azerbaijan, Mazandaran			Barahoei <i>et al.</i> (2012); Ghahari and Jussila (2010) Current study
<i>Dichrogaster liostylus</i> (Thomson, 1885)	North Khorasan			Ghahari <i>et al.</i> (2014)
<i>Dichrogaster longicaudata</i> (Thomson, 1884)	Fars, Mazandaran, Sistan-o Baluchistan, Kerman, Khorasan-e Razavi, East Azerbaijan, Lorestan, Tehran	*	*	Mahyabadai <i>et al.</i> (2016a,b); Barahoei <i>et al.</i> (2012, 2014); Mohebban <i>et al.</i> (2015, 2016); Ghahari and Jussila (2015), Ghahari and Gadallah (2015) Ghahari (2016)
<i>Dichrogaster saharator</i> (Aubert, 1964)	Ardabil, Fars, Khuzestan, Mazandaran, Sistan-o Baluchistan, Tehran, Zanjan, Fars, Isfahan, Kerman, Khorasan-e Razavi, Hamadan	*		Mahyabadai <i>et al.</i> (2016a,b); Barahoei <i>et al.</i> (2012, 2013, 2014, 2015); Sarafi <i>et al.</i> (2015) Mohebban <i>et al.</i> (2015, 2016); Ghahari and Jussila (2015)
<i>Eudelus gumperdensis</i> (Schmiedeknecht, 1893)	Mazandaran	*	*	Current study
<i>Endasys talitzkii</i> (Telenga, 1961)	Hamadan			Barahoei <i>et al.</i> (2012)
<i>Gelis agilis</i> (Fabricius, 1775)	Qazvin			Ghahari and Schwarz (2012)
<i>Gelis areator</i> (Panzer, 1804)	Not exactly defined			(Barahoei <i>et al.</i> , 2015)
<i>Gelis bicolor</i> (Villers, 1789)	Kerman			Mahyabadai <i>et al.</i> (2016a,b)
<i>Gelis caudator</i> Horstmann, 1986	Qazvin			Barahoei <i>et al.</i> (2012)

<i>Gelis cinctus</i> (Linnaeus, 1758)	Khorasan-e Razavi			Ghahari <i>et al.</i> (2014)
<i>Gelis declivis</i> (Förster, 1850)	Guilan, Alborz, Fars			Mohammadi-Khoramabadi <i>et al.</i> , (2018)
<i>Gelis exareolatus</i> (Förster, 1850)	Kerman			Barahoei <i>et al.</i> (2012)
<i>Gelis fallax</i> (Forster, 1850)	Qazvin			Ghahari and Schwarz (2012)
<i>Gelis ferruginosus</i> (Strickland, 1912)	East Azerbaijan			Barahoei <i>et al.</i> (2012)
<i>Gelis fidens</i> Schwarz, 2009	Sistan-o Baluchistan			Barahoei <i>et al.</i> (2012, 2013)
<i>Gelis formicarius</i> (Linnaeus, 1758)	Qazvin			Ghahari and Schwarz (2012)
<i>Gelis kermaniae</i> Schwarz, 2009	Kerman			Barahoei <i>et al.</i> (2012)
<i>Gelis melanocephalus</i> (Schrank, 1781)	Lorestan			Ghahari and Gadallah (2015)
<i>Gelis mutillatus</i> (Gmelin, 1790)	Lorestan			Ghahari and Gadallah (2015)
<i>Gelis liparae</i> (Giraud, 1863)	Kerman			Barahoei <i>et al.</i> (2012)
<i>Gelis proximus</i> (Förster, 1850)	Ardabil, Golestan, Qazvin Mazandaran	*	*	Barahoei <i>et al.</i> (2012); Ghahari and Schwarz (2012); Ghahari and Jusilla (2016)
<i>Gelis terebrator</i> (Ratzeburg, 1848)	Khorasan-e Razavi			Ghahari <i>et al.</i> (2014)
<i>Gelis trux</i> (Förster, 1850)	Lorestan			Ghahari and Gadallah (2015)
<i>Glyphicnemis profligator</i> (Fabricius, 1775)	Khorasan-e Razavi			Ghahari <i>et al.</i> (2014)
<i>Gelis rufipes</i> (Bridgman, 1883)	Golestan	*		Ghahari and Jussila (2010)
<i>Glyphicnemis vagabunda</i> (Gravenhorst, 1829)	Ardabil, Qazvin	*		Barahoei <i>et al.</i> (2012); Ghahari and Schwarz (2012)
<i>Grasseiteles ciliator</i> Aubert, 1965	Alborz			Barahoei <i>et al.</i> (2012)
<i>Lysibia nana</i> (Gravenhorst, 1829)	Isfahan, Kerman, Mazandaran, Golestan, Qazvin	*	*	Mahyabadai <i>et al.</i> (2016a,b), Barahoei <i>et al.</i> (2012, 2015), Mohebban <i>et al.</i> (2015, 2016); Ghahari and Jussila (2015); Ghahari and Schwarz (2012) Current study

