



A checklist of Iranian Cryptinae (Hymenoptera: Ichneumonidae)

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ABSTRACT. A checklist of Iranian Cryptinae (Hymenoptera: Ichneumonidae) for all species recorded in Iran is given. The list is based on detailed studies of all available published data and some new collected samples. Until now 123 species in 42 genera belonging to 3 tribes of this subfamily have been known from Iran. Cryptinae is the most species-rich subfamilies of Ichneumonidae, and has a worldwide distribution. Two genera, *Goryphus* Holmgren, 1868 and *Thaumatogelis* Schwarz, 1995 were recorded for the first time for the Iranian fauna. Many parts of the country are still studied insufficiently or even not studied at all, so we suppose that the total species richness in Iran is essentially higher.

Key words: Cryptinae, fauna, Iran, new record, parasitic wasps.

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Introduction

Hymenoptera is one of the most diverse insect orders worldwide, with more than 152,677 known species (Aguiar *et al.* 2013). The Ichneumonidae (Hymenoptera) is one of the most species-rich families of all organisms with more than 24,000 described species classified into 39 subfamilies in the world (Quicke 2015). Members of this family are parasitoids of various insects including Lepidoptera, Coleoptera, Hymenoptera, Diptera and even reared from spiders and other arthropod groups (Gauld 1991; Çoruh and Kolarov 2010), furthermore the members of this family can be useful for biological control programs.

The Cryptinae is the largest subfamily in the Ichneumonidae family with 397 genera and some similarities to Ichneumoninae, with which it may be confused (Wahl and Sharkey 1993; Yu *et al.* 2012). Most of the species are idiobiont ectoparasitoids on pupae or prepupae of holometabolous insects, while some genera comprise the koinobiont endoparasitoids (Quicke *et al.* 2009). The fauna of Iranian Cryptinae is poorly studied; the last checklist of the Iranian Ichneumonidae was published by Barahoei *et al.* (2012), who listed 94 species belonging to 38 genera for Cryptinae subfamily. Species checklists are helpful tools in the fields of natural sciences.

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In the present work, a complete list of Cryptinae from Iran is provided. The aim of the present paper is to summarize all accessible published data on Cryptinae of Iran. Furthermore, these results will provide a base for future studies on biodiversity, systematics and biocontrol programs.

Material and methods

The present paper includes available data from the literature and private collection of Iranian Cryptinae. The new material has been collected from March 2014 to August 2015 using Malaise traps in some areas of Jiroft county (southeast Iran), Kerman province (Fig. 1). Illustrations were made using the ZEISS stemi 2000c stereomicroscope equipped with the Sony DSC-H50 digital camera. Identification keys were provided from subfamily to species

level based on external morphological characters and reasonable pictures. Specimens were identified by last author. Identification of new records was confirmed by Matthias Riedel (Bärenbadstr. 11, D-82487 Oberammergau, Germany).

The specimens of Cryptinae are deposited in the insect collection, Department of Plant Protection, Shahid Bahonar University of Kerman. Synonyms for the species are not included because these data are readily accessible in Yu *et al.* (2012). Host associations are only presented for Iranian species that their hosts have been recorded from Iran. Species names are arranged alphabetically by tribes, genera and species. The classification, taxonomic arrangement, nomenclature and general distribution of Cryptinae followed Yu *et al.* (2012). The valid names and distribution in Iran are provided for each species.

	Location	Position	Elevation (m)
1	Dalfard	28° 57' N 57° 38' E	1355
2	Faryab	28° 04' N 57° 13' E	640
3	Jiroft	28° 33' N 57° 51' E	855
4	Maskoon	28° 51' N 57° 52' E	1665
5	Rezvan	28° 37' N 57° 56' E	1280
6	Sarbijan	29° 06' N 57° 32' E	3043

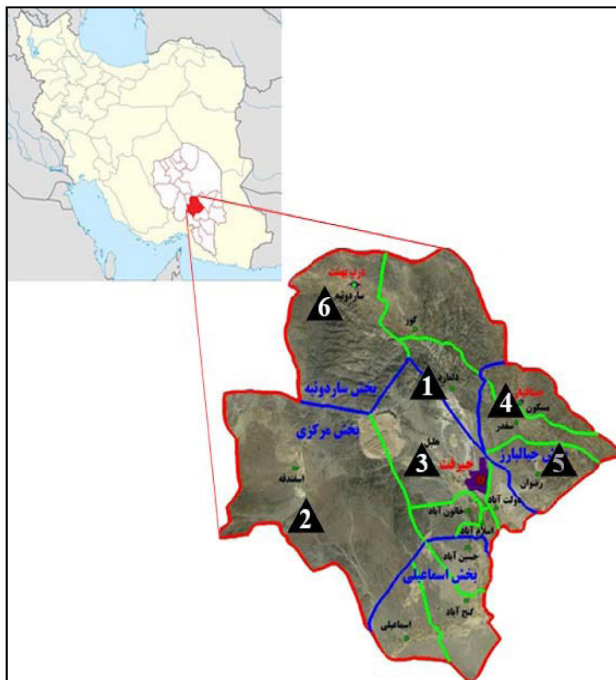


Figure 1. Location of Malaise traps in some areas in Jiroft county, Kerman province.

Results

A total of 123 species of Cryptinae in 42 genera belonging to 3 tribes are listed below alphabetically. The data are sorted to the valid name, author and year, provincial distribution in Iran, the general distribution of species as well as the remarks. Among them, genus *Gelis* Thunberg, 1827 with 17 recorded species is the most diverse taxon. New evidences for the occurrence of some species are also given, that indicated by a black triangle (▲) and species that added to the checklist marked with plus sign (+). Totally 101 specimens belonging to 12 species are collected in this study, of which two genera *Goryphus* Holmgren, 1868 and *Thaumatozelis* Schwarz, 1995 were recorded for the first time from Iran that indicated by asterisk (*).

