



A survey of the Ichneumonidae (Hymenoptera, Ichneumonoidea) of Kerman province, south-east Iran

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ABSTRACT. The Ichneumonidae fauna of Kerman province, Iran, was surveyed in April 2013 to June 2014. In total, 35 species belonging to 22 genera and eight subfamilies were collected and identified, of which *Cryptus armator* Fabricius, 1804; *Enizemum schwarzi* Diller, 1987 and *Barichneumon gaullei* Berthoumieu, 1903 are new records for the fauna of Iran. An updated list of Ichneumonid species for Kerman province is presented. These data can be useful for biological control programs.

Key words: Ichneumonidae, Iran, distribution, new records, catalog

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Introduction

The Ichneumonidae (Insecta, Hymenoptera) is one of the largest families of insects, with about 24481 described species (Yu *et al.* 2012) and 38 extant subfamilies (Quicke 2015). This family contains important parasitoids of insects and spiders but common hosts are larvae and pupae of Coleoptera, Hymenoptera, Diptera and Lepidoptera (Wahl and Sharkey 1993). Prior to this study 615 species have been recorded from Iran (Amiri *et al.* 2015a, b, 2016; Mohammadi-Khoramabadi *et al.* 2013a, b, c; Mohammadi-Khoramabadi and Talebi, 2013; Barahoei *et al.* 2013a,b, 2014, 2015a, b; Hasanshahi *et al.* 2013, 2014a,b; Firouzi-Jahantighi *et al.* 2013; Gharaei *et al.* 2014; Bakhtiarynasab *et al.* 2014; Hooshyar *et al.*

2014; Mohebban *et al.* 2015, of which 70 species were collected and identified from Kerman province (Bakhtiarynasab *et al.* 2014, 2015; Hasanshahi *et al.* 2014a; Mohebban *et al.* 2015; Mahyabadi *et al.* 2014, 2016; Mohammadi-Khoramabadi *et al.* 2016).

This paper provides additional records of ichneumonids from Kerman province, south-east Iran, and presents their distribution within this region. It also refers to all previously recorded species collected from Kerman province. The aim of this paper is to improve our understanding of and to provide more information about the fauna and distribution of ichneumonid wasps of the subfamilies Banchinae, Collyriinae, Cryptinae, Diplazontinae, Ichneumoninae,

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Metopiinae, Orthocentrinae and Pimplinae in Kerman province, south-east Iran. These data can be useful for biological control programs.

Material and methods

The ichneumonid specimens were collected using standard sweep net and Malaise traps at different localities (Baft, Bardsir and Kerman counties) in Kerman province during 2013-2014. Twelve Malaise traps were installed in eight localities in different ecosystems (temperate and alpine, cold mountain, mild and dry), latitudes and altitudes: Chatrood (2), Kereshk (2), KooHPayeh (1), Lalehzar (1), Miannahr (1), Rayen (2), Simk (1) and Sirch (2) and used for collecting of samples (Fig. 1). The specimens were extracted from the traps and sorted weekly. In addition some specimens were collected by sweep net at ten localities: Baft, Baghabar, Bezenjan, Qal-eh-Askar, Gughar,

Kofnooeiye, Kiskan, Rabor, Rayen and Sirch. The collected specimens were subsequently dried and mounted on cards. The external morphology of specimens was studied using a NIKON™ SMZ-645 stereomicroscope. Illustrations were taken using a BMZ-04-DZ™ digital imaging system (Behin Pajouhesh Co., Iran). Terminology of morphological characters follows Gauld (1991). Nomenclature and distributional data are mainly taken from Yu *et al.* (2012). We provided a diagnosis for species new to Iran. The specimens were deposited in the Zoological Museum of Shahid Bahonar University of Kerman, Kerman, Iran (ZMSBUK), also two series of new record species were kept in the Department of plant protection, University of Zabol, Iran (DPPZ) and the personal collection of the last author (M. Riedel). Identification of new records was confirmed by last author. All specimens were collected by the first author.

Location	position	Elevation
1 Baft	29°44' N, 56°45 E	2197
2 Baghabar	29°31' N, 56°45 E	2679
3 Bezenjan	29°16' N, 56°41 E	2419
4 Chatrood	30°36' N, 56°55 E	1874
5 Qal-eh-Askar	29°31' N, 56°39 E	2633
6 Gughar	29°27' N, 56°24 E	2545
7 Kereshk	30°26' N, 56°35 E	2407
8 Kofnooeiye	29°27' N, 56°37 E	2811
9 Kiskan	29°22' N, 56°38 E	2591
10 KooHPayeh	30°28' N, 57°18 E	1822
11 Lalehzar	30°26' N, 56°49 E	2687
12 Miannahr	30°28' N, 57°19 E	1820
13 Rabor	29°18' N, 56°52 E	2440
14 Rayen	29°35' N, 57°19 E	2557
15 Simk	30°29' N, 57°11 E	2280
16 Sirch	30°11' N, 57°34 E	2545

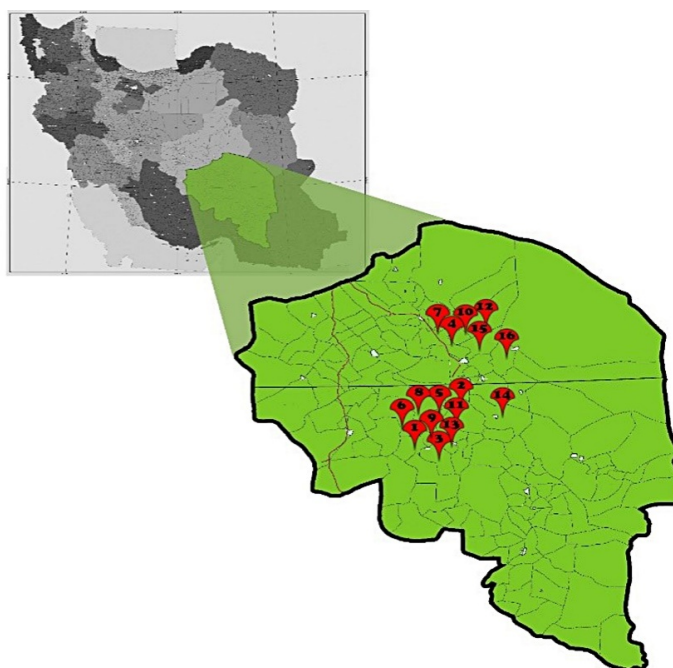


Figure 1. Sampling localities in Kerman province (elevation is mentioned by meter).

Results

In total, 545 specimens belonging to eight subfamilies: Banchinae (two species, 30 specimens), Collyriinae (one species, 6 specimens), Cryptinae (seven species, 39 specimens), Diplazontinae (seven species, 349 specimens), Ichneumoninae (eleven species, 40 specimens), Metopiinae (two species, 30 specimens), Orthocentrinae (two species, 25 specimens) and Pimplinae (three species, 26 specimens) are reported here of which three species are newly recorded for the fauna of Iran, indicated by an asterisk (*). The list of taxa is arranged alphabetically by subfamily, genus, and then species.

Subfamily Banchinae Wesmael, 1845

1. *Exetastes adpressorius* (Thunberg, 1822)

Material examined: 1♂, Malaise trap, Kerman-Koohpayeh, Miannahr (30°28' N, 57°19' E), 24-VII-2013; 3♀♀, 3♂♂, Malaise trap, Kerman-Sirch (30°11' N, 57°34' E), 18-VII-2013; 2♂♂, Malaise trap, Kerman-Chatrood (30°36' N, 57°24' E), 03-VII-2013; 4♀♀, 4♂♂, Malaise trap, Kerman-Rayen (29°36' N, 57°34' E), 07-VII-2013.

Distribution in Iran: Fars (Sarafi *et al.* 2015; Amiri *et al.* 2016) and Kerman provinces (Current study).

General distribution: Palaearctic (Yu *et al.* 2012).

2. *Exetastes syriacus* Schmiedeknecht, 1910

Material examined: 7♀♀ and 6♂♂, Malaise trap, Kerman-Koohpayeh (30°28' N, 57°18' E), 02-V-2013.