<i>Mesoleptus incessor</i> (Haliday, 1838)	Golestan, Mazandaran, Semnan, West Azerbaijan	*	*	Barahoei <i>et al.</i> (2012)
<i>Mesoleptus laevigatus</i> (Gravenhorst, 1820)	Isfahan			Barahoei <i>et al.</i> (2015)
<i>Phygadeuon</i> sp.	Kerman			Mahyabadai <i>et al.</i> (2016b)
<i>Phygadeuon fumator</i> Gravenhorst, 1829	East Azerbaijan, Tehran			Barahoei <i>et al.</i> (2012)
<i>Phygadeuon trichops</i> Thomson, 1884	Fars			Barahoei <i>et al.</i> (2012)
<i>Polytribax perspicillator</i> (Gravenhorst, 1807)	Qazvin			Ghahari and Schwarz (2012)
<i>Stilpnus gagates</i> (Gravenhorst, 1807)	Isfahan, Sistan-o Baluchistan			Barahoei <i>et al.</i> (2012, 2015)
<i>Thaumatogelis</i> sp.	Kerman			Mahyabadai <i>et al.</i> (2016a)
<i>Xenolytus bitinctus</i> (Gmelin, 1790)	Guilan	*		Barahoei <i>et al.</i> (2012)
<i>Zoophthorus graculus</i> (Gravenhorst, 1829)	Lorestan			Ghahari and Gadallah (2015)
<i>Zoophthorus plumbeus</i> (Thomson, 1884)	Isfahan			Barahoei <i>et al.</i> (2015)
<i>Pleolophus brachypterus</i> (Gravenhorst, 1815)	Lorestan			Ghahari and Gadallah (2015)
<i>Pleolophus larvatus</i> (Gravenhorst, 1829)	Ardabil	*		Barahoei <i>et al.</i> (2012)
<i>Thrybius praedator</i> (Rossi, 1792)	Lorestan			Ghahari and Gadallah (2015)
<i>Aptesis terminata</i> (Gravenhorst, 1829)	Guilan	*		Ghahari and Jussila (2016)
<i>Endasys rubricator</i> (Thunberg, 1822)	Guilan	*		Ghahari and Jussila (2016)
<i>Gelis zonatus</i> (Foerster, 1850)	Guilan	*		Ghahari and Jussila (2016)
<i>Latibulus argiolus</i> (Rossi, 1790)	Mazandaran	*	*	Ghahari and Jussila (2016)
Subfamily Ichneumoninae				
<i>Amblyjoppa fuscipennis</i> Wesmael, 1893	East Azerbaijan			Barahoei <i>et al.</i> (2012)
<i>Callajoppa caspica</i> (Heinrich, 1929)	Fars			Barahoei <i>et al.</i> (2012)
<i>Coelichneumon afghanicus</i> Heinrich, 1957	Mazandaran	*	*	Barahoei <i>et al.</i> (2012)
<i>Coelichneumon biannulatus</i> (Gravenhorst, 1820)	Ardabil, Mazandaran	*	*	Barahoei <i>et al.</i> (2012)
<i>Coelichneumon biguttulatus</i> (Kriechbaumer, 1875)	Guilan, Mazandaran	*	*	Barahoei <i>et al.</i> (2012)
<i>Coelichneumon comitator</i> (Linnaeus, 1758)	Golestan, Tehran	*		Barahoei <i>et al.</i> (2012)
<i>Coelichneumon desinatorius</i> (Thunberg, 1824)	Guilan, Qazvin, Golestan	*		Barahoei <i>et al.</i> (2012)

<i>Coelichneumon dorsosignatus</i> (Berthoumieu and Eversmann, 1894)	Mazandaran	*	*	Barahoei <i>et al.</i> (2012)
<i>Coelichneumon erythromerus</i> (Rudow, 1888)	Ardabil	*		Barahoei <i>et al.</i> (2012)
<i>Coelichneumon falsificus</i> (Wesmael, 1845)	Khuzestan			Barahoei <i>et al.</i> (2012)
<i>Coelichneumon leucocerus</i> (Gravenhorst, 1820)	Hamedan, West and East Azerbaijan			Barahoei <i>et al.</i> (2012)
<i>Coelichneumon nigerrimus</i> (Stephens, 1835)	West Azerbaijan			Barahoei <i>et al.</i> (2012)
<i>Coelichneumon nigratus</i> (Berthoumieu, 1894)	Guilan	*		Barahoei <i>et al.</i> (2012)
<i>Coelichneumon nudicoxator</i> Aubert, 1966	Semnan			Barahoei <i>et al.</i> (2012)
<i>Coelichneumon orbitator</i> (Thunberg, 1824)	Isfahan, Chaharmahal-o- Bakhtiari, Markazi, Fars, Mazandaran	*	*	Barahoei <i>et al.</i> (2012)
<i>Coelichneumon singularis</i> (Berthoumieu, 1892)	Sistan-o- Baluchistan, Fars, East Azerbaijan			Barahoei <i>et al.</i> (2012)
<i>Coelichneumon deliratorius</i> (Linnaeus, 1758)	Guilan, Golestan, Qazvin	*		Masnadi and Jussila (2008)
<i>Coelichneumon orbitator</i> (Thunberg, 1824)	Fars, Mazandaran, Markazi, Isfahan, Chaharmahal-o- Bakhtiari	*	*	Barahoei <i>et al.</i> (2012)
<i>Coelichneumon problematicus</i> Riedel, Coruh & Özbek, 2010	Tehran			Barahoei <i>et al.</i> (2012)
<i>Coelichneumon singularis</i> (Berthoumieu, 1892)	Sistan-o- Baluchistan, Fars, East Azerbaijan			Barahoei <i>et al.</i> (2012)
<i>Coelichneumon validus</i> (Berthoumieu, 1894)	Tehran			Barahoei <i>et al.</i> (2012)
<i>Lymantrichneumon disparis</i> (Poda, 1761)	Mazandaran	*	*	Barahoei <i>et al.</i> (2012)
<i>Syspasis rufina</i> (Gravenhorst, 1820)	Guilan, East Azerbaijan	*		Barahoei <i>et al.</i> (2012)
<i>Syspasis scutellator</i> (Gravenhorst, 1829)	Tehran, Mazandaran, West Azerbaijan	*	*	Barahoei <i>et al.</i> (2012)
<i>Amblyteles armatorius</i> Förster, 1771	East Azerbaijan, Isfahan, Yazd, Guilan	*		Barahoei <i>et al.</i> (2012)
<i>Barichneumon albicaudatus</i> (Fonscolombe, 1847)	West Azerbaijan			Barahoei <i>et al.</i> (2012)