Subfamily Cryptinae Kirby, 1837

I. Tribe Cryptini Kirby, 1837

1. *Acroricnus (seductor) elegans* (Mocsáry, 1883)

Distribution in Iran: Golestan, Guilan, Mazandaran, West Azarbaijan (Barahoei *et al.* 2012).

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

2. *Acroricnus stylator* (Thunberg, 1822)

Distribution in Iran: Lorestan (Ghahari and Gadallah 2015), Mazandaran (Barahoei *et al.* 2012).

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

3. *Agrothereutes abbreviatus* (Fabricius, 1794)

Distribution in Iran: Semnan (Barahoei *et al.* 2012).

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

4. *Agrothereutes adustus* (Gravenhorst, 1829)

Distribution in Iran: West Azarbaijan (Barahoei *et al.* 2012).

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

Host record: *Pieris brassicae* (Linnaeus 1758) (Lepidoptera: Pieridae) (Barahoei *et al.* 2012).

5. *Agrothereutes fumipennis* (Gravenhorst, 1829)

Distribution in Iran: East Azarbaijan (Barahoei *et al.* 2012).

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

6. *Agrothereutes hospes* (Tschek, 1871)

Distribution in Iran: Semnan (Barahoei *et al.* 2012).

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

7. *Agrothereutes parvulus* (Habermehl, 1926)

Distribution in Iran: West Azarbaijan (Barahoei *et al.* 2012).

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

8. *Aritranis claviventris* (Kriechbaumer, 1894)

Distribution in Iran: West Azarbaijan (Barahoei *et al.* 2012).

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

9. *Aritranis director* (Thunberg, 1824)

Distribution in Iran: West Azarbaijan (Barahoei *et al.* 2012).

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

10. *Aritranis nigrifemur* (Szepligeti, 1916)

Distribution in Iran: West Azarbaijan (Barahoei *et al.* 2012).

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

11. *Aritranis occisor* (Gravenhorst, 1829)

Distribution in Iran: West Azarbaijan (Barahoei *et al.* 2012).

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

12. *Buathra laborator* (Thunberg, 1824)

Distribution in Iran: Ardabil, Mazandaran (Barahoei *et al.* 2012).

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

13. *Buathra tarsoleucos* (Schrank, 1781)

Distribution in Iran: Lorestan (Ghahari and Gadallah 2015), Tehran (Barahoei *et al.* 2012).

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

14. *Cryptus armator* Fabricius, 1804

Distribution in Iran: Kerman (Mohebban *et al.* 2016).

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

15. *Cryptus diana* Gravenhorst, 1829

Distribution in Iran: West Azarbaijan (Barahoei *et al.* 2012).

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

16. *Cryptus inculcator* (Linnaeus, 1758) ▲

New material: Iran, Kerman province, Jiroft county; Faryab (28° 04' N, 57° 13' E), 1♂, 21.IV. 2014; Jiroft (28° 33' N, 57° 51' E), 2♀♀, 13.III.2015; Maskoon (28° 51' N, 57° 52' E), 2♂♂ 1♀, 01.V.2015; Malaise trap, leg.: M. Mahyabadi.

Distribution in Iran: Alborz, Sistan-o Baluchestan, Yazd (Barahoei *et al.* 2012), Fars (Sarafi *et al.* 2015), Isfahan (Barahoei *et al.* 2015), Kerman (Mohebban *et al.* 2015, 2016; Mahyabadi *et al.* 2016), Khorasan-e Razavi (Barahoei *et al.* 2014).

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

17. *Cryptus inquisitor* Tschek, 1871

Distribution in Iran: West Azarbaijan (Barahoei *et al.* 2012).

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

Host record: *Kokujewia ectrapela* Zirngiebl, 1949 (Hymenoptera: Argidae) (Barahoei *et al.* 2012).

18. *Cryptus macellus* Tschek, 1871

Distribution in Iran: Semnan (Barahoei *et al.* 2012).

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

19. *Cryptus medius* Szépligeti, 1916

Distribution in Iran: Fars (Barahoei *et al.* 2012).

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

20. *Cryptus nigropictus* Cameron, 1905

Distribution in Iran: Mazandaran (Barahoei *et al.* 2012).

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

Remarks: This record is a misidentification because this is an Ethiopian species (Barahoei *et al.* 2012).

21. *Cryptus spinosus* Gravenhorst, 1829

Distribution in Iran: Fars, Yazd (Barahoei *et al.* 2012), Khorasan-e Razavi (Ghahari *et al.* 2014).

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

22. *Cryptus spiralis* (Geoffroy, 1785)

Distribution in Iran: Semnan (Barahoei *et al.* 2012).

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

23. *Cryptus subspinosus* Smits van Burgst, 1913

Distribution in Iran: West Azarbaijan (Barahoei *et al.* 2012).

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

24. *Cryptus triguttatus* Gravenhorst, 1829

Distribution in Iran: East Azarbaijan, West Azarbaijan (Barahoei *et al.* 2012).

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

25. *Cryptus tuberculatus* Gravenhorst, 1829

Distribution in Iran: Fars (Barahoei *et al.* 2012).

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

26. *Cryptus viduatorius* Fabricious, 1804

Distribution in Iran: Guilan, West Azarbaijan, Yazd (Barahoei *et al.* 2012), Khorasan-e Razavi (Barahoei *et al.* 2014), Lorestan (Ghahari and Gadallah 2015).

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

27. *Gambrus carnifex* (Gravenhorst, 1829)

Distribution in Iran: Golestan (Barahoei *et al.* 2012).

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

28. *Gambrus incubitor* (Linnaeus, 1758)

Distribution in Iran: Golestan (Barahoei *et al.* 2012), Lorestan (Ghahari and Gadallah 2015).

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

29. *Gambrus ornatus* (Gravenhorst, 1829)+

Distribution in Iran: Lorestan (Ghahari and Gadallah 2015).