Distribution in Iran: Khorasan-e-Razavi (Barahoei *et al.* 2014), Isfahan (Barahoei *et al.* 2015a) and Kerman provinces (Current study).

General distribution: Afghanistan; Canada; Egypt; Israel; Spain; U.S.A. (Yu *et al.* 2012).

Subfamily Collyriinae Cushman, 1924

3. *Collyria coxator* (Villers, 1789)

Material examined: 1♂, swept from *Hordeum vulgare* L., Kerman-Rayen (29°38' N, 57°25' E), 15-V-2014; 3♀ and 2♂♂, swept from *Medicago sativa* L. Kerman-Rabor (29°19' N, 56°51' E), 09-V-2014.

Distribution in Iran: Khorasan-e-Razavi (Barahoei *et al.* 2014) and Kerman provinces (Kolarov and Ghahari, 2005).

General distribution: Palaearctic, Nearctic (Yu *et al.* 2012).

Subfamily Cryptinae Kirby, 1837

4. **Cryptus armator* Fabricius, 1804 (Fig. 2)

Material examined: 4♀♀, Malaise trap, Kerman-Sirch (30°11' N, 57°34' E), 02-V-2014.

General distribution: Palaearctic (Yu *et al.* 2012), new for Iran.

Diagnosis: Ovipositor sheath 1.2-1.4 times as long as hind tibia (Fig. 2F); postpetiole black or with orange patches at posterior margin, but sometimes with an orange transverse band medioapically not reaching lateral margin (Fig. 2H); antroventral part of frons with transverse striation (Fig. 2B) (Schwarz, 2015).

5. *Cryptus inculcator* (Linnaeus, 1758)

Material examined: 1♀, Malaise trap, Kerman-Sirch (30°11' N, 57°34' E), 18-VII-2013.

Distribution in Iran: Alborz (Masnadi-Yazdinejad and Jussila, 2008a), Fars (Sarafi *et al.* 2015), Isfahan (Barahoei *et al.* 2015b), Kerman (Mohebban *et al.* 2015), Khorasan-e-Razavi (Barahoei *et al.* 2014), Sistan-o-Baluchistan (Firuzi Jahantighi *et al.* 2012; Barahoei *et al.* 2013a) and Yazd provinces (Zarepour *et al.* 2008).

General distribution: Palaearctic (Yu *et al.* 2012).

6. *Dichrogaster longicaudata* (Thomson, 1884)

Material examined: 1♂, swept from *M. sativa*, Kerman-Qal-eh-Askar (29°31' N, 56°39' E), 27-XI-2013; 1♂, Malaise trap, Kerman-Lalehzar (30°26' N, 56°49' E), 19-VI-2013; 1♀, Malaise trap, Kerman-Koohpayeh (30°28' N, 57°28' E), 25-V-2013; 3♀♀ and 4♂♂, Malaise trap, Kerman-Rayen (29°36' N, 57°24' E), 09-XI-2013; 2♂♂, swept from *M. sativa*, Kerman-Kiskan (29°22' N, 56°38' E), 09-XI-2013, 3♂♂, swept from *M. sativa*, Kerman-Kiskan (29°22' N, 56°38' E), 28-XI-2013, 1♀, swept from *M. sativa*, Kerman-Rayen (29°33' N, 57°31' E), 11-V-2014.

Distribution in Iran: Kerman (Mohebban *et al.* 2015), Khorasan-e-Razavi (Barahoei *et al.* 2014), Fars and Mazandaran (Kolarov and Ghahari, 2007) provinces.

General distribution: Palaearctic, Nearctic (Yu *et al.* 2012).

7. *Dichrogaster saharator* (Aubert, 1964)

Material examined: 1♂, Malaise trap, Kerman-Koohpayeh, Miannahr (30°28' N, 57°19' N), 19-IV -2014.

Distribution in Iran: Ardabil, Fars (Kolarov and Ghahari, 2007; Sarafi *et al.* 2015), Isfahan (Barahoei *et al.* 2015b), Kerman (Mohebban *et al.* 2015), Khorasan-e-Razavi (Barahoei *et al.* 2014), Khuzestan, Mazandaran (Kolarov and Ghahari, 2007), Sistan-o- Baluchestan (Kolarov and Ghahari, 2007, Firuzi Jahantighi *et al.* 2012; Barahoei *et al.* 2013a), Tehran and Zanjan (Kolarov and Ghahari, 2007) provinces.

General distribution: Algeria; Bulgaria; Iran; Israel; Turkey (Yu *et al.* 2012).

8. *Lysibia nana* (Gravenhorst, 1829)

Material examined: 2♂♂, Malaise trap, Kerman-Koohpayeh (30°28' N, 57°18' E), 25-V-2013, 1♂, swept from *M. sativa*, Kerman-Negar (29°15' N, 56°24' E), 28-XI-2013; 1♀,

swept from *Origanum vulgare* L., Kerman-Sirch (30°11' N, 57°33' E), 22-V-2014.

Distribution in Iran: Isfahan (Barahoei *et al.* 2015b), Kerman (Mohebban *et al.* 2015), Mazandaran (Kolarov and Ghahari, 2007) and Qazvin (Ghahari and Schwarz, 2012) provinces.

General distribution: Palaearctic, Nearctic (Yu *et al.* 2012).

9. *Mesostenus albinotatus* Gravenhorst, 1829

Material examined: 2♂♂, swept from *Mentha pulegium*, Kerman-Sirch (30°11' N, 57°33' E), 22-V-2014; 1♂, Malaise trap, Kerman-Sirch (30°11' N, 57°34' E), 02-V-2014; 1♂, swept from *Hordeum vulgare* L., Kerman-Rayen (29°38' N, 57°25' E), 15-V-2013; 1♀, swept from *M. sativa*, Kerman-Rayen (29°32' N, 57°31' E), 06-VI-2013; 1♂, Malaise trap, Kerman-Chatrood (30°36' N, 56°55' E), 02-V-2014.

Distribution in Iran: Kerman province (Mohebban *et al.* 2015).

General distribution: Palaearctic, Nearctic (Yu *et al.* 2012).

10. *Trychosis legator* (Thunberg, 1824)

Material examined: 1♀, 1♂, swept from *M. sativa*, Kerman-Sirch (30°11' N, 57°33' E), 22-V-2014; 2♀♀, swept from *M. sativa*, Kerman-Sirch (30°11' N, 57°34' E), 19-VI-2013; 2♂♂, swept from *M. sativa*, Kerman-Rayen (29°38' N, 57°25' E), 27-IV-2014; 1♀, swept from *M. sativa*, Kerman-Sirch (29°38' N, 57°25' E), 02-V-2014; 1♀, Malaise trap, Kerman-Koohpayeh, Simk (30°29' N, 57°11' E), 02-V-2013.

Distribution in Iran: Azarbaijan-e-Gharbi, Sistan-o- Baluchestan (Kolarov and Ghahari, 2007), Fars (Masnadi-Yazdinejad, 2005; Masnadi-Yazdinejad and Jussila, 2008a), Khorasan-e-Razavi (Barahoei *et al.* 2014) and Qazvin (Ghahari and Schwarz, 2012) provinces.

General distribution: Palaearctic (Yu *et al.* 2012), Afrotropical (Gürbüz and Kolarov 2008).