<i>Barichneumon bilunulatus</i> (Gravenhorst, 1829)	North Khorasan			Barahoei <i>et al.</i> (2012)
<i>Barichneumon incubitor</i> Zetterstedt var. <i>caucasica</i> , 1893	Guilan	*		Ghahari and Jussila (2012)
<i>Barichneumon derogator</i> (Wesmeal, 1845)	Kerman			Mohebban <i>et al.</i> (2016)
<i>Barichneumon gaullei</i> Berthoumieu, 1903	Kerman			Mohebban <i>et al.</i> (2016)
<i>Barichneumon peregrinator</i> (Linnaeus, 1758)	Kermanshah, Ilam,			Barahoei <i>et al.</i> (2012)
<i>Barichneumon plagarius</i> (Weamael, 1848)	Qazvin, Mazandaran	*	*	(Ghahari and Schwarz, 2012) Current study
<i>Barichneumon quadriguttatus</i> (Gravenhorst, 1829)	Kordestan, Golestan, Ardabil, East Azerbaijan	*		Barahoei <i>et al.</i> (2012)
<i>Chasmias masanderanicus</i> (Heinrich, 1929)	Mazandaran	*	*	Barahoei <i>et al.</i> (2012)
<i>Crytea sanguinator</i> (Rossi, 1794)	Semnan, West Azerbaijan			Barahoei <i>et al.</i> (2012)
<i>Ctenichneumon castigator</i> (Fabricius, 1793)	Golestan, Guilan, Mazandaran	*	*	Barahoei <i>et al.</i> (2012)
<i>Cratichneumon coruscator</i> (Linnaeus, 1758)	Mazandaran	*	*	Barahoei <i>et al.</i> (2012)
<i>Cratichneumon culex</i> (Mulier, 1776)	Golestan, West Azerbaijan, Guilan, Semnan, North Khorasan, Isfahan, Mazandaran	*	*	Barahoei <i>et al.</i> (2012)
<i>Cratichneumon fugitivus</i> (Gravenhorst, 1829)	Mazandaran	*	*	Ghahari and Jussila (2016a)
<i>Cratichneumon rufifrons</i> (Gravenhorst, 1829)	Khorasan-e-Razavi, East Azerbaijan			Barahoei <i>et al.</i> (2012)
<i>Cratichneumon semirufus</i> (Gravenhorst, 1820)	Kerman			Barahoei <i>et al.</i> (2012)
<i>Cratichneumon sexarmillatus</i> (Kriechbaumer, 1891)	Mazandaran	*	*	Barahoei <i>et al.</i> (2012)
<i>Cratichneumon stenocarus</i> (Thomson, 1887)	Guilan	*		Barahoei <i>et al.</i> (2012)
<i>Cratichneumon versator</i> (Thunberg, 1822)	Guilan	*		Barahoei <i>et al.</i> (2012)
<i>Ctenichneumon castigator</i> (Fabricius, 1793)	Mazandaran, Guilan, Golestan	*	*	Barahoei <i>et al.</i> (2012)
<i>Ctenichneumon divisorius</i> (Gravenhorst, 1820)	Guilan	*		Barahoei <i>et al.</i> (2012)
<i>Ctenichneumon edictorius</i> (Linnaeus, 1758)	Guilan, Golestan	*		Barahoei <i>et al.</i> (2012); Mohebban <i>et al.</i> (2016)