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

30. *Goryphus* sp.* (Fig. 2)+▲

New material: Iran, Kerman province, Jiroft county; Maskoon (28° 51' N, 57° 52' E), 1♀, 02.V.2015; 1♀, 29.V.2015; Malaise trap, leg.: M. Mahyabadi.

Distribution in Iran: New for Iran.

General distribution: Afrotropical, Australasian, Oriental, Palaearctic (Yu *et al.* 2012).

Diagnosis: Body length 10 mm and stout (Fig. 2A); mandible short, teeth equal or sub equal (Fig. 2B); scutellum without lateral carina (Fig. 2C); sternaulus moderately strong, reaching middle coxa (Fig. 2D); apical carina of propodeum complete (Fig. 2E); first tergite less than 2x as long as its width at posterior margin (Fig. 2F); fore wing length 5 mm, areolet pentagonal (Fig. 2G); ovipositor length 3 mm and about 0.9x as long as front wing (Fig. 2H), stout, with a distinct nodus, lower valve with teeth (Fig. 2I) (Jonathan 2006); head and thorax completely dark yellow; abdomen black but postpetiol and tergites 5–7 white; front and middle legs dark yellow with white spots; hind coxa and trochanter dark yellow, hind femur and tibia black, hind tarsi dark yellow with black spots (Fig. 2A).

31. *Hidryta sordida* (Tschek, 1871)

Distribution in Iran: West Azarbaijan (Barahoei *et al.* 2012).

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

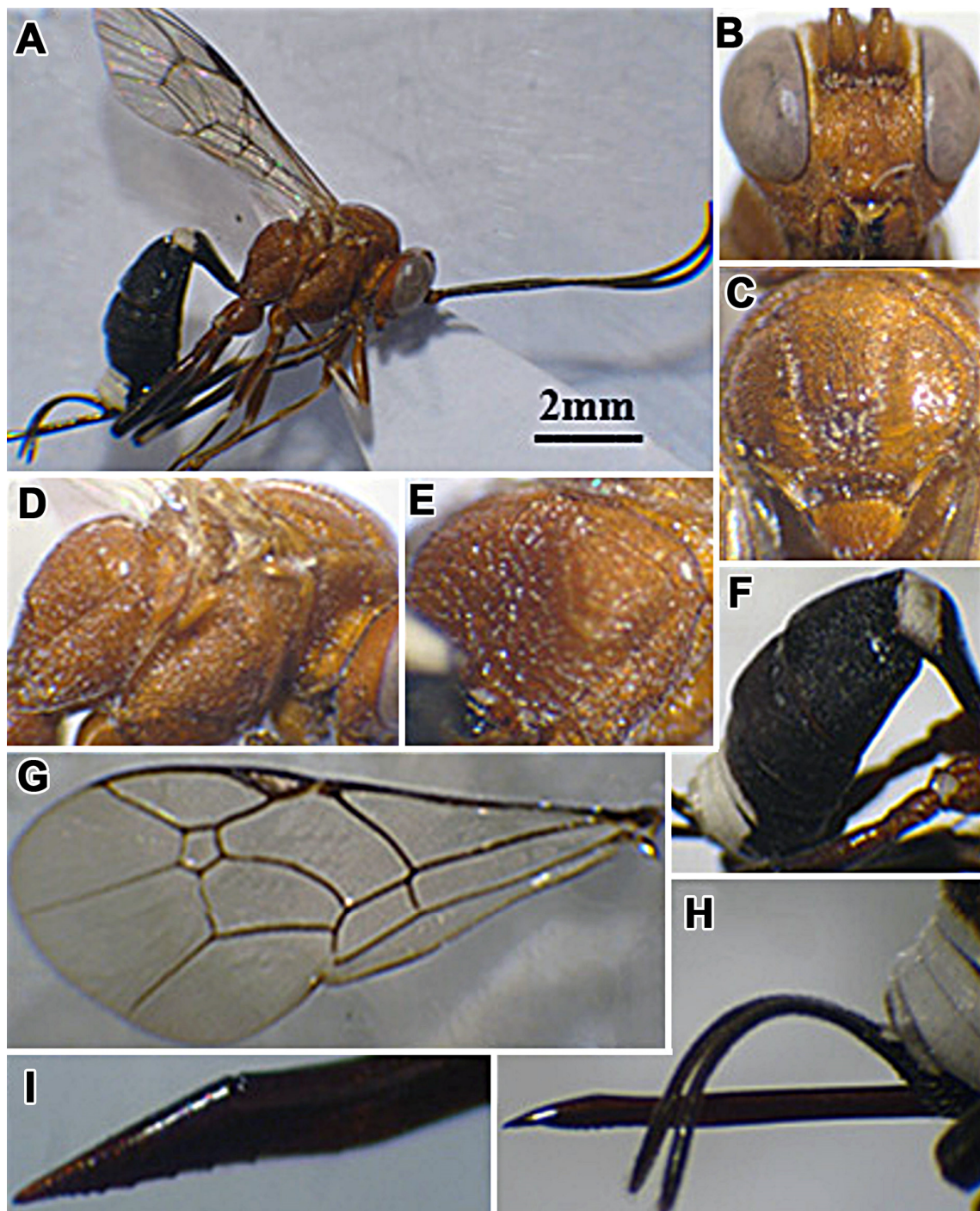


Figure 2. *Goryphus* sp.: **A.** Female, lateral view; **B.** Face; **C.** Mesoscutum, dorsal view; **D.** Thorax, lateral view; **E.** Propodeum; **F.** Abdomen; **G.** Wing; **H.** Sheath and ovipositor; **I.** Ovipositor.

32. *Hoplocryptus bellosus* (Curtis, 1837)

Distribution in Iran: Fars (Barahoei *et al.* 2012).