Subfamily Diplazontinae Viereck, 1918

11. *Diplazon laetatorius* (Fabricius, 1781)

Material examined: 5♀♀, swept from *M. sativa*, Kerman-Qal-eh-Askar (29°31' N, 56°39' E), 14-XI-2013; 1♀, swept from *M. sativa*, Kerman-Kofnoeyeh (29°27' N, 56°37' E), 14-XI-2013; 1♀, swept from *M. sativa*, Kerman-Bezenjan (29°16' N, 56°41' E), 14-XI-2013; 2♀♀, swept from *M. sativa*, Kerman-Rabor (29°18' N, 56°52' E), 14-XI-2013; 1♀, Malaise trap, Kerman-Koohpayeh, Miannahr (30°28' N, 57°19' E), 03-VII-2013; 3♀♀, Malaise trap, Kerman-Miannahr (30°29' N, 57°19' E), 24-VII-2013; 1♂, Malaise trap, Kerman-Rayen (29°36' N, 57°24' E), 11-IV-2013; 3♀♀, Malaise trap, Kerman-Rayen (29°36' N, 57°24' E), 07-VII-2013; 2♀♀, Malaise trap, Kerman-Chatrood (30°36' N, 56°55' E), 03-VII-2013; 6♀♀, swept from *M. sativa*, Kerman-Kiskan (29°22' N, 56°38' E), 09-XI-2013; 2♀♀, swept from *M. sativa*, Kerman-Kiskan (29°22' N, 56°38' E), 28-XI-2013; 1♀, *M. sativa*, Kerman-Sirch (30°11' N, 57°33' E), 22-V-2014; 2♀♀, Malaise trap, Kerman-Sirch (30°11' N, 57°33' E), 22-V-2014; 1♀, swept from *Mentha pulegium* L., Kerman-Sirch (30°11' N, 57°33' E), 06-VI-2014; 3♀♀, swept from *M. sativa*, Kerman-Rayen (29°38' N, 57°25' E), 27-IV-2014; 4♀♀, swept from *Hordeum vulgare* L., Kerman-Rayen (29°38' N, 57°25' E), 15-V-2014; 5♀♀, swept from *M. sativa*, Kerman-Rayen (29°32' N, 57°31' E), 16-VI-2014; 1♀, swept from *M. sativa*, Kerman-Rayen (29°32' N, 57°31' E), 12-V-2014; 7♀♀, swept from *M. sativa*, Kerman-Rayen (29°32' N, 57°31' E), 11-V-2014; 16♀♀, swept from *M. sativa*, Kerman-Rayen (29°35' N, 57°19' N), 22-IV-2014; 1♀, swept from *Triticum aestivum* L., Kerman-Rayen (29°35' N, 57°19' E), 04-V-2014; 3♀♀, swept from *M. sativa*, 3♀♀, Malaise trap, Kerman-Chatrood (30°36' N, 56°55' E), 02-V-2014; 2♀♀, swept from *M. sativa*, Kerman-Kiskan (29°22' N, 56°38' E), 20-VI-

2014; 2♀♀, swept from *M. sativa*, Kerman-Gughar (29°30' N, 56°30' E), 14-VI-2014; 13♀♀, swept from *M. sativa*, Kerman-Gughar (29°26' N, 56°24' E), 14-VI-2014; 2♀♀, swept from *Mentha pulegium* L., Kerman-Rabor (29°31' N, 56°39' E), 09-V-2014; 3♀♀, swept *M. sativa*, Kerman-Negar (29°51' N, 56°48' E), 09-V-2014.

Distribution in Iran: Alborz, Guilan, Tehran (Mohammadi-khoramabadi *et al.* 2013c); Fars (Sarafi *et al.* 2015), Khorasan-e-Razavi (Barahoei *et al.* 2014), Kerman (Kolarov and Ghahari, 2005; Bakhtiarynasab *et al.* 2014), Khorasan-e-Shomali, Azarbaijan-e-Gharbi (Malkeshi and Kheiabani, 1997), Isfahan (Barahoei *et al.* 2015a), Mazandaran (Kolarov and Ghahari, 2005; Mohammadi-khoramabadi *et al.* 2013c), Chaharmahal-o-Bakhtiari (Nourbakhsh *et al.* 2008), Qazvin (Ghahari and Schwarz, 2012; Mohammadi-khoramabadi *et al.* 2013c), Sistan-o-Baluchestan (Barahoei *et al.* 2013a), Yazd (Zarepour *et al.* 2008, 2009).

General distribution: Worldwide (Yu *et al.* 2012).

Hosts: The known host of this species in Iran is *Scaeva albomaculata* (Macquart, 1842) (Dip.: Syrphidae) (Nourbakhsh *et al.* 2008; Barahoei *et al.* 2013a).

12. *Enizemum ornatum* (Gravenhorst, 1829)

Material examined: 3♂♂, swept from *M. sativa*, Kerman-Qal-eh-Askar (29°31' N, 56°39' E), 07-XI-2013; 3♂♂, swept from *M. sativa*, Kerman-Kofnoeyeh (29°27' N, 56°37' E), 14-XI-2013; 1♂, Malaise trap, Kerman-Miannahr (30°28' N, 57°19' E), 24-VII-2013; 1♂, Malaise trap, Kerman-Rayen (29°36' N, 57°24' E), 21-VI-2013; 1♂, swept from *M. sativa*, Kerman-Kiskan (29°22' N, 56°38' E), 28-XI-2013; 1♀, Malaise trap, Kerman-Sirch (30°11' N, 57°34' E), 02-V-2014; 1♀, Malaise trap, Kerman-Koohpayeh (30°28' N, 57°18' E), 02-V-2014; 1♀, swept from *M. sativa*, Kerman-Rayen (39°38' N, 57°25' E), 27-IV-2014; 2♀♀, swept from *M. sativa*, Kerman-Rayen (29°33' N, 57°31' E), 11-V-2014, 1♀, swept from

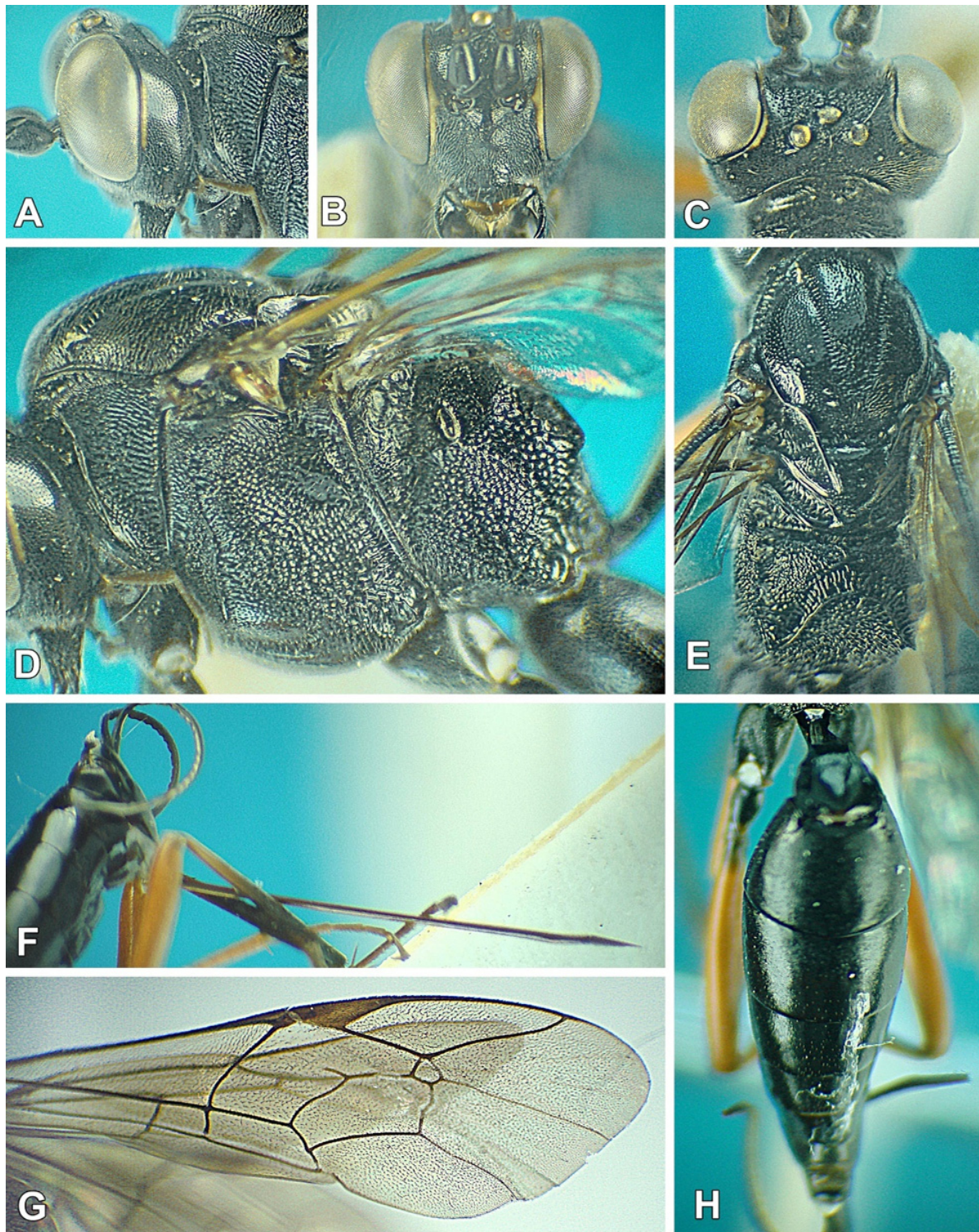


Figure 2. Female of *Cryptus armator* Fabricius: **A.** Head, lateral view; **B.** Head, frontal view; **C.** Head, dorsal view; **D.** Mesosoma; **E.** Mesoscutum and propodeum; **F.** Ovipositor; **G.** Fore wing; **H.** Metasoma, dorsal view.