<i>Ctenichneumon panzeri</i> (Wesmael, 1845)	Sistan-o-Baluchistan, Golestan, Mazandaran	*	*	Barahoei <i>et al.</i> (2012)
<i>Ctenichneumon devylderii</i> (Holmgren, 1871)	Ghom, Kerman			Barahoei <i>et al.</i> (2012), Mohebban <i>et al.</i> (2016)
<i>Ctenichneumon melanocastanus</i> (Gravenhorst, 1820)	Guilan	*		Barahoei <i>et al.</i> (2012)
<i>Ctenichneumon panzeri</i> (Wesmael, 1845)	Mazandaran, Golestan, Sistan-o-Baluchistan	*	*	Barahoei <i>et al.</i> (2012)
<i>Ctenichneumon repentinus</i> (Gravenhorst, 1820)	West and East Azerbaijan			Barahoei <i>et al.</i> (2012)
<i>Diphyus amatorius</i> (Müller, 1776)	Guilan, Semnan	*		Barahoei <i>et al.</i> (2012)
<i>Diphyus elbursicus</i> (Heinrich, 1929)	Guilan	*		Barahoei <i>et al.</i> (2012)
<i>Diphyus luctatorius</i> (Linnaeus, 1758)	North Khorasan			Barahoei <i>et al.</i> (2012)
<i>Diphyus mercatorius</i> (Fabricius, 1793)	Ardabil, Guilan	*		Barahoei <i>et al.</i> (2012)
<i>Diphyus montivagans</i> (Berthoumieu, 1897)	Kordestan			Ghaharu and Jussila (2016b)
<i>Diphyus ochromelas</i> (Gmelin, 1790)	Ardabil	*		Barahoei <i>et al.</i> (2012)
<i>Diphyus palliatorius</i> (Gravenhorst, 1829)	Mazandaran	*	*	Barahoei <i>et al.</i> (2012)
<i>Diphyus pedatus</i> (Berthoumieu, 1895)	Guilan	*		Barahoei <i>et al.</i> (2012)
<i>Diphyus ponticus</i> Heinrich, 1978	Not exactly defined			Barahoei <i>et al.</i> (2012)
<i>Diphyus pseudocastigator</i> (Heinrich 1929)	Guilan	*		Barahoei <i>et al.</i> (2012)
<i>Diphyus quadripunctorius</i> (Muller, 1776)	Semnan, Mazandaran	*	*	Barahoei <i>et al.</i> (2012)
<i>Diphyus raptorius</i> (Linnaeus, 1758)	Guilan, West Azerbaijan	*		Barahoei <i>et al.</i> (2012)
<i>Diphyus septemguttatus</i> (Gravenhorst, 1828)	Golestan, Mazandaran, Guilan	*	*	Barahoei <i>et al.</i> (2012)
<i>Eutanyacra sanguinolenta</i> (Heinrich, 1929)	Golestan	*		Barahoei <i>et al.</i> (2012)
<i>Eutanyacra glaucatoria</i> (Fabricius, 1793)	Golestan, Khorasan-e-Razavi	*		Barahoei <i>et al.</i> (2012)
<i>Eutanyacra picta</i> (Schrank, 1776)	Golestan, Isfahan, Fars, Kerman, Guilan	*		Barahoei <i>et al.</i> (2012)
<i>Exephanes occupator</i> (Gravenhorst, 1829)	East Azerbaijan, Guilan	*		Barahoei <i>et al.</i> (2012)