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

33. *Hoplocryptus bohemani* (Holmgren, 1856)+

Distribution in Iran: Lorestan (Ghahari and Gadallah 2015).

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

34. *Hoplocryptus confector* (Gravenhorst, 1829)

Distribution in Iran: West Azarbaijan (Barahoei *et al.* 2012).

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

35. *Hoplocryptus coxator* (Tschek, 1871)

Distribution in Iran: Not exactly defined (Barahoei *et al.* 2012).

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

36. *Hoplocryptus femoralis* (Gravenhorst, 1829)

Distribution in Iran: Not exactly defined (Barahoei *et al.* 2012).

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

37. *Hoplocryptus heliophilus* (Tschek, 1871)▲

New material: Iran, Kerman province, Jiroft county; Jiroft (28° 33' N, 57° 51' E), 2♂♂, 09.IV.2015, Maskoon (28° 51' N, 57° 52' E), 2♂♂, 02.V.2015, Malaise trap, leg.: M. Mahyabadi.

Distribution in Iran: Kerman (Mahyabadi *et al.* 2016), Sistan-o Baluchestan (Barahoei *et al.* 2012).

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

38. *Hoplocryptus murarius* (Borner, 1782)

Distribution in Iran: West Azarbaijan (Barahoei *et al.* 2012).

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

39. *Idiolispa analis* (Gravenhorst, 1807)

Distribution in Iran: West Azarbaijan (Barahoei *et al.* 2012).

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

40. *Ischnus agitator* (Olivier, 1792)

Distribution in Iran: East Azarbaijan, Mazandaran (Barahoei *et al.* 2012).

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

41. *Ischnus alternator* (Gravenhorst, 1829)

Distribution in Iran: Mazandaran (Barahoei *et al.* 2012).

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

42. *Ischnus inquisitorius* (Muller, 1776)+

Distribution in Iran: North Khorasan (Ghahari *et al.* 2014).

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

43. *Listrognathus furax* (Tschek, 1871)

Distribution in Iran: Alborz (Barahoei *et al.* 2012).

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

44. *Listrognathus mactator* (Thunberg, 1822)

Distribution in Iran: Alborz, Golestan (Barahoei *et al.* 2012).

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

45. *Listrognathus orientalis* Horstmann, 1989

Distribution in Iran: Not exactly defined (Barahoei *et al.* 2012).

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

46. *Meringopus calescens* (Gravenhorst, 1829)

Distribution in Iran: Fars, Mazandaran, Semnan, Tehran, Yazd (Barahoei *et al.* 2012), Lorestan (Ghahari and Gadallah 2015).

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

Host record: *Saturnia pyri* (Denis and Schiffermüller 1775) (Lepidoptera: Saturniidae) (Barahoei *et al.* 2012).

47. *Meringopus cyanator* (Gravenhorst, 1829)

Distribution in Iran: East Azarbaijan (Barahoei *et al.* 2012).

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

48. *Meringopus naitor* Aubert, 1986

Distribution in Iran: Fars, Yazd (Barahoei *et al.* 2012).

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

49. *Meringopus palmipes* (Kokujev, 1905)

Distribution in Iran: East Azarbaijan, Tehran (Barahoei *et al.* 2012).

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

50. *Meringopus pseudonymus* (Tschek, 1872)

Distribution in Iran: West Azarbaijan (Barahoei *et al.* 2012), Lorestan (Ghahari and Gadallah 2015).

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

51. *Meringopus sogdianus* (Maljavin, 1968)

Distribution in Iran: Kerman (Barahoei *et al.* 2012).

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

52. *Meringopus titillator* (Linnaeus, 1758)

Distribution in Iran: Fars, Mazandaran, Tehran (Barahoei *et al.* 2012).

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

53. *Meringopus turanus* (Habermehl, 1918)

Distribution in Iran: Ardabil, Guilan, East Azarbaijan (Barahoei *et al.* 2012).

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

54. *Mesostenus albinotatus* Gravenhorst, 1829+ ▲

New material: Iran, Kerman province, Jiroft county; Maskoon (28° 51' N, 57° 52' E), 2♂♂ 1♀, 02.V.2015; 2♀♀, 29.V.2015; Malaise trap, leg.: M. Mahyabadi.

Distribution in Iran: Kerman (Mohebban *et al.* 2015, 2016; Mahyabadi *et al.* 2016).

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

55. *Mesostenus grammicus* Gravenhorst, 1829 ▲

New material: Iran, Kerman province, Jiroft county; Jiroft (28° 33' N, 57° 51' E), 4♂♂ 6♀♀, 09.IV.2015; 1♂ 6♀♀, 29.V.2015; Maskoon (28° 51' N, 57° 52' E), 3♂♂ 3♀♀, 29.V.2015; 3♂♂ 2♀♀, 22.VI.2015; Sarbijan (29° 06' N, 57° 32' E), 1♂ 3♀♀, 30.III.2014; Malaise trap, leg.: M. Mahyabadi.

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

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

56. *Mesostenus transfuga* Gravenhorst, 1829 ▲

New material: Iran, Kerman province, Jiroft county; Jiroft (28° 33' N, 57° 51' E), 2♀♀, 30.III.2015; Malaise trap, leg.: M. Mahyabadi.

Distribution in Iran: Fars, Guilan, Mazandaran (Barahoei *et al.* 2012), Isfahan (Barahoei *et al.* 2012, 2015), Kerman (Mahyabadi *et al.* 2016), Khorasan-e Razavi (Barahoei *et al.* 2012, 2014), Lorestan (Ghahari and Gadallah 2015), Qazvin (Ghahari and Schwarz 2012).

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

57. *Myrmeleonostenus italicus* (Gravenhorst, 1829)

Distribution in Iran: Fars (Barahoei *et al.* 2012).

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

58. *Pycnocyrtodes reticulator* Aubert, 1971

Distribution in Iran: West Azarbaijan (Barahoei *et al.* 2012).