M. sativa, Kerman-Rayen (29°35' N, 57°19' E), 22-IV-2014; 1♂, Malaise trap, Kerman-Chatrood (30°36' N, 56°55' E), 02-VI-2014; 1♀, swept from *M. sativa*, Kerman-Gughar (29°30' N, 56°30' E), 14-VI-2014.

Distribution in Iran: Fars (Sarafi *et al.* 2015), Isfahan (Barahoei *et al.* 2015a), Kerman (Bakhtiarynasab *et al.* 2015), Khorasan-e Razavi (Barahoei *et al.* 2014), Qazvin (Mohammadi-khoramabadi *et al.* 2013c), Sistan-o- Baluchestan (Barahoei *et al.* 2013a) provinces.

General distribution: Holarctic and Oriental (Klopfstein 2014).

Hosts: It is regarded as a parasitoid of *Scaeva albomaculata* (Macquart, 1842) (Dip.: Syrphidae) in Iran (Barahoei *et al.* 2013a).

13. **Enizemum schwarzi* Diller, 1987 (Fig. 3)

Material examined: 3♂♂, swept from *M. sativa*, Kerman-Kiskan (29°22' N, 56°38' E), 28-XI-2013.

Distribution in Iran: Kerman province (new for Iran).

General distribution: Greece; Israel; Italy; Spain (Klopfstein 2014), new for Iran.

Diagnosis (male): Length of fore wing 4.7 mm (Fig. 3G); linear and narrow tyloids on flagellomeres 7 to 14; large punctures on smooth and shining mesoscutum and mesopleuron (Figs. 3D, E); pleural and lateral longitudinal carinae on propodeum (Figs. 3D, E); median longitudinal and transverse carinae absent or present only as traces; with median dorsal carinae on basal half of first tergite; strong basal carinae on second tergite (Figs. 3F, H) (Klopfstein 2014).

14. *Homotropus elegans* Gravenhorst, 1829

Material examined: 2♀♀, Malaise trap, Kerman-Rayen (29°36' N, 57°24' E), 11-VI-2013; 1♂, swept from *M. sativa*, Kerman-Kiskan (29°22' N, 56°38' E), 28-XI-2013; 1♀, swept from *M. sativa*, Kerman-Rayen (29°38'

N, 57°28' E), 27-IV-2014; 3♀♀, Malaise trap, Kerman-Rayen (29°35' N, 57°19' E), 04-V-2014; 1♀, swept from *M. sativa*, Kerman-Negar (29°51' N, 56°48' E), 09-V-2013.

Distribution in Iran: Kerman province (Bakhtiarynasab *et al.* 2014).

General distribution: Palaearctic (Klopfstein 2014).

15. *Homotropus pictus* (Gravenhorst, 1829)

Material examined: 4♂♂, swept from *M. sativa*, Kerman-Kiskan (29°22' N, 56°38' E), 28-XI-2013.

Distribution in Iran: Mazandaran (Mohammadi-khoramabadi *et al.* 2013c) and Kerman provinces (current study).

General distribution: Palaearctic (Klopfstein 2014).

16. *Homotropus signatus* (Gravenhorst, 1829)

Material examined: ; 1♀ and 2♂♂, swept from *M. sativa*, Kerman-Kiskan (29°22' N, 56°38' E), 09-XI-2013; 3♀♀ and 2♂♂, swept from *M. sativa*, Kerman-Sirch (30°11' N, 57°33' E), 22-V-2014; 3♀♀, Malaise trap, Kerman-Sirch (30°11' N, 57°34' E), 02-V-2014; 2♀♀, swept from *M. sativa*, Kerman-Rayen (29°38' N, 57°25' E), 08-VI-2014; 1♀, swept from *Hordeum vulgare* L., Kerman-Rayen (29°38' N, 57°25' E), 15-V-2014; 5♀♀, swept from *M. sativa*, Kerman-Rayen (29°32' N, 57°31' E), 16-VI-2014; 10♂♂, swept from *M. sativa*, Kerman-Rayen (:29°35' N, 57°19' E), 22-IV-2014; 1♂, Malaise trap, Kerman-Simk (30°29' N, 57°11' E), 24-VII-2013; 1♂, Malaise trap, Kerman-Chatrood (30°36' N, 56°55' E), 02-V-2013; 20♀♀ and 5♂♂, swept from *M. sativa*, Kerman-Gughar (29°26' N, 56°24' E), 14-VI-2014; 2♂♂, swept from *M. sativa*, Kerman-Gughar (29°29' N, 56°33' E), 20-VI-2014; 5♀♀ and 1♂, swept from *M. sativa*, Kerman-Rabor (29°18' N, 56°53' E), 20-VI-2014; 1♀ and 1♂, swept from *M. sativa*, Kerman-

Rabor (29°19' N, 56°51' E), 09-V-2014; 4♀♀ and 1♂, swept from *M. sativa*, Kerman-Rabor (29°19' N, 56°52' E), 09-V-2014; 2♀♀, swept from *M. sativa*, Kerman-Negar (29°51' N, 56°48' E), 09-V-2014; 1♀ and 1♂, swept from *M. sativa*, Kerman-Rabor (29°18' N, 56°53' E), 20-VI-2014.

Distribution in Iran: Fars (Sarafi *et al.* 2015), Kerman (Barahoei *et al.* 2012; Bakhtiarynasab *et al.* 2014), Khorasan-e-Razavi (Barahoei *et al.* 2014) and Isfahan (Barahoei *et al.* 2015a) provinces.

General distribution: Holarctic (Klopfstein 2014).

17. *Promethes sulcator* (Gravenhorst, 1829)

Material examined: 2♀♀ and 2♂♂, swept from *M. sativa*, Kerman-Qal-eh-Askar (29°31' N, 56°39' E), 20-XI-2013; 6♀♀ and 1♂, swept from *M. sativa*, Kerman-Qal-eh-Askar (29°31' N, 56°39' E), 14-XI-2013; 1♂, swept from *M. sativa*, Kerman-Negar (29°44' N, 56°45' E), 29-VIII-2013; 1♀, swept from *M. sativa*, Kerman-Gughar (29°26' N, 56°24' E), 07-XI-2013; 1♀, swept from *M. sativa*, Kerman-Kofnoeyeh (29°27' N, 56°37' E), 14-XI-2013; 1♂, swept from *M. sativa*, Kerman-Bezenjan (29°16' N, 56°41' E), 14-XI-2013; 1♀ and 1♂, swept from *M. sativa*, Kerman-Bezenjan (29°16' N, 56°41' E); 14-XI-2013; 4♀, swept from *M. sativa*, Kerman-Rabor (29°18' N, 56°52' E), 14-XI-2013; 1♀, Malaise trap, Kerman-Koohpayeh, Miannahr (30°28' N, 57°19' E), 19-VI-2013; 1♀ and 1♂, swept from *M. sativa*, Kerman-Baghabor (29°31' N, 56°45' E), 29-VIII-2013; 12♀♀ and 9♂♂, swept from *M. sativa*, Kerman-Kiskan (29°22' N, 56°38' E); 09-XI-2013; 47♀♀ and 48♂♂, swept from *M. sativa*, Kerman-Kiskan (29°22' N, 56°38' E), 28-XI-2013; 1♂, swept from *M. sativa*, Kerman-Sirch (30°11' N, 57°34' E), 06-VI-2014; 1♂, swept from *M. sativa*, Kerman-Rayen (29°32' N, 57°31' E), 16-VI-2014; 1♂, swept from *M. sativa*, Kerman-Rayen (29°35' N, 57°19' E), 22-IV-2014; 1♀, Malaise trap, Kerman-Koohpayeh, Simk (30°29' N, 57°11'

E), 19-VI-2013; 3♂♂, swept from *M. sativa*, Kerman-Kiskan (29°22' N, 56°38' E), 20-VI-2014; 1♂, swept from *M. sativa*, Kerman-Gughar (29°27' N, 56°24' E), 14-VI-2014.