<i>Fileanta flavolaeta</i> (Berthoumieu, 1892)	Ghom			Barahoei <i>et al.</i> (2012)
<i>Hoplismenus bidentatus</i> (Gmelin, 1790)	Not exactly defined			Barahoei <i>et al.</i> (2012)
<i>Hoplismenus bispinatorius</i> (Thunberg, 1824)	Mazandaran, Guilan, Zanjan	*	*	Barahoei <i>et al.</i> (2012)
<i>Hoplismenus lamprolabus</i> Wesmael, 1857	Tehran, Lorestan			Barahoei <i>et al.</i> (2012)
<i>Ichneumon balteatus</i> Wesmael, 1845	Fars, Bushehr			Barahoei <i>et al.</i> (2012)
<i>Ichneumon bucculentus</i> Wesmael, 1845	Golestan, Mazandaran, Semnan, Tehran	*	*	Barahoei <i>et al.</i> (2012)
<i>Ichneumon caloscelis</i> Wesmael, 1845	Yazd, Tehran, Guilan	*		Barahoei <i>et al.</i> (2012)
<i>Ichneumon caedator</i> Gravenhorst, 1829	North Khorasan			Barahoei <i>et al.</i> (2012)
<i>Ichneumon caloscelis</i> Wesmael, 1845	Guilan, Yazd, Tehran	*		Barahoei <i>et al.</i> (2012)
<i>Ichneumon caucasicus</i> Meyer 1926	Guilan	*		Barahoei <i>et al.</i> (2012)
<i>Ichneumon cerinthius</i> Gravenhorst, 1820	Guilan	*		Barahoei <i>et al.</i> (2012)
<i>Ichneumon cessator</i> Muller, 1776	Mazandaran, Golestan, Guilan, East Azerbaijan	*	*	Barahoei <i>et al.</i> (2012)
<i>Ichneumon curtulus</i> Kriechbaumer, 1882	Not exactly defined			Barahoei <i>et al.</i> (2012)
<i>Ichneumon eumerus</i> Wesmael, 1857	Guilan	*		Barahoei <i>et al.</i> (2012)
<i>Ichneumon fulvicornis</i> Gravenhorst, 1829	Semnan			Barahoei <i>et al.</i> (2012)
<i>Ichneumon exilicornis</i> Wesmael, 1857	West Azerbaijan			Ghahari and Jusila (2016b)
<i>Ichneumon gracilicornis</i> Gravenhorst, 1829	Hamadan			Ghahari and Jusila (2016b)
<i>Ichneumon gracilentus</i> Wesmael, 1845	Kordasatn			Barahoei <i>et al.</i> (2012)
<i>Ichneumon haemorrhoidicus crassigena</i> Kriechbaumer 1887,	Guilan	*		Barahoei <i>et al.</i> (2012)
<i>Ichneumon ignobilis</i> Wesmael, 1855	Semnan			Barahoei <i>et al.</i> (2012)
<i>Ichneumon insidiosus</i> Wesmael, 1845	Kermanshah, Khuzestan			Barahoei <i>et al.</i> (2012)
<i>Ichneumon igatorius</i> Thunberg, 1824	Khorasan-e-Razavi			Barahoei <i>et al.</i> (2012)
<i>Ichneumon iranicus</i> (Heinrich, 1929)	Golestan	*		Barahoei <i>et al.</i> (2012)
<i>Ichneumon languidus</i> Wesmael, 1845	Guilan	*		Barahoei <i>et al.</i> (2012)
<i>Ichneumon ligatorius</i> Thunberg, 1824	Khorasan-e-Razavi			Barahoei <i>et al.</i> (2012)
<i>Ichneumon melanosomus</i> Wesmael, 1855	West Azerbaijan			Barahoei <i>et al.</i> (2012)

<i>Ichneumon minutorius</i> Desvignes, 1856	Khorasan-e-Razavi			Barahoei <i>et al.</i> (2012)
<i>Ichneumon molitorius</i> Linnaeus, 1761	Hamedan, Ilam, Guilan	*		Barahoei <i>et al.</i> (2012)
<i>Ichneumon novemalbus</i> Kriechbaumer, 1875	Not exactly defined			Barahoei <i>et al.</i> (2012)
<i>Ichneumon persicus</i> Heinrich, 1929	Guilan	*		Barahoei <i>et al.</i> (2012)
<i>Ichneumon quaesitorius</i> Linnaeus, 1761	Guilan	*		Ghahari and Jusila (2016b)
<i>Ichneumon proletarius</i> Wesmael, 1848	Tehran, Sistan-o-Baluchistan			Barahoei <i>et al.</i> (2012)
<i>Ichneumon ruficinctus</i> (Townes, Momoi and Townes, 1965)	Guilan	*		Barahoei <i>et al.</i> (2012)
<i>Ichneumon sarcitorius</i> Linnaeus, 1758	Golestan, East Azerbaijan, Semnan, Kerman, Mazandaran	*	*	Barahoei <i>et al.</i> (2012); Mohebban <i>et al.</i> (2016) Current study
<i>Ichneumon sexcinctus</i> Gravenhorst, 1829	Guilan	*		Barahoei <i>et al.</i> (2012)
<i>Ichneumon tuberculipes</i> Wesmael, 1848	Isfahan, Fars, Chaharmahal-o-Bakhtiari, Khuzestan			Barahoei <i>et al.</i> (2012)
<i>Ichneumon vafer meridionalis</i> Heinrich, 1929	Mazandaran, Golestan, Guilan, Tehran, East and West Azerbaijan	*	*	Barahoei <i>et al.</i> (2012)
<i>Ichneumon xanthorius</i> Forster, 1771	Mazandaran, Ilam	*	*	Barahoei <i>et al.</i> (2012)
<i>Melanichneumon glaucatoriops</i> Heinrich, 1972	Noth Khorasan, West Azerbaijan			Barahoei <i>et al.</i> (2012)
<i>Obtusodonta equitatoria</i> (Panzer, 1786)	Ardabil, Isfahan	*		Barahoei <i>et al.</i> (2012)
<i>Obtusodonta erythrocephalus</i> (Meyer, 1927)	Fars			Barahoei <i>et al.</i> (2012)
<i>Obtusodonta carnifex</i> (Kriechbaumer, 1882)	Guilan	*		Barahoei <i>et al.</i> (2012)
<i>Platylabops cornicula</i> (Wesmael, 1855)	Semnan			Barahoei <i>et al.</i> (2012)
<i>Probolus concinnus</i> Wesmael, 1853	East Azerbaijan			Barahoei <i>et al.</i> (2012)
<i>Probolus culpatorius</i> (Linnaeus, 1758)	Golestan	*		Barahoei <i>et al.</i> (2012)
<i>Pseudoamblyteles homocerus</i>	Semnan			Barahoei <i>et al.</i> (2012)
<i>Rictichneumon lombardi</i> (Berthoumieu, 1897)	Chaharmahal-o-Bakhtiari			Ghahari and Jusila (2016b)
<i>Spilothyrates nuptatorius</i> (Fabricius, 1793)	Golestan, Isfahan	*		Barahoei <i>et al.</i> (2012, 2015)
<i>Spilichneumon occisorius</i> (Fabricius, 1793)	South Khorasan			Barahoei <i>et al.</i> (2015)