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

59. *Schreineria cingulipes* (Förster, 1888)

Distribution in Iran: Khorasan-e Razavi (Barahoei *et al.* 2012).

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

60. *Schreineria populnea* (Giraud, 1872)

Distribution in Iran: Hamadan (Barahoei *et al.* 2012).

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

61. *Sphecophaga vesparum* (Curtis, 1828)

Distribution in Iran: Fars (Barahoei *et al.* 2012).

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

62. *Stenarella domator* (Poda, 1761)

Distribution in Iran: Hamadan (Barahoei *et al.* 2012).

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

63. *Synechocryptus levaillantii* (Lucas, 1849)

Distribution in Iran: Golestan, Yazd (Barahoei *et al.* 2012).

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

64. *Synechocryptus persicator* Aubert, 1986

Distribution in Iran: Fars, Mazandaran (Barahoei *et al.* 2012).

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

65. *Synechocryptus sanguinolentus* (Gravenhorst, 1829)

Distribution in Iran: Fars, Isfahan, Hormozgan, Khuzestan, Semnan (Barahoei *et al.* 2012).

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

66. *Trychosis atripes* (Gravenhorst, 1829)

Distribution in Iran: West Azarbaijan (Barahoei *et al.* 2012).

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

67. *Trychosis ingrata* (Tschek, 1871)+

Distribution in Iran: Lorestan (Ghahari and Gadallah 2015).

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

68. *Trychosis neglecta* (Tschek, 1871)+

Distribution in Iran: Lorestan (Ghahari and Gadallah 2015).

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

69. *Trychosis legator* (Thunberg, 1824) ▲

New material: Iran, Kerman province, Jiroft county; Jiroft (28° 33' N, 57° 51' E), 2♂♂ 2♀♀, 22.VI.2015; Maskoon (28° 51' N, 57° 52' E), 2♂♂ 3♀♀, 13.III.2015; 1♂ 4♀♀, 02.V.2015; 2♂♂ 2♀♀, 22.VI.2015; Sarbijan (29° 06' N, 57° 32' E), 2♀♀, 30.III.2014; Malaise trap, leg.: M. Mahyabadi.

Distribution in Iran: Fars, Kerman, Sistan-o Baluchestan, West Azarbaijan, (Barahoei *et al.* 2012), Khorasan-e Razavi (Barahoei *et al.* 2014), Qazvin (Ghahari and Schwarz 2012).

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

70. *Trychosis pauper* (Tschek, 1871)

Distribution in Iran: Sistan-o Baluchestan, West Azarbaijan (Barahoei *et al.* 2012).

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

71. *Trychosis priesneri* Rossem, 1971+

Distribution in Iran: Isfahan (Barahoei *et al.* 2015).

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

72. *Trychosis tristator* (Tschek, 1871)

Distribution in Iran: West Azarbaijan (Barahoei *et al.* 2012).

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

73. *Xylophrurus nigricornis* (Thomson, 1885)

Distribution in Iran: West Azarbaijan (Barahoei *et al.* 2012).

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

II. Tribe Phygadeuontini Förster, 1869**74. *Aclastus micator* (Gravenhorst, 1807)**

Distribution in Iran: North Khorasan (Barahoei *et al.* 2012).

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

75. *Aclastus solutus* (Thomson, 1884)

Distribution in Iran: Golestan (Barahoei *et al.* 2012), Lorestan (Ghahari and Gadallah 2015).

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

76. *Atractodes* sp.

Distribution in Iran: Sistan-o Baluchestan (Barahoei *et al.* 2012).

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

77. *Bathythrix maculata* (Hellén, 1957)

Distribution in Iran: Kerman (Barahoei *et al.* 2012).

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

78. *Bathythrix pellucidator* (Gravenhorst, 1829)

Distribution in Iran: Not exactly defined (Barahoei *et al.* 2012).

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

79. *Bathythrix thomasi* (Kerrich, 1942)+

Distribution in Iran: Lorestan (Ghahari and Gadallah 2015).

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

80. *Blapsidotes vicinus* (Gravenhorst, 1829)

Distribution in Iran: West Azarbaijan (Barahoei *et al.* 2012), Qazvin (Ghahari and Schwarz 2012).

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

Host record: *Pieris brassicae* (Linnaeus 1758) (Lepidoptera: Pieridae) (Barahoei *et al.* 2012).

81. *Chiotica decorator* (Villers, 1789)+

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

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

82. *Chiotica ruficeps* Horstmann, 1983

Distribution in Iran: Fars (Barahoei *et al.* 2012).

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

83. *Chiotica terebrator* Horstmann, 1983

Distribution in Iran: Fars (Barahoei *et al.* 2012).

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

84. *Dichrogaster aestivalis* (Gravenhorst, 1829)

Distribution in Iran: Khorasan-e Razavi, East Azarbaijan (Barahoei *et al.* 2012).

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

85. *Dichrogaster liostylus* (Thomson, 1885)+

Distribution in Iran: North Khorasan (Ghahari *et al.* 2014).

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

86. *Dichrogaster longicaudata* (Thomson, 1884)▲

New material: Iran, Kerman province, Jiroft county; Jiroft (28° 33' N, 57° 51' E), 1♂, 13.III.2015; Maskoon (28° 51' N, 57° 52' E), 2♂♂, 29.V.2015; Malaise trap, leg.: M. Mahyabadi.

Distribution in Iran: East Azarbaijan (Ghahari and Jussila 2015), Fars, Mazandaran, Sistan-o Baluchestan (Barahoei *et al.* 2012), Kerman (Mohebban *et al.* 2015, 2016; Mahyabadi *et al.* 2016), Khorasan-e Razavi (Barahoei *et al.* 2014), Lorestan (Ghahari and Gadallah 2015).