Distribution in Iran: Isfahan (Barahoei *et al.* 2015a), Khorasan-e-Razavi (Barahoei *et al.* 2014), Alborz, Guilan, Tehran (Mohammadi-khoramabadi *et al.* 2013c), Sistan-o-Baluchistan (Barahoei *et al.* 2013a) and Kerman (current study) provinces.

General distribution: Holarctic and Oriental (Klopfstein 2014).

Subfamily Ichneumoninae Latreille, 1802

18. *Apaeleticus bellicosus* Wesmeal, 1845

Material examined: 1♀, Malaise trap, Kerman-Sirch (30°11' N, 57°34' E), 02-V-2014; 1♀, swept from *M. sativa*, Kerman-Sirch (30°11' N, 57°34' E), 28-XI-2013; 1♀, Malaise trap, Kerman-Chatrood (30°36' N, 56°55' E), 02-V-2014; 1♂, swept from *M. sativa*, Kerman-Gughar (29°26' N, 56°24' E), 14-VI-2014.

Distribution in Iran: Kerman province (Mohebban *et al.* 2015).

General distribution: Palaearctic (Yu *et al.* 2012).

19. *Barichneumon derogator* (Wesmeal, 1845)

Material examined: 1♂, swept from *M. sativa*, Kerman-Kiskan (29°22' N, 56°38' E), 20-VI-2014.

Distribution in Iran: Kerman province (Mohebban *et al.* 2015).

General distribution: Palaearctic (Yu *et al.* 2012).

20. **Barichneumon gaullei* Berthoumieu, 1903 (Fig. 4)

Material examined: 1♀, Malaise trap, Kerman-Simk (30°29' N, 57°11' E), 02-V-2014; 1♀, swept from *M. sativa*, Kerman-Rayen (29°35' N, 57°19' E), 16-VI-2014; 1♀, Malaise trap, Kerman-Simk (30°29' N, 57°11' E), 16-V-2014.



Figure 3. Male of *Enizemum schwarzi* Diller: **A.** Head, lateral view; **B.** Head, frontal view; **C.** Head, dorsal view; **D.** Mesosoma; **E.** Mesoscutum and propodeum; **F.** Metasoma, lateral view; **G.** Fore wing; **H.** Metasoma, dorsal view.

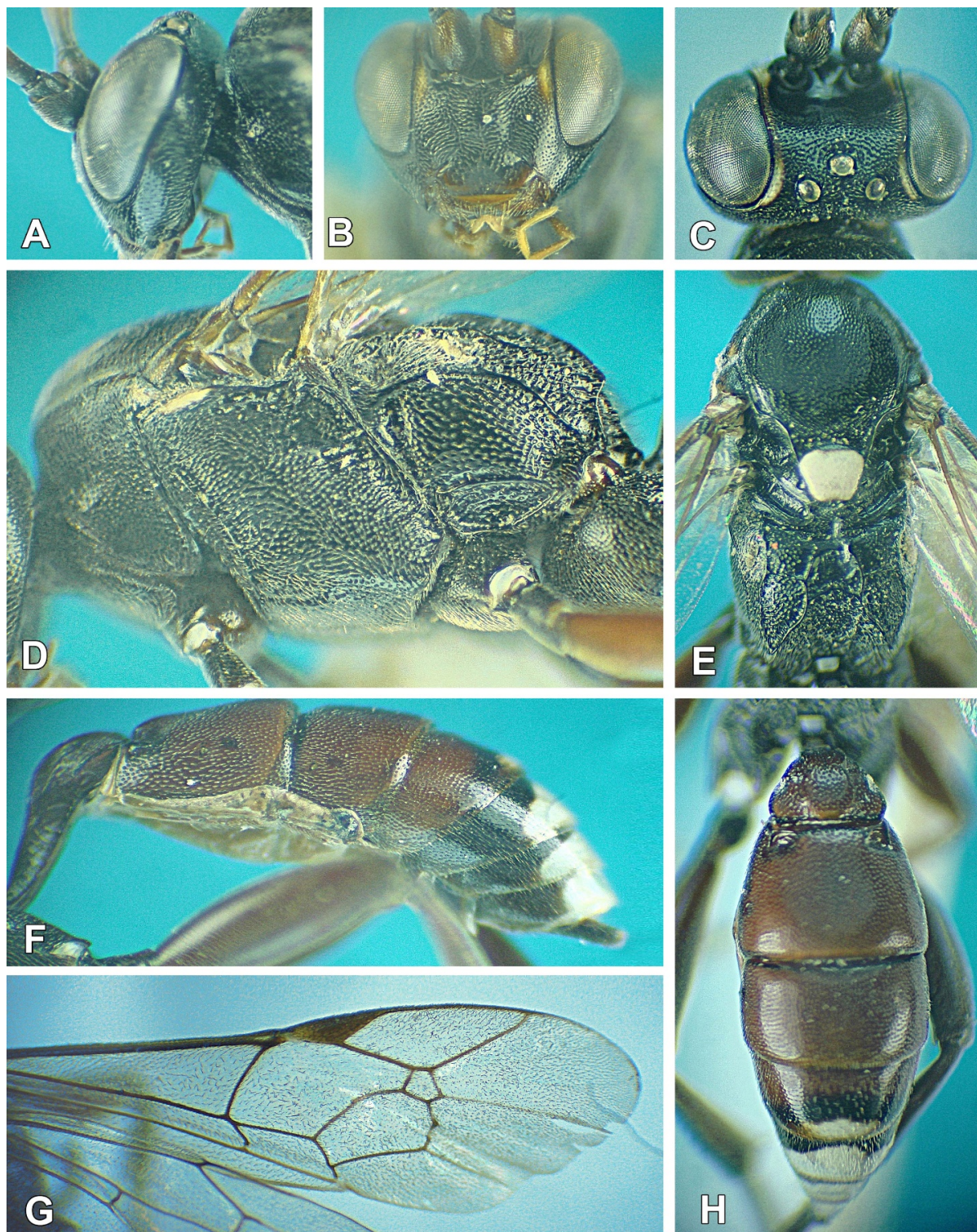


Figure 4. Female of *Barichneumon gaullei* Berthoumieu: **A.** Head, lateral view of; **B.** Head, frontal view; **C.** Head, dorsal view; **D.** Mesosoma; **E.** Mesoscutum and propodeum; **F.** Metasoma, lateral view; **G.** Fore wing; **H.** Metasoma, dorsal view.

General distribution: France; Spain (Yu *et al.* 2012), new for Iran.

Diagnosis: Flagellum with 33 segments, widest flagellomeres about 1.3x wider than long; postpetiole densely punctate (Figs. 4F, H); hind coxa without scopa, hind femur punctate; flagellomeres 8-13 with dentine stripes; spots on vertex (Figs. 4A, C), subtegular ridge (Fig. 4D), scutellum (Fig. 4E) and wide spots on tergites 6-7 ivory (Figs. 4F, H); tergites 1-3 reddish (Figs. 4F, H); hind legs except coxae and trochanters red, tarsi brownish (Diller and Horstmann, 1997).

21. *Colpognathus grandiculus* Diller and Riedel, 2015

Material examined: 2♂♂, swept from *M. sativa*, Kerman-Sirch (30°11' N, 57°28' E), 22-V-2014, 1♂, Malaise trap, Kerman-Koohpayeh (30°28' N, 57°18' E), 02-V-2014.

Distribution in Iran: Kerman province (Diller and Riedel, 2015).

General distribution: Azerbaijan, Turkey and Iran (Diller and Riedel, 2015).

