

Research Article

## A contribution to the knowledge of Braconinae (Hymenoptera: Braconidae) in some parts of northern and southern Iran

Mohammad Zargar, Ali Asghar Talebi\*, Hamidreza Hajiqanbar, Samira Farahani and Ali Ameri

Department of Entomology, Faculty of Agriculture, Tarbiat Modares University, P. O. Box: 14115-336, Tehran, Iran.

**Abstract:** The fauna of the braconid genera *Atanycolus* Foerster, *Glyptomorpha* Holmgren, *Pseudovipio* Szepligeti and *Vipio* Latreille belonging to the subfamily Braconinae were studied in some parts of northern (Alborz, Qazvin, Gilan and Tehran) and southern provinces of Iran (Hormozgan). Specimens were collected using Malaise traps during 2010–2012. Eight species were identified of which two species, namely *Glyptomorpha kaspariyani* Tobias, 1976 and *Vipio striolatus* Telenga, 1936 are new records for the fauna of Iran. An identification key for the collected genera and species is provided.

**Keywords:** Braconinae, *Glyptomorpha*, *Vipio*, new records, Iran

### Introduction

The Braconidae is a large and widespread family of parasitoid wasps which is classified into about 46 subfamilies and 1,032 genera (Yu *et al.*, 2012). There are approximately 17,605 recognized species and thousands of species are still undescribed (Yu *et al.*, 2012). The subfamily Braconinae Nees is one of the largest and most diverse groups within the Braconidae, comprising 188 genera in 12 tribes and about 2900 species worldwide (Yu *et al.*, 2012). Members of this subfamily are solitary or gregarious ectoparasitoids of concealed larvae of holometabolous insects, especially Coleoptera (Shaw and Huddleston, 1991; Yu *et al.*, 2012). The taxonomy of the subfamily Braconinae in the Palaearctic region was studied by various authors (Papp, 1966, 2000, 2005, 2008; Tobias, 1986; Beyarslan, 2010, 2011). *Atanycolus* Foerster, 1862 is a cosmopolitan genus with 61 species distributed around the world, of which 12 species

were known in the Palaearctic region (Tobias, 1986; Yu *et al.*, 2012). Members of this genus are ectoparasitoid of larvae of various species of wood and bark-boring beetles i.e. Buprestidae, Cerambycidae and Curculionidae (Wang *et al.*, 2009). The genus *Glyptomorpha* Holmgren, 1868 includes 34 species of which 13 species have been reported from the Palaearctic region (Tobias, 1986), but it is especially diverse in the subtropical region (Papp, 1966; Tobias, 1986; Quicke and Sharkey, 1989). Species of *Glyptomorpha* are parasitoids of various Coleoptera, especially are recorded on beetle larvae which live beneath bark or in dead wood including Buprestidae and Cerambycidae but some have also been recorded on Noctuidae (Lepidoptera) (Beyarslan *et al.*, 2006). The genus *Pseudovipio* Szepligeti, 1896, includes 12 species in the Palaearctic region, most of them reported only from central Asia (Tobias, 1986). Hosts of this genus are confined to the orders of Coleoptera and Lepidoptera (Yu *et al.*, 2012). The genus *Vipio* Latreille, 1804, contains 25 species in the Palaearctic, mostly in the south Palaearctic region (Tobias, 1986). The few host records illustrated that the species of the genus *Vipio* attack Lepidoptera, Coleoptera and Symphyta larvae in