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

87. *Dichrogaster saharator* (Aubert, 1964)▲

New material: Iran, Kerman province, Jiroft county; Jiroft (28° 33' N, 57° 51' E), 1♂, 29.V.2015; Malaise trap, leg.: M. Mahyabadi.

Distribution in Iran: Ardabil, Fars, Khuzestan, Mazandaran, Sistan-o Baluchestan, Tehran, Zanjan (Barahoei *et al.* 2012), Fars (Barahoei *et al.* 2012 Sarafi *et al.* 2015), Hamadan (Ghahari and Jussila 2015), Isfahan (Barahoei *et al.* 2015), Kerman (Mohebban *et al.* 2015, 2016; Mahyabadi *et al.* 2016), Khorasan-e Razavi (Barahoei *et al.* 2014).

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

88. *Endasys talitzkii* (Telenga, 1961)

Distribution in Iran: Hamadan (Barahoei *et al.* 2012).

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

89. *Gelis agilis* (Fabricius, 1775)+

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

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

90. *Gelis areator* (Panzer, 1804)+

Distribution in Iran: Isfahan (Barahoei *et al.* 2015).

General distribution: Afrotropical, Oceanic, Oriental, Palaearctic (Yu *et al.* 2012).

91. *Gelis bicolor* (Villers, 1789)+▲

New material: Iran, Kerman province, Jiroft county; Faryab (28° 04' N, 57° 13' E), 2♂♂, 05.VI.2014; Jiroft (28° 33' N, 57° 51' E), 12♂♂, 02.V.2015; Maskoon (28° 51' N, 57° 52' E), 4♂♂, 29.V.2015; Sarbijan (29° 06' N, 57° 32' E), 2♂♂, 30.IV.2014; Malaise trap, leg.: M. Mahyabadi.

Distribution in Iran: Kerman (Mahyabadi *et al.* 2016).

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

92. *Gelis caudator* Horstmann, 1986

Distribution in Iran: Qazvin (Barahoei *et al.* 2012).

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

Host record: *Argyresthia* sp. (Lepidoptera: Yponomeutidae) (Barahoei *et al.* 2012).

93. *Gelis cinctus* (Linnaeus, 1758)+

Distribution in Iran: Khorasan-e Razavi (Ghahari *et al.* 2014).

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

94. *Gelis exareolatus* (Förster, 1850)

Distribution in Iran: Kerman (Barahoei *et al.* 2012).

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

95. *Gelis fallax* (Forster, 1850)+

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

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

96. *Gelis ferruginosus* (Strickland, 1912)

Distribution in Iran: East Azarbaijan (Barahoei *et al.* 2012).

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

Remarks: This is a North American species and the record from Iran can be a misidentification (Barahoei *et al.* 2012).

97. *Gelis fidens* Schwarz, 2009

Distribution in Iran: Sistan-o Baluchestan (Barahoei *et al.* 2012).

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

98. *Gelis formicarius* (Linnaeus, 1758)+

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

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

99. *Gelis kermaniae* Schwarz, 2009

Distribution in Iran: Kerman (Barahoei *et al.* 2012).

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

100. *Gelis melanocephalus* (Schrank, 1781)+

Distribution in Iran: Lorestan (Ghahari and Gadallah 2015).

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

101. *Gelis mutillatus* (Gmelin, 1790)+

Distribution in Iran: Lorestan (Ghahari and Gadallah 2015).

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

102. *Gelis liparae* (Giraud, 1863)

Distribution in Iran: Kerman (Barahoei *et al.* 2012).

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

103. *Gelis proximus* (Förster, 1850)

Distribution in Iran: Ardabil, Golestan (Barahoei *et al.* 2012), Qazvin (Ghahari and Schwarz 2012).

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

104. *Gelis terebrator* (Ratzeburg, 1848)+

Distribution in Iran: Khorasan-e Razavi (Ghahari *et al.* 2014).

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

105. *Gelis trux* (Förster, 1850)+

Distribution in Iran: Lorestan (Ghahari and Gadallah 2015).

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

106. *Glyphicnemis profligator* (Fabricius, 1775)+

Distribution in Iran: Khorasan-e Razavi (Ghahari *et al.* 2014).

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

107. *Glyphicnemis vagabunda* (Gravenhorst, 1829)

Distribution in Iran: Ardabil (Barahoei *et al.* 2012), Qazvin (Ghahari and Schwarz 2012).

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

108. *Grasseiteles ciliator* Aubert, 1965

Distribution in Iran: Alborz (Barahoei *et al.* 2012).

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

109. *Lysibia nana* (Gravenhorst, 1829) ▲

New material: Iran, Kerman province, Jiroft county; Jiroft (28° 33' N, 57° 51' E), 1♀, 02.V.2015; Malaise trap, leg.: M. Mahyabadi.

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

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

110. *Mesoleptus incessor* (Haliday, 1838)

Distribution in Iran: Golestan, Mazandaran, Semnan, West Azarbaijan (Barahoei *et al.* 2012).

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

Host record: Larva of Noctuidae (Lepidoptera) (Barahoei *et al.* 2012).

111. *Mesoleptus laevigatus* (Gravenhorst, 1820)+

Distribution in Iran: Isfahan (Barahoei *et al.* 2015).

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

112. *Phygadeuon* sp.+

Distribution in Iran: Kerman (Mahyabadi *et al.* 2016).

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

113. *Phygadeuon fumator* Gravenhorst, 1829

Distribution in Iran: East Azarbaijan, Tehran (Barahoei *et al.* 2012).

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

Host records: *Musca domestica* Linnaeus, 1758 (Dip.: Muscidae), and *Stomoxys*

calcitrans (Linnaeus 1758) (Dip.: Muscidae) (Barahoei *et al.* 2012).

114. *Phygadeuon trichops* Thomson, 1884

Distribution in Iran: Fars (Barahoei *et al.* 2012).