22. *Ctenichneumon devylderi* (Holmgren, 1871)

Material examined: 2♂♂, Malaise trap, Kerman-Sirch (30°11' N, 57°34' E), 02-V-2014; 1♂, Kerman-Rayen (29°35' N, 57°19' E), 04-V-2014.

Distribution in Iran: Qom (Masnadi-Yazdinejad and Jussila, 2008b) and Kerman provinces (Mohebban *et al.* 2015).

General distribution: Palaearctic (Yu *et al.* 2012).

23. *Ctenichneumon edictorius* (Linnaeus, 1758)

Material examined: 1♂, swept from *M. sativa*, Kerman- Kiskan (29°22' N, 56°38' E), 20-VI-2014.

Distribution in Iran: Guilan and Golestan (Kolarov and Ghahari, 2005) and Kerman provinces (Mohebban *et al.* 2015).

General distribution: Palaearctic (Yu *et al.* 2012).

24. *Diadromus collaris* (Gravenhorst, 1829)

Material examined: 1♂, swept from *M. sativa*, Kerman-Rayen (30°11' N, 57°33' E), 22-VI-2014; 1♀, swept from *M. sativa*, Kerman-Rayen (29°38' N, 57°25' E), 27-IV-2014; 1♀, swept from *M. sativa*, Kerman-Rayen (29°32' N, 57°31' E), 16-VI-2014; 3♀♀; swept from *M. sativa*, Kerman-Rayen (29°35' N, 57°19' E), 14-IV-2014; 5♀♀ and 1♂, swept from *M. sativa*, Kerman-Gughar (29°36' N, 56°24' E), 14-VI-2014.

Distribution in Iran: Fars (Sarafi *et al.* 2015), Golestan (Kolarov and Ghahari, 2008; Ghahari and Jussila, 2011d), Isfahan (Afiunizadeh and Karimzadeh, 2010; Barahoei *et al.* 2015a), Kerman (Mohebban *et al.* 2015), Khorasan-e-Razavi (Barahoei *et al.* 2014), Sistan-o -Baluchistan (Firuzi Jahantighi *et al.* 2012; Barahoei *et al.* 2013a) and Semnan (Ghahari 2012) provinces.

General distribution: Holarctic (Yu *et al.* 2012).

25. *Heterischnus filiformis* (Gravenhorst, 1829)

Material examined: 2♂♂, Malaise trap, Kerman- Sirch (30°11' N, 57°34' E), 02-V-2014; 1♀, Malaise trap, Kerman-Koohpayeh (30°28' N, 57°18' E), 02-V-2014; 1♂, swept from *M. sativa*, Kerman-Rayen (29°32' N, 57°31' E), 16-VI-2014; 1♂, Malaise trap, Kerman- Koohpayeh, Simk (30°11' N, 57°34' E), 02-V-2014.

Distribution in Iran: Isfahan (Barahoei *et al.* 2015a), Kerman (Mohebban *et al.* 2015) and Khorasan-e-Razavi provinces (Barahoei *et al.* 2014).

General distribution: Palaearctic (Yu *et al.* 2012).

26. *Ichneumon sarcitorius* Linnaeus, 1758

Material examined: 1♂, Malaise trap, Kerman-Sirch (30°11' N, 57°34' E), 02-V-2014;

1♂, swept from *M. sativa*, Kerman-Kiskan (29°22' N, 56°38' E), 20-VI-2014; 1♀, swept from *M. sativa*, Kerman-Gughar (29°26' N, 56°24' E), 14-VI-2013.

Distribution in Iran: Azarbaijan-e-Sharghi (Masnadi-Yazdinejad and Jussila, 2008b), Fars (Sarafi *et al.* 2015), Golestan (Mojeni and Sedivy, 2001; Kolarov and Ghahari, 2005) and Semnan provinces (Kolarov and Ghahari, 2008).

General distribution: Palaearctic (Selfa 1996; Yu *et al.* 2012).

Known host in Iran: The known host of this species in Iran is *Helicoverpa armigera* (Hubner, 1808) (Lep.: Noctuidae) (Mojeni and Sedivy, 2001).

27. *Platylabus iridipennis* Gravenhorst, 1829

Material examined: 1♀, swept from *M. sativa*, Kerman-Sirch (30°11' N, 57°34' E), 19-IV-2014; 1♀, swept from *M. sativa*, Kerman-Sirch (30°11' N, 57°34' E), 07-V-2014; 1♀, Malaise trap, Kerman-Koohpayeh (30°28' N, 57°18' E), 02-V-2014; 1♀, Malaise trap, Kerman-Simk (30°29' N, 57°11' E), 02-V-2014; 1♀, swept from *M. sativa*, Kerman-Sirch (30°11' N, 57°34' E), 22-V-2014.

Distribution in Iran: Qazvin province (Ghahari and Schwarz, 2012).

General distribution: Palaearctic (Yu *et al.* 2012).

28. *Spilothyrates illuminatorius* (Gravenhorst, 1820)

Material examined: 2♂♂, swept from *M. sativa*, Kerman- Kiskan (29°22' N, 56°38' E), 28-XI-2013.

Distribution in Iran: Mazandaran (Kolarov and Ghahari, 2008), Guilan (Ghahari *et al.* 2010) and Semnan (Ghahari 2012) provinces.

General distribution: Palaearctic (Yu *et al.* 2012).

Subfamily Metopiinae Förster, 1869

29. *Exochus castaniventris* Brauns, 1896

Material examined: 1♂, Malaise trap, Kerman-Kereshk (30°26' N, 56°35' E), 06-VII-2013; 3♀♀, Malaise trap, Kerman-Rayen (29°36' N, 57°24' E), 06-VII-2013; 1♀, swept from *M. sativa*, Kerman-Kiskan (29°22' N, 56°38' E), 09-XI-2013; 7♀♀ and 13♂♂, Malaise trap, Kerman-Chatrood (30°36' N, 56°55' E), 03-VII-2013.

Distribution in Iran: Isfahan (Masnadi-Yazdinejad and Jussila, 2009; Barahoei *et al.* 2015a), Tehran (Masnadi-Yazdinejad and Jussila, 2009), Qazvin (Ghahari and Schwarz, 2012) and Semnan (Ghahari 2012) provinces.

General distribution: Palaearctic (Yu *et al.* 2012).

30. *Exochus mitratus* Gravenhorst, 1829

Material examined: 1♂, swept from *M. sativa*, Kerman-Rayen (29°35' N, 57°19' E), 22-IV-2014; 4♂♂, swept from *M. sativa*, Kerman-Kiskan (29°22' N, 56°38' E), 20-VI-2013.

Distribution in Iran: Tehran (Masnadi-Yazdinejad and Jussila, 2009) and Kerman provinces (current study).

General distribution: Holarctic (Yu *et al.* 2012).

Subfamily Orthocentrinae Förster, 1869

31. *Orthocentrus asper* Gravenhorst, 1829

Material examined: 1♂, Malaise trap, Kerman-Miannahr (30°28' N, 57°19' E), 03-VII-2013; 2♀♀, Malaise trap, Kerman-Sirch (30°11' N, 57°34' E), 19-VI-2013.

Distribution in Iran: Fars (Sarafi *et al.* 2015), Guilan and Tehran (Mohammadi-khoramabadi and Talebi, 2013a) provinces.

General distribution: Palaearctic (Yu *et al.* 2012).

32. *Orthocentrus castellanus* Ceballos, 1963

Material examined: 1♂, swept from *M. sativa*, Kerman-Kiskan (29°22' N, 56°38' E), 09-XI-2013.

Distribution in Iran: Tehran province (Mohammadi-khoramabadi and Talebi, 2013a).

General distribution: Bulgaria; Spain (Yu *et al.* 2012).

Subfamily Pimplinae Wesmael, 1845

33. *Itoplectis alternans* (Gravenhorst, 1829)

Material examined: 1♀, swept from *M. sativa*, Kerman-Kiskan (29°22' N, 56°38' E), 28-XI-2013.

Distribution in Iran: Fars (Lotfalizadeh *et al.* 2012), Guilan (Mohammadi-khoramabadi *et al.* 2013b), Isfahan (Barahoei *et al.* 2015a), Khorasan-e-Razavi (Ghahari *et al.* 2014) and Kerman (current study) provinces.

General distribution: Palaearctic (Yu *et al.* 2012).