Handling Editor: Dr. Ehsan Rakhshani

\*Corresponding author, e-mail: talebia@modares.ac.ir  
Received: 7 December 2013, Accepted: 1 January 2014  
Published online: 2 January 2014

concealed habitats (Quicke and Sharkey, 1989). Although, several faunistic and taxonomic studies have been carried out on the Braconidae in Iran (Monajemi and Esmaili, 1981; Al-e-Mansour and Mostafavi, 1993; Achterberg and Mehrnejad, 2002; Mehrparvar *et al.*, 2005; Dezianian and Quicke, 2006; Rakhshani *et al.*, 2007a, 2007b, 2008a, 2008b; Fallahzadeh and Saghaei, 2010; Ameri *et al.*, 2012; Farahani and Talebi, 2012; Farahani *et al.*, 2012, 2013a, 2013b), the fauna of Braconinae is poorly studied in Iran (Ghahari *et al.*, 2011, 2012; Ghahari and Fischer, 2011; Rastegar *et al.*, 2012; Shestakov, 1926; Telenga, 1936). This study was carried out to survey the Braconinae fauna in northern and southern Iran. The objective of this study was to determine the species of the subfamily Braconinae (excluding the large genus, *Bracon*), to get an idea on its situation in northern and southern provinces of Iran.

## Materials and Methods

Material for this study was collected from different habitats of northern (Alborz, Qazvin, Gilan and Tehran provinces) and southern Iran (Hormozgan province) during 2010–2012 using Malaise traps and sweeping net. The specimens were removed from Malaise traps and sorted weekly. After that they were treated with 100% ethanol for five minutes followed by hexamethyldisilazane (HMDS) for 30 minutes and finally placed on a glass plate to dry (Heraty and Hawks, 1998). The dried specimens were card mounted and labeled. The collected specimens were identified using key provided by Tobias (1986). Images were taken with an Olympus™ SZX9 stereomicroscope equipped with a Sony CX21 digital camera. The terminology used in this paper follows Tobias (1986) and Yoder *et al.* (2010). All specimens are deposited in the insect collection of the Department of Entomology, Tarbiat Modares University, Tehran.

## Results

Eight species in four genera of Braconinae (Hymenoptera: Braconidae) including *Atanycolus* Foerster (1 species), *Glyptomorpha*

Holmgren (2 species), *Pseudovipio* Szepliget (2 species) and *Vipio* Latreille (3 species) were collected and identified from the studied areas. They include six previously reported species, *Pseudovipio inscriptor* (Nees, 1834), *P. castrator* (Fabricius, 1798), *Atanycolus ivanovi* (Kokujev, 1898), *Glyptomorpha pectoralis* (Brulle, 1832), *Vipio mlokoszewiczi* (Kokujev, 1898), *V. nomioides* (Shestakov, 1926), and two newly recorded species namely *G. kaspariyani* (Tobias, 1979) and *V. striolatus* (Telenga, 1936), which are marked by an asterisk in the text. The identified species are listed alphabetically.

### *Atanycolus ivanovi* (Kokujev, 1898)

**Material examined:** 7 ♀♀, Alborz province: Karaj (35°46'08.88" N, 50°56'55.20" E, 1277 m a. s. l.), 21–28.xi.2010, 2 ♀♀; Tehran province: Shahriar (35°40'08.10" N, 50°56'56.64" E, 1168 m a.s.l.), 06–13.ix.2010, 1 ♀; Gilan province: Rudsar, Ziaz (36°52'34.44" N, 50°13'17.40" E, 537 m a.s.l.), 06–13.ix.2010, 1 ♀; Qazvin province: Zereshk Road (36°25'23.88" N, 50°06'37.68" E, 1926 m a. s. l.), 02–09.vi.2011, 2 ♀♀; 16–23.vii.2011, 1 ♀; leg. M. Khayrandish.

**Distribution in Iran:** Ilam province (Ghahari *et al.*, 2011), Alborz, Gilan, Qazvin and Tehran provinces (current study).

**General distribution:** Palaearctic (Yu *et al.*, 2012), Iran (Shestakov, 1926).

### \**Glyptomorpha kaspariyani* Tobias 1976

**Material examined:** 1 ♀, Tehran province: Peykanshahr, (35°4'9.19" N, 51°09'58.88" E, 1278 m a. s. l.), 16–23.vii.2013, 1 ♀; leg. M. Zargar.