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

115. *Polytribax perspicillator* (Gravenhorst, 1807)+

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

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

116. *Stilpnus gagates* (Gravenhorst, 1807)

Distribution in Iran: Isfahan (Barahoei *et al.* 2015), Sistan-o Baluchestan (Barahoei *et al.* 2012).

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

117. *Thaumatogelis* sp.* (Fig. 3) + ▲

New material: Iran, Kerman province, Jiroft county; Jiroft (28° 33' N, 57° 51' E), 1♂, 09.IV.2015; Maskoon (28° 51' N, 57° 52' E), 4♂♂, 26.III.2015; Malaise trap, leg.: M. Mahyabadi.

Distribution in Iran: New for Iran.

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

Diagnosis: Species often wingless in female; body small, about 7 mm long (Fig. 3A); outside of mandibles distinctly compressed and convex (Figs. 3B, C); scutellum with short lateral carina (Fig. 3D); sternaulus moderately strong, reaching middle coxa (Fig. 3E); carina of propodeum complete (Fig. 3F); fore wing 4 mm long, areolet pentagonal, stigma large (Fig. 3G); first metasomal segment in lateral with distinctly streaks, 2-3 metasomal tergite merged (Fig. 3H) (Schwarz 2001); head, thorax and abdomen black; antenna, apical band of first tergite, second and third tergites and legs completely brown (Fig. 3A).

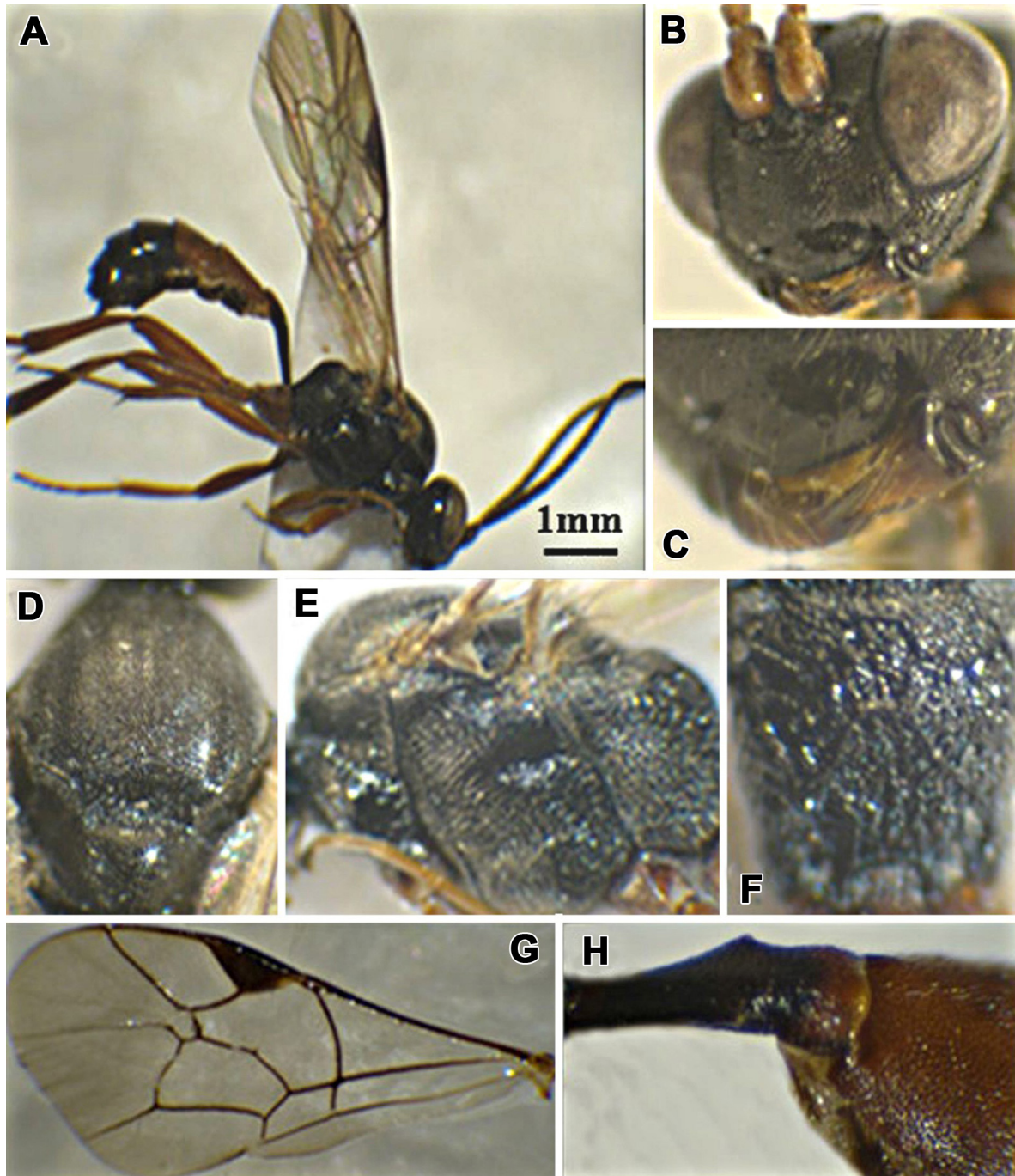


Figure 3. *Thaumatogelis* sp.: **A.** Male, lateral view; **B.** Face; **C.** Mandibles; **D.** Mesoscutum, dorsal view; **E.** Thorax, lateral view; **F.** Propodeum; **G.** Wing; **H.** First and second segments of gaster, lateral view.

118. *Xenolytus bitinctus* (Gmelin, 1790)

Distribution in Iran: Guilan (Barahoei *et al.* 2012).

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

119. *Zoophthorus graculus* (Gravenhorst, 1829)+

Distribution in Iran: Lorestan (Ghahari and Gadallah 2015).

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

120. *Zoophthorus plumbeus* (Thomson, 1884)+

Distribution in Iran: Isfahan (Barahoei *et al.* 2015).