Hosts: Reared from *Lobesia botrana* (Denis and Schiffermüller, 1775) (Lep.: Tortricidae) in Iran (Lotfalizadeh *et al.* 2012).

34. *Itoplectis tunetana* (Schmiedeknecht, 1914)

Material examined: 1♀, Malaise trap, Kerman-Koohpayeh, Miannahr (30°28' N, 57°19' E), 19-VI-2014; 1♀ and 5♂♂, swept from *M. sativa*, Kerman-Kiskan (29°22' N, 56°38' E), 28-XI-2013.

Distribution in Iran: Guilan, Tehran (Mohammadi-khoramabadi *et al.* 2013b), Isfahan (Barahoei *et al.* 2015a), Khorasan-e-Razavi (Barahoei *et al.* 2014), Qazvin (Ghahari and Schwarz, 2012), Sistan-o-Baluchestan (Barahoei *et al.* 2013a) and West-Azerbaijan (Akbarzadeh, 2011) provinces.

General distribution: Palaearctic (Yu *et al.* 2012).

35. *Pimpla arcadica* Kasparyan, 1973

Material examined: 1♀, swept from *M. sativa*, Kerman-Rabor (29°18' N, 56°52' E), 14-XI-2013; 2♀♀ and 3♂♂, Malaise trap,

Kerman-Sirch (30°11' N, 57°34' E), 19-VI-2014; 1♂, Malaise trap, Kerman-Sirch (30°11' N, 57°34' E), 19-VI-2013; 1♂, Malaise trap, Kerman-Koohpayeh, Simk (30°29' N, 57°11' E), 19-VI-2013; 2♀♀ and 1♂, Malaise trap, Kerman-Chatrood (30°36' N, 56°55' E), 03-VII-2013; 2♂♂, swept from *M. sativa*, Kerman-Kiskan (29°22' N, 56°38' E), 09-XI-2013; 3♂♂, swept from *M. sativa*, Kerman-Kiskan (29°22' N, 56°38' E), 28-XI-2013; 1♂, swept from *Medicago sativa*, Kerman-Kiskan (29°22' N, 56°38' E), 20-VI-2013; 1♂, Malaise trap, Kerman-Simk (30°29' N, 57°11' E), 03-VII-2013.

Distribution in Iran: Khuzestan (Kolarov and Ghahari, 2006), West-Azerbaijan (Akbarzadeh 2011) and Kerman provinces (current study).

General distribution: Bulgaria; Iran; Norway; Sweden; Turkey; Ukraine (Yu *et al.* 2012).

Discussion

Iran is located in the western Palaearctic, at the crossroads between the Palaearctic, Oriental and Afrotropical regions, and thus its fauna has elements of all three regions. The distribution and biology of the majority of Iranian ichneumonid wasps are not well known (Masnadi-Yazdinejad *et al.* 2010).

In the present study a total of 35 species belonging to eight subfamilies were identified and recorded from Kerman province, among them three species were recorded for the first time for Iran fauna. Prior to this study, 70 species belonging to 11 subfamilies of Ichneumonidae were recorded from Kerman province (Barahoei *et al.* 2012; Mohebban *et al.* 2015; Bakhtiarynasab *et al.* 2015; Mahyabadi *et al.* 2016; Mohammadi-khoramabadi *et al.* 2016). In the present study 16 other species are added to previous records which increased the number of species from 70 to 86 for Kerman province.

Table 1. Ichneumonidae species recorded from Kerman province

Subfamily	Species	Reference
Acaenitinae	<i>Coleocentrus caligatus</i> Gravenhorst, 1829	Masnadi <i>et al.</i> (2010)
Anomaloninae	<i>Heteropelma signatum</i> (Gravenhorst 1829)	Schwarz (2009)
Banchinae	<i>Exetastes adpressorius</i> (Thunberg, 1822)	New for Kerman (this study)
	<i>Exetastes syriacus</i> Schmiedeknecht, 1910	New for Kerman (this study)
	<i>Bathyplectes</i> sp.	Mohammadi-Khoramabadi <i>et al.</i> (2016)
	<i>Campoletis rapex</i> (Gravenhorst, 1829)	Mohammadi-Khoramabadi <i>et al.</i> (2016)
Campopleginae	<i>Diadegma armillatum</i> (Gravenhorst, 1829)	Mohammadi-Khoramabadi <i>et al.</i> (2016)
	<i>Diadegma majale</i> (Gravenhorst, 1829)	Mohammadi-Khoramabadi <i>et al.</i> (2016)
	<i>Diadegma semiclausum</i> (Hellen, 1949)	Mohammadi-Khoramabadi <i>et al.</i> (2016)
	<i>Hyposoter</i> sp.	Mohammadi-Khoramabadi <i>et al.</i> (2016)
	<i>Venturia canescens</i> (Gravenhorst, 1829)	Kolarov and Ghahari (2005)
Collyriinae	<i>Collyria coxator</i> (Villers, 1789)	Kolarov and Ghahari (2005)
Cremastinae	<i>Temelucha decorate</i> (Gravenhorst, 1829)	Mohammadi-Khoramabadi <i>et al.</i> (2016)
	<i>Bathythrix maculata</i> (Hellén, 1957)	Kolarov and Ghahari (2007)
	<i>Cryptus armator</i> Fabricius, 1804	New for Iran (this study)
	<i>Cryptus inculcator</i> (Linnaeus, 1758)	Mohebban <i>et al.</i> (2015)
	<i>Dichrogaster longicaudata</i> (Thomson, 1884)	Mohebban <i>et al.</i> (2015)
	<i>Dichrogaster saharator</i> (Aubert, 1964)	Mohebban <i>et al.</i> (2015)
	<i>Gelis bicolor</i> (Villers, 1789)	Mahyabadi <i>et al.</i> (2016)
	<i>Gelis exareolatus</i> (Förster, 1850)	van Achterberg and Mehrnejad (2002)
Cryptinae	<i>Gelis kermaniae</i> Schwarz, 2009	Schwarz (2009)
	<i>Gelis liparae</i> (Giraud, 1863)	van Achterberg and Mehrnejad (2002)
	<i>Hoplocryptus heliophilus</i> (Tschek, 1871)	Mahyabadi <i>et al.</i> (2016)
	<i>Lysibia nana</i> (Gravenhorst, 1829)	Mohebban <i>et al.</i> (2015)
	<i>Mesostenus albinotatus</i> Gravenhorst, 1829	Mohebban <i>et al.</i> (2015)
	<i>Mesostenus grammicus</i> Gravenhorst, 1829	Mahyabadi <i>et al.</i> (2016)
	<i>Mesostenus transfuga</i> Gravenhorst, 1829	Mahyabadi <i>et al.</i> (2016)
	<i>Meringopus sogdianus</i> (Maljavin, 1968)	Kolarov and Ghahari (2005)
	<i>Phygadeuon</i> sp.	Mahyabadi <i>et al.</i> (2016)
	<i>Trychosis legator</i> (Thunberg, 1824)	Mahyabadi <i>et al.</i> (2016)
	<i>Diplazon laetatorius</i> (Fabricius, 1781)	Bakhtiarynasab <i>et al.</i> (2015)
	<i>Enizemum ornatum</i> (Gravenhorst, 1829)	Bakhtiarynasab <i>et al.</i> (2015)
	<i>Enizemum schwarzi</i> Diller, 1987	New for Iran (this study)
Diplazontinae	<i>Homotropus elegans</i> Gravenhorst, 1829	Bakhtiarynasab <i>et al.</i> (2014, 2015)
	<i>Homotropus pictus</i> (Gravenhorst, 1829)	New for Kerman (this study)
	<i>Homotropus signatus</i> (Gravenhorst, 1829)	Bakhtiarynasab <i>et al.</i> (2015)
	<i>Promethes sulcator</i> (Gravenhorst, 1829)	New for Kerman (this study)
	<i>Anisobas cingulatellus</i> Horstmann, 1997	Mohebban <i>et al.</i> (2015)
	<i>Apaeleticus bellicosus</i> Wesmeal, 1845	Mohebban <i>et al.</i> (2015)
	<i>Barichneumon derogator</i> (Wesmeal, 1845)	Mohebban <i>et al.</i> (2015)
	<i>Barichneumon gaullei</i> Berthoumieu, 1903	New for Iran (this study)
	<i>Colpognathus grandiculus</i> Diller & Riedel, 2015	Diller and Riedel 2015
	<i>Cratichneumon semirufus</i> (Gravenhorst, 1820)	Kolarov and Ghahari (2008)
	<i>Ctenichneumon devyldeeri</i> (Holmgren, 1871)	Mohebban <i>et al.</i> (2015)
Ichneumoninae	<i>Ctenichneumon edictorius</i> (Linnaeus, 1758)	Mohebban <i>et al.</i> (2015)
	<i>Dicaelotus montanus</i> (di Stefani, 1885)	Kazemi <i>et al.</i> (2014)
	<i>Diadromus collaris</i> (Gravenhorst, 1829)	Mohebban <i>et al.</i> (2015)
	<i>Eutanyacra picta</i> (Schrank, 1776)	Kolarov and Ghahari (2008)
	<i>Heterischnus filiformis</i> (Gravenhorst, 1829)	Mohebban <i>et al.</i> (2015)
	<i>Ichneumon sarcitorius</i> Linnaeus, 1758	New for Kerman (this study)
	<i>Platylabus iridipennis</i> Gravenhorst, 1829	New for Kerman (this study)
	<i>Spilothyrates illuminatorius</i> (Gravenhorst, 1820)	New for Kerman (this study)
Mesochorinae	<i>Mesochorus pictilis</i> Holmgren, 1860	Mohammadi-Khoramabadi <i>et al.</i> (2016)
	<i>Exochus castaniventris</i> Brauns, 1896	New for Kerman (this study)
Metopiinae	<i>Exochus mitratus</i> Gravenhorst, 1829	New for Kerman (this study)
	<i>Enicospilus kokujevi</i> Viktorov, 1957	Mohammadi-Khoramabadi <i>et al.</i> (2016)
Ophioninae	<i>Ophion obscuratus</i> Fabricius, 1798	Masnadi-Yazdinejad <i>et al.</i> (2010)
	<i>Megastylus orbitator</i> Schiodte, 1839	Bakhtiarynasab <i>et al.</i> (2015)