**Distribution in Iran:** Tehran province (current study).

**General distribution:** Palaearctic (Yu *et al.*, 2012). New record for the fauna of Iran.

### *Glyptomorpha pectoralis* (Brulle, 1832)

**Material examined:** 8 ♀♀, Hormozgan province: Faryab (27°28'5.32" N, 57°4'25.42" E, 313 m a. s. l.), 09–16.iv.2012, 1 ♀; Minab-Chelo (27°10'30.39" N, 57°01'9.79" E, 16 m a. s. l.), 28.vii–05.viii.2012, 1 ♀; leg. A. Ameri;

Gilan province: Rudsar, Ghazichak (36°45'52.62" N, 50°20'01.08" E, 1787 m.a.s.l.), 15–22.viii.2010, 1♀; Qazvin province: Koochin (36°22'14.22" N, 49°40'20.02.28" E, 1514 m a. s. l.), 19–26.vii.2011, 3♀♀; 10–17.viii.2011; Zereskh Road (36°25'23.88" N, 50°06'37.68" E, 1926 m a. s. l.), 10–17.viii.2011, 1♀; 16–23 .vii. 2011, 1♀; leg. M. Khayrandish.

**Distribution in Iran:** Iran (province not defined) (Shestakov, 1926; Fallahzadeh and Saghaei, 2010), Gilan, Hormozgan and Qazvin provinces (current study).

**General distribution:** Palaearctic, Ethiopian and Oriental (Yu et al., 2012), Iran (Shestakov, 1926).

#### *Pseudovipio castrator* (Faricius, 1798)

**Material examined:** 8 ♀♀, Hormozgan province: Ramkan (26°52'25.2" N, 56°01'7.3" E, 34 m a. s. l.), 28.iii–05.iv.2012, 1♀; leg. A. Ameri; Qazvin province: Zereskh Road (36°25'23.88" N, 50°06'37.68" E, 1926 m a. s. l.), 16–23.vii.2011, 3 ♀♀; 10–17.viii.2011, 1♀; 04–12.ix.2011, 2♀♀; 19–27.viii.2011, 1♀; leg. M. Khayrandish.

**Distribution in Iran:** Lorestan province (Ghahari et al., 2012), Hormozgan and Qazvin provinces (current study).

**General distribution:** Palaearctic and Ethiopian (Yu et al., 2012), Iran (Telenga, 1936).

#### *Pseudovipio inceptor* (Nees, 1834)

**Material examined:** 12♀♀, Hormozgan province: Ramkan (26°52'25.2" N, 56°01'7.3" E, 34 m a. s. l.), 08–16.iv.2012, 1♀; 16–23.iv.2011, 1♀; 14–21.v.2012, 1♀; Zakin (27°28'53.2" N, 56°18'27.03" E, 680 m a. s. l.), 08–16.iv.2012, 1♀; leg. A. Ameri; Qazvin province: Loshan (36°40'14.58" N, 49°25'38.52" E, 295 m a. s. l.), 22–30.iv.2011, 3♀♀; Zereskh Road (36°25'23.88" N, 50°06'37.68" E, 1926m a. s. l.), 02–09.vi.2011, 1♀; 14–22.VI.2011, 1♀; 15–23.vii.2011, 2♀♀; 09–17.viii.2011, 1♀; leg. M. Khayrandish.

**Distribution in Iran:** Ilam province (Ghahari et al., 2011), Hormozgan and Qazvin provinces (current study).

**General distribution:** Palaearctic (Yu et al., 2012), Iran (Telenga, 1936).

#### *Vipio mlokoszewiczi* Kokujev, 1898

**Material examined:** 7♀♀, Alborz province: Karaj (35°46'08.88" N, 50°56'55.20" E, 1277 m a. s. l.), 18–25.v.2010, 1♀; Qazvin province: Loshan (36°40'09.12" N, 49°25'37.74" E, 291 m a. s. l.), 18–25.v.2011, 4♀♀; Tehran province: Peykanshahr, National Botanical Garden (35°44'19.91" N, 51°10'52.49" E, 1265 m a. s. l.), 09–18.v.2010, 2 ♀♀; leg. M. Khayrandish.