General distribution: Palaearctic (Yu *et al.* 2012; Barahoei *et al.* 2015).

III. Tribe Hemigasterini Ashmead, 1900

121. *Pleolophus brachypterus* (Gravenhorst, 1815)+

Distribution in Iran: Lorestan (Ghahari and Gadallah 2015).

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

122. *Pleolophus larvatus* (Gravenhorst, 1829)

Distribution in Iran: Ardabil (Barahoei *et al.* 2012).

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

123. *Thrybius praedator* (Rossi, 1792)+

Distribution in Iran: Lorestan (Ghahari and Gadallah 2015).

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

Discussion

This review is the first attempt to review the Iranian Cryptinae and their biological associations. The species-rich tribes were Cryptini (73 species), Phygadeuontini (47 species) and Hemigasterini (3 species). Among the 42 genera of Iranian Cryptinae, *Gelis* Thunberg, 1827 with 17 recorded species is the most diverse taxon.

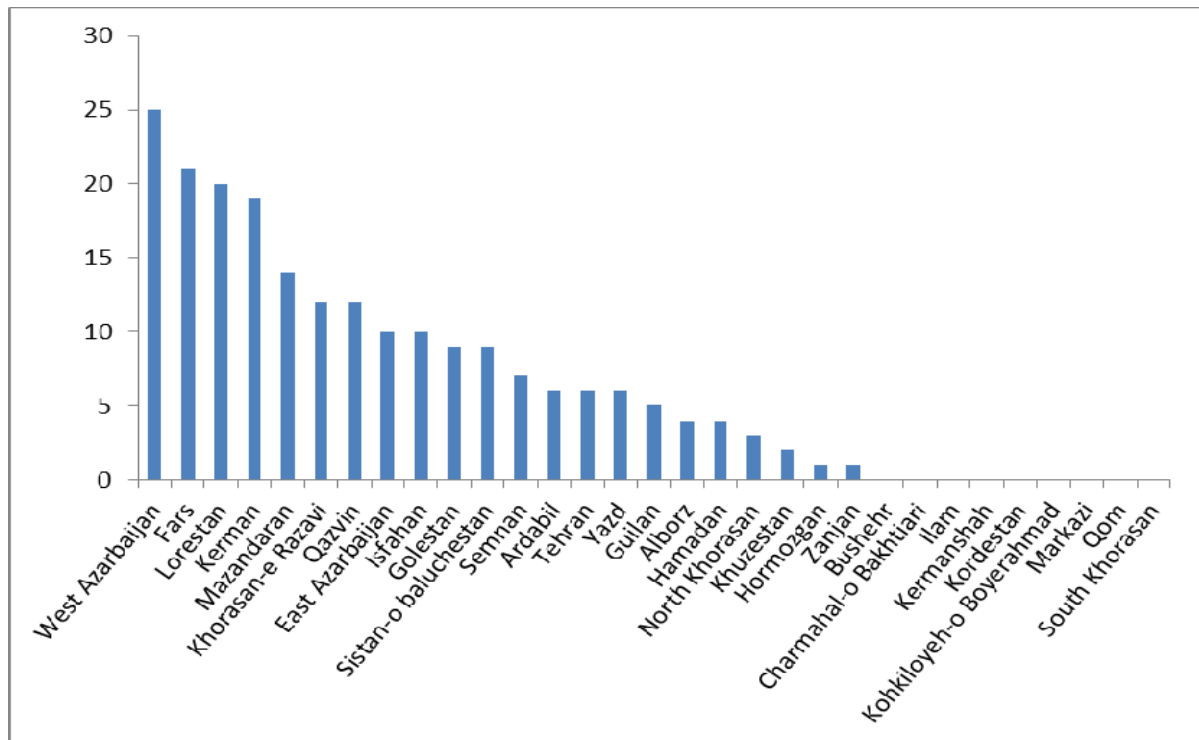


Figure 4. Number of reported species of Iranian Cryptinae by province.

Among provinces West Azarbaijan province with 25 recorded species (20.32%) has the highest diversity followed by Fars, Lorestan and Kerman provinces with 21 (17.07%), 20 (16.26%) and 19 (15.44%) species, respectively. Khuzestan, Hormozgan and Zanzan provinces have the lowest number of recorded species (Fig. 4).

Ecology and biology of Cryptinae in Iran is poorly studied. Much more efforts should be made to identify more information about the distribution of the Iranian Cryptinae and their host association data.

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لیست زنبورهای زیرخانواده Cryptinae (Hymenoptera: Ichneumonidae) در ایران

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چکیده: زیرخانواده‌ی Cryptinae بزرگترین زیرخانواده از نظر تعداد گونه در خانواده‌ی Ichneumonidae است که گسترش جهانی دارد. لیست کامل و به‌روز شده گونه‌های گزارش شده از زنبورهای زیرخانواده‌ی Cryptinae (Hymenoptera: Ichneumonidae) در ایران، ارایه شد. این لیست بر اساس مطالعه تمام داده‌های مقالات منتشر شده و نمونه‌های جدید جمع‌آوری شده می‌باشد. در مجموع ۱۲۳ گونه از ۴۲ جنس متعلق به ۳ قبیله از این زیرخانواده در ایران شناسایی شده است. دو جنس *Goryphus* Holmgren, 1868 و *Thaumtogelis* Schwarz, 1995 برای اولین بار از ایران گزارش می‌شوند. فون زنبورهای زیرخانواده‌ی Cryptinae در مناطق زیادی از کشور هنوز به طور کامل مورد مطالعه و بررسی قرار نگرفته یا هرگز بررسی نشده است و گمان می‌رود که تعداد گونه‌های این زیرخانواده در کشور بیش از این باشد.

واژگان کلیدی: Cryptinae، فون، ایران، گزارش جدید، زنبور پارازیتوئید.