<i>Spilothyrateles illuminatorius</i> (Gravenhorst, 1820)	Mazandaran, Guilan, Semnan, Kerman	*	*	Barahoei <i>et al.</i> (2015); Mohebban <i>et al.</i> (2016)
<i>Spilothyrateles punctus</i> (Gravenhorst, 1829)	Golestan, Guilan	*		Barahoei <i>et al.</i> (2012, 2015)
<i>Spilichneumon tennecabunensis</i> (Heinrich, 1929)	Guilan, Golestan	*		Barahoei <i>et al.</i> (2012)
<i>Stenichneumon culpator</i> (Schrank, 1802)	Sistan-o- Baluchistan, Golestan	*		Barahoei <i>et al.</i> (2012)
<i>Stenobarichneumon basiglyptus</i> (Kriechbaumer, 1890)	Mazandaran, Golestan, Yazd, Khuzestan	*	*	Barahoei <i>et al.</i> (2012)
<i>Stenobarichneumon citator</i> (Thunberg, 1822)	Ardabil, Mazandaran	*	*	Barahoei <i>et al.</i> (2012) Current study
<i>Thyrateles camelinus</i> (Wesmael, 1845)	Guilan	*		Barahoei <i>et al.</i> (2012)
<i>Triptognathus atripes</i> (Gravenhorst, 1820)	Guilan	*		Barahoei <i>et al.</i> (2012)
<i>Triptognathus bolivari</i> (Berthoumieu, 1894)	Ardabil, Guilan	*		Barahoei <i>et al.</i> (2012)
<i>Triptognathus fumigator</i> (Gravenhorst, 1820)	Not exactly defined			Barahoei <i>et al.</i> (2012)
<i>Triptognathus rubrocinctus</i> (Lucas, 1849)	Guilan	*		Barahoei <i>et al.</i> (2012)
<i>Triptognathus unifasciatus</i> (Spinola, 1843)	Tehran, Qazvin, Guilan	*		Barahoei <i>et al.</i> (2012)
<i>Virgichneumon albilineatus</i> (Gravenhorst, 1829)	Mazandaran	*	*	Current study
<i>Virgichneumon albosignatus</i> (Gravenhorst, 1893)	West Azerbaijan, Khorasan-e- Razavi, Mazandaran, Golestan	*	*	Barahoei <i>et al.</i> (2012) Ghahari and Jussila (2016a)
<i>Virgichneumon callicerus</i> (Gravenhorst, 1820)	Ardabil, East Azerbaijan	*		Barahoei <i>et al.</i> (2012)
<i>Virgichneumon digrammus</i> (Gravenhorst, 1820)	Khorasan-e- Razavi, Golestan	*		Barahoei <i>et al.</i> (2012)
<i>Virgichneumon monostagon</i> Gravenhorst, 1893	Mazandaran	*	*	Barahoei <i>et al.</i> (2012)
<i>Virgichneumon maculicauda</i> (Perkins, 1953)	Mazandaran, Tehran, Semnan	*	*	Barahoei <i>et al.</i> (2012)
<i>Vulgichneumon bimaculatus</i> (Schrank, 1776)	Guilan, Golestan, Mazandaran	*	*	Barahoei <i>et al.</i> (2012)
<i>Vulgichneumon deceptor</i> (Scopoli, 1763)	Kuhgiluyeh-o- Boyerahmad			Ghahari and Jussila (2016b)
<i>Vulgichneumon bimaculatus</i> (Schrank, 1776)	Golestan, Mazandaran, Guilan	*	*	Barahoei <i>et al.</i> (2012)