Subfamily	Species	Reference
Orthocentrinae	<i>Orthocentrus asper</i> Gravenhorst, 1829	New for Kerman (this study)
	<i>Orthocentrus castellanus</i> Ceballos, 1963	New for Kerman (this study)
	<i>Orthocentrus winnertzii</i> Forster, 1850	Mohammadi-Khoramabadi <i>et al.</i> (2014)
	<i>Picrostigeus recticauda</i> (Thomson, 1897)	Mohammadi-Khoramabadi <i>et al.</i> (2016)
	<i>Picrostigeus ventrodentatus</i> Mohammadi-Khoramabadi & Talebi, 2015	Bakhtiarynasab <i>et al.</i> (2015)
	<i>Stenomacrus affinitor</i> Aubert, 1981	Bakhtiarynasab <i>et al.</i> (2015)
Pimplinae	<i>Dolichomitus krieckbaumeri</i> (Schulz, 1906)	Bakhtiarynasab <i>et al.</i> (2015)
	<i>Exeristes roborator</i> (Fabricius, 1793)	Kolarov and Ghahari (2005)
	<i>Itopectis alternans</i> (Gravenhorst, 1829)	New for Kerman (this study)
	<i>Itopectis tunetana</i> (Schmiedeknecht, 1914)	Mohammadi-Khoramabadi <i>et al.</i> (2014, 2016)
	<i>Itopectis viduata</i> (Gravenhorst, 1829)	Ghahari <i>et al.</i> (2010b)
	<i>Liotryphon caudatus</i> (Ratzeburg, 1848)	Mohammadi-Khoramabadi <i>et al.</i> (2014)
	<i>Paraperithus gnathaulax</i> (Thomson, 1877)	Kolarov and Ghahari (2006)
	<i>Perithous septemcinctorius</i> (Thunberg, 1824)	Bakhtiarynasab <i>et al.</i> (2015)
	<i>Pimpla arcadica</i> Kasparyan, 1973	New for Kerman (this study)
	<i>Pimpla flavicoxis</i> Thomson, 1877	Mohammadi-Khoramabadi <i>et al.</i> (2014)
	<i>Pimpla rufipes</i> (Miller, 1759)	Bakhtiarynasab <i>et al.</i> (2015)
	<i>Pimpla spuria</i> Gravenhorst, 1829	Bakhtiarynasab <i>et al.</i> (2015)
	<i>Pimpla turionella</i> (Linnaeus, 1758)	Mohammadi-Khoramabadi <i>et al.</i> (2016)
	<i>Scambus nigricans</i> (Thomson, 1877)	Kolarov and Ghahari (2006)
	<i>Scambus vesicarius</i> Ratzeburg, 1844	Bakhtiarynasab <i>et al.</i> (2015)
	<i>Schizopyga podagrica</i> Gravenhorst, 1829	Mohammadi-Khoramabadi <i>et al.</i> (2016)
	<i>Zabrachypus</i> sp.	Mohammadi-Khoramabadi <i>et al.</i> (2014)
	<i>Zaglyptus multicolor</i> (Gravenhorst, 1829)	Kolarov and Ghahari (2006)
	<i>Zatypota bohemani</i> (Holmgren, 1860)	Bakhtiarynasab <i>et al.</i> (2015)
Tersilochinae	<i>Aneuclis incidens</i> (Thomson, 1889)	Barahoei <i>et al.</i> 2013b
	<i>Phradis vinosus</i> Khalaim, 2007	Mohammadi-Khoramabadi <i>et al.</i> (2016)
Tryphoninae	<i>Netelia (Toxochiloides) tunetana</i> (Habermehl, 1923)	Kolarov and Ghahari 2006

The recorded species of each subfamily in Kerman province (including the current study) are as follows: Acaenitina (one species), Anomaloninae (one species), Banchinae (two species), Campopleginae (seven species), Collyriinae (one species), Cremastinae (one species), Cryptinae (17 species), Diplazontinae (seven species), Ichneumoninae (15 species), Mesochorinae (one species), Metopiinae (two species), Ophioninae (two species), Orthocentrinae (seven species), Pimplinae (19 species), Tersilochinae (two species) and Tryphoninae (one species)(Table 1).

Kerman province is the largest province of Iran and situated on Southern-east of country (11.15% of whole country). This region Including Zagros Mountains, central mountains and lowland deserts and is located next to the Loot desert which is one of the hottest areas from Iran and the world. However, presence of mountains

including Kuhbanan (3775m), Jaftan (3975m) and Pelvar (4233m) at the margin of the desert moderates its destroying effects on fauna and flora of the region. Kerman province is divided into two distinct sections by Zagros and central mountains, arid deserts and temperate valleys which meet together form three zones: desert and marginal desert, tropical zones and temperate mountain zones (Kerman Management and Planning Organization 2007). So with attention to this climatic characteristics it is possible that with more investigations, the number of species increased and other records for Kerman province and Iran may be added. Most of the species collected in the present study are lepidopteran parasitoids, which are important pests of agricultural plants. Further studies are necessary to reveal the potential of these species for biological control programs.

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مطالعه خانواده Ichneumonidae (Hym.: Ichneumonoidea) در استان کرمان، جنوب شرق ایران

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چکیده: فون خانواده Ichneumonidae استان کرمان از فروردین ماه سال ۱۳۹۲ تا تیرماه سال ۱۳۹۳ مورد بررسی قرار گرفت. در مجموع ۳۵ گونه متعلق به ۲۲ جنس و هشت زیرخانواده جمع‌آوری و شناسایی شد که از بین آنها گونه‌های *Cryptus armator* Fabricius, 1804 و *Enizemum schwarzi* Diller, 1987 و *Barichneumon gaullei* Berthoumieu, 1903 اولین بار از ایران گزارش می‌شوند. لیست به روز شده گونه‌های این خانواده در استان کرمان ارائه شده است. این اطلاعات می‌تواند برای برنامه‌های مهار زیستی مفید باشد.

واژگان کلیدی: Ichneumonidae، ایران، پراکنش، گزارش‌های جدید، کاتالوگ