<i>Vulgichneumon saturatorius</i> (Linnaeus, 1758)	Guilan	*		Barahoei <i>et al.</i> (2012)
<i>Vulgichneumon suavis</i> (Gravenhorst, 1820)	Ardabil, Guilan	*		Barahoei <i>et al.</i> (2012)
<i>Anisobas cingulatellus</i> Horstmann, 1997	Tehran, Semnan, Isfahan			Barahoei <i>et al.</i> (2012, 2015)
<i>Anisobas rebellis</i> Wesmael, 1845	Sistsn-o-Baluchistan			Barahoei <i>et al.</i> (2012)
<i>Neotypus nobilitator</i> (Gravenhorst, 1807)	Semnan			Barahoei <i>et al.</i> (2012)
<i>Aethecerus persicator</i> Aubert, 1970	Tehran			Barahoei <i>et al.</i> (2012)
<i>Centeterus confector</i> (Gravenhorst, 1829)	Ardabil, Guilan	*		Barahoei <i>et al.</i> (2012); Shirzadegan <i>et al.</i> (2018)
<i>Centeterus major</i> Wesmael, 1845	West Azerbaijan			Barahoei <i>et al.</i> (2012)
<i>Centeterus rubiginosus</i> (Gmelin, 1790)	East Azerbaijan			Barahoei <i>et al.</i> (2012)
<i>Colpognathus grandiculus</i> Diller and Riedel, 2015	Kerman, Alborz, Tehran, Guilan	*		Mohebban <i>et al.</i> (2016); Shirzadegan <i>et al.</i> (2018)
<i>Colpognathus celerator</i> (Gravenhorst, 1807)	Guilan	*		Barahoei <i>et al.</i> (2012); Shirzadegan <i>et al.</i> (2018)
<i>Colpognathus divisus</i> Thomson, 1891	Fars			Barahoei <i>et al.</i> (2012)
<i>Diadromus collaris</i> (Gravenhorst, 1829)	Sistsn-o-Baluchistan, Golestan, Isfahan, Kerman	*		Barahoei <i>et al.</i> (2012, 2013, 2015); Mohebban <i>et al.</i> (2016)
<i>Dicaelotus inflexus</i> Thomson, 1891	West Azerbaijan			Barahoei <i>et al.</i> (2012)
<i>Dicaelotus montanus</i> (di Stefani)	Kerman, Guilan	*		Kazemi <i>et al.</i> (2014); Shirzadegan <i>et al.</i> (2018)
<i>Dicaelotus erythrostroma</i> Wesmael, 1845	Alborz			Shirzadegan <i>et al.</i> (2018)
<i>Dicaelotus pudibundus</i> (Wesmael, 1845)	Guilan	*		Shirzadegan <i>et al.</i> (2018)
<i>Hemichneumon subdolos</i> Wesmael, 1857	Semnan, West Azerbaijan			Barahoei <i>et al.</i> (2012)
<i>Diadromus subtilicornis</i> (Gravenhorst, 1829)	Kermanshah			Barahoei <i>et al.</i> (2012)
<i>Diadromus ustalatus</i> Holmgren, 1890	East Azerbaijan			Barahoei <i>et al.</i> (2012)
<i>Diadromus varicolor</i> Wesmael, 1845	West Azerbaijan			Barahoei <i>et al.</i> (2012)
<i>Dirophanes invisor</i> (Thunberg, 1824)	Guilan, West Azerbaijan	*		Barahoei <i>et al.</i> (2012)

<i>Hemiehneumon subdolos</i> Wesmael, 1857	Semnan, West Azerbaijan			Barahoei <i>et al.</i> (2012)
<i>Herpestomus arridens</i> (Gravenhorst, 1829)	West Azerbaijan, Mazandaran	*	*	Barahoei <i>et al.</i> (2012) Current study
<i>Herpestomus brunnicornis</i> (Gravenhorst, 1829)	Tehran, East Azerbaijan			Barahoei <i>et al.</i> (2012)
<i>Heterischnus filiformis</i> (Gravenhorst, 1829)	Isfahan, Kerman			Barahoei <i>et al.</i> (2015); Mohebban <i>et al.</i> (2016)
<i>Heterischnus nigricollis</i> (Wesmael, 1845)	Kermanshah, Golestan	*		Barahoei <i>et al.</i> (2012)
<i>Heterischnus truncator</i> (Fabricius, 1798)	Mazandaran, Golestan, Semnan, Ardabil, West Azerbaijan, Tehran, Guilan	*	*	Barahoei <i>et al.</i> (2012); Shirzadegan <i>et al.</i> (2018)
<i>Mevesia arguta</i> (Wesmael, 1845)	Mazandaran	*	*	Current study
<i>Oronotus binotatus</i> (Gravenhorst, 1829)	Guilan	*		Shirzadegan <i>et al.</i> (2018)
<i>Phaeogenes heterogonus</i> Holmgren, 1860	Chaharmahal-o- Bakhtiari, Isfahan, Markazi			Barahoei <i>et al.</i> (2012)
<i>Phaeogenes melanogonos</i> (Gmelin, 1790)	Ardabil	*		Barahoei <i>et al.</i> (2012)
<i>Phaeogenes ophthalmicus</i> Wesmael, 1844	Guilan	*		Ghahari and Jussila (2012)
<i>Protichneumon fusorius</i> (Linnaeus, 1761)	Mazandaran	*	*	Barahoei <i>et al.</i> (2012)
<i>Protichneumon persicus</i> Morley, 1915	Golestan	*		Barahoei <i>et al.</i> (2012)
<i>Protichneumon pisorius</i> Linnaeus, 1903	Mazandaran, Khorasan-e- Razavi	*	*	Barahoei <i>et al.</i> (2012)
<i>Protichneumon similatorius</i> (Fabricius, 1798)	Not exactly defined			Barahoei <i>et al.</i> (2012)
<i>Thyraeella collaris</i> (Gravenhorst, 1829)	Sistan-o- Baluchisan, Guilan	*		Firuzi Jahantighi <i>et al.</i> (2013); Ghahari and Jussila (2012)
<i>Tycherus opthalmicus</i> (Wesmael, 1845)	Mazandaran, East Azerbaijan	*	*	Barahoei <i>et al.</i> (2012)
<i>Apaeticus bellicosus</i> Wesmael, 1845	Kerman, Alborz			Mohebban <i>et al.</i> (2016); Shirzadegan <i>et al.</i> (2017)
<i>Apaeticus inimicus</i> (Gravenhorst, 1820)	Alborz, Mazandaran	*	*	Shirzadegan <i>et al.</i> (2017) Current study
<i>Cyclolabus nigricollis</i> Wesmael, 1844	Guilan, Ardabil	*		Barahoei <i>et al.</i> (2012)

<i>Cyclolabus pactor</i> (Wesmael, 1845)	Mazandaran	*	*	Barahoei <i>et al.</i> (2012); Ghahari and Jussila (2016a)
<i>Ectopius rubellus</i> (Gmelin, 1790)	Mazandaran, West Azerbaijan	*		Barahoei <i>et al.</i> (2012)
<i>Linyctus exhortator</i> (Fabricius, 1787)	Alborz			Shirzadegan <i>et al.</i> (2017)
<i>Hypomecus quadriannulatus</i> (Gravenhorst, 1829)	Khuzestan			Barahoei <i>et al.</i> (2012)
<i>Platylabus heteromallus</i> Berthoumieu, 1910	East Azerbaijan			Barahoei <i>et al.</i> (2012)
<i>Platylabus iridipennis</i> Gravenhorst, 1829	Kerman, Alborz			Mohebban <i>et al.</i> (2016); Shirzadegan <i>et al.</i> (2017)
<i>Platylabus rufus</i> Wesmael, 1845	Mazandaran	*	*	Barahoei <i>et al.</i> (2012)
<i>Platylabus tricingulatus</i> (Gravenhorst, 1820)	Golestan	*		Barahoei <i>et al.</i> (2012)
<i>Eurylabus torvus</i> Wesmael, 1845	East Azerbaijan			Barahoei <i>et al.</i> (2012)
<i>Eurylabus tristis</i> (Gravenhorst, 1829)	East Azerbaijan			Barahoei <i>et al.</i> (2012)

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مطالعه زیرخانواده‌های Ichneumoninae و Cryptinae (Hymenoptera: Ichneumonidae) در استان مازندران و گزارش پنج گونه جدید برای ایران

هنگامه هوشیار^۱، رضا وفايي شوشتری^{۱*}، عباس محمدی خرم‌آبادی^۲، شیلا گلدسته^۱، الهام صنعتگر^۱، ریجو جاسیلا^۳

- ۱- دانشگاه آزاد اسلامی، واحد اراک، دانشکده کشاورزی، گروه حشره‌شناسی، ص.ب. ۳۸۱۳۵/۵۶۷، اراک، ایران
- ۲- دانشگاه شیراز، دانشکده کشاورزی و منابع طبیعی داراب، گروه گیاهپزشکی، داراب، ایران
- ۳- موزه جانورشناسی، بخش تنوع زیستی و علوم محیطی، گروه زیست‌شناسی، ۲۰۰۱۴ دانشگاه تورکو، فنلاند

چکیده

فون زیرخانواده‌های Ichneumoninae و Cryptinae (Hymenoptera: Ichneumonidae) در استان مازندران در شمال ایران، طی سال‌های ۱۳۹۵-۱۳۹۴ مطالعه شد. نمونه‌برداری با استفاده از هشت تله مالیز که در سه ارتفاع متفاوت نصب شدند، انجام شد. در مجموع از هر یک از زیرخانواده‌های Ichneumoninae و Cryptinae به ترتیب ۶۴ و ۱۲۶ نمونه جمع‌آوری شد که شامل ۲۵ گونه متعلق به ۲۰ جنس بود. از بین آنها چهار جنس و پنج گونه برای اولین بار از ایران گزارش می‌شود که به شرح زیر است: *Acrolyta Förster*, 1869، *Ceratophygadeuon Viereck*, 1924، *Eudelus Förster*, 1869، *Chirotica Ceratophygadeuon varicornis* (Thomson, 1884)، *Mevesia Holmgren*, 1890، *Mevesia arguta maculipennis* (Gravenhorst, 1829)، *Eudelus gumperdensis* (Schmiedeknecht, 1893) و *Virgichneumon albilineatus* (Gravenhorst, 1829) (Wesmael, 1845). همچنین فهرستی از گونه‌های این دو زیرخانواده در ایران ارائه شده است. با گزارشات جدید حاصل از این پژوهش، تعداد گونه‌های زیرخانواده Cryptinae در ایران و جنگل‌های هیرکانی به ترتیب به ۱۲۸ و ۳۹ گونه و برای زیرخانواده Ichneumoninae به ۱۹۱ و ۱۱۵ گونه افزایش یافت.

واژه‌های کلیدی: گزارش جدید، جنگل‌های هیرکانی، Ichneumonidae

* نویسنده رابط، پست الکترونیکی: r-vafaei@iau.arak.ac.ir

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