**Distribution in Iran:** Iran (province not defined) (Telenga, 1936; Fallahzadeh and Saghaei, 2010), Alborz, Qazvin and Tehran provinces (current study).

**General distribution:** Palaearctic (Yu et al., 2012), Iran (Telenga, 1936).

#### *Vipio nomioides* Shestakov, 1926

**Material examined:** 3♀♀, Alborz province: Chalous Road, Shahrestanak (35°57'34.98" N, 51°22'20.34" E, 2305 m a. s. l.), 14–23.vii.2010, 3♀♀; leg. M. Khayrandish.

**Distribution in Iran:** Iran (province not defined) (Telenga, 1936; Fallahzadeh and Saghaei, 2010), Alborz province (current study).

**General distribution:** Palaearctic (Yu et al., 2012), Iran (Shestovkov, 1926).

#### \**Vipio striolatus* Telenga, 1936

**Material examined:** 2♀♀, Tehran province: Shahriar (35°40'08.10" N, 50°56'56.64" E, 1168 m a. s. l.), 15–22.vi.2010, 1♀; 22–29.vi.2010, 1♀; leg. M. Khayrandish.

**Distribution in Iran:** Tehran province (current study).

**General distribution:** Palaearctic (Yu et al., 2012). New record for the fauna of Iran.

#### Key to the genera and species collected from some parts of northern and southern Iran (based on females)

1. Basal vein curved to nervulus (Fig. 2C); apical segment of antenna blunt (Fig. 2E) (genus *Glyptomorpha*).....2
- Basal vein not curved to nervulus; apical segment of antenna conical (Fig. 2F) .....3

2. Length of ovipositor 2.0 X as long as body (Fig. 3A); stigma with yellow basal spot (Fig. 2D); second abdominal tergite quadrangular (Fig. 1A)..... ***Glyptomorpha pectoralis* (Brulle, 1832)**  
 - Length of ovipositor slightly longer than body (Fig. 3B); stigma completely black (Fig. 2C); second metasomal tergite not quadrangular (Fig. 1B)... ***Glyptomorpha kaspariyani* Tobias, 1976**
3. Scape parallel-sided, with distinct constriction at base and projecting margin apically (Fig. 2A); third and fourth metasomal tergites with transverse sculptured furrows on posterior margin (Fig. 1C)... ***Atanycolus ivanovi* (Kokujev, 1898)**  
 - Scape gradually broadening apically, lacking sharp basal constriction; third and fourth metasomal tergites without transverse sculptured furrows on posterior margin .....4
4. Ventral margin of clypeus with two tufts of long hair (Fig. 2B); second metasomal tergite with distinct oval field (Fig. 1D) (genus ***Vipio***)..... 5  
 - Ventral margin of clypeus without two tufts of long hair; second metasomal tergite lacking distinct oval field (genus ***Pseudovipio***) .....7
5. Length of ovipositor as long as body (Fig. 3D); propodeum sculptured in middle area (Fig. 1D)..... ***Vipio nomioides* Shestakov, 1926**  
 - Length of ovipositor as long as abdomen; propodeum completely sculptured .....6
6. Third abdominal tergites rugose; propodeum with coarse long wrinkles (Fig. 1E); hind coxa reddish dark brown (Figs. 3E).....  
 ..... ***Vipio striolatus* Telenga, 1936**  
 - Third metasomal tergites smooth (Fig. 1F), propodeum rugose-punctate; hind coxa black (Fig. 3F)..... ***Vipio mlokoszewiczi* Kokujev, 1898**
7. Ovipositor longer than metasoma; sixth sternite projecting beyond apex of metasoma (Fig. 3H); third metasomal tergite with black spot on lateral sides (Fig. 1G); hind femura without black spot apically .....  
 ..... ***Pseudovipio inceptor* (Nees, 1834)**  
 - Ovipositor shorter than metasoma; sixth sternite not projecting beyond apex of metasoma (Fig. 3G), third metasomal tergite without black spot on lateral sides (Fig. 1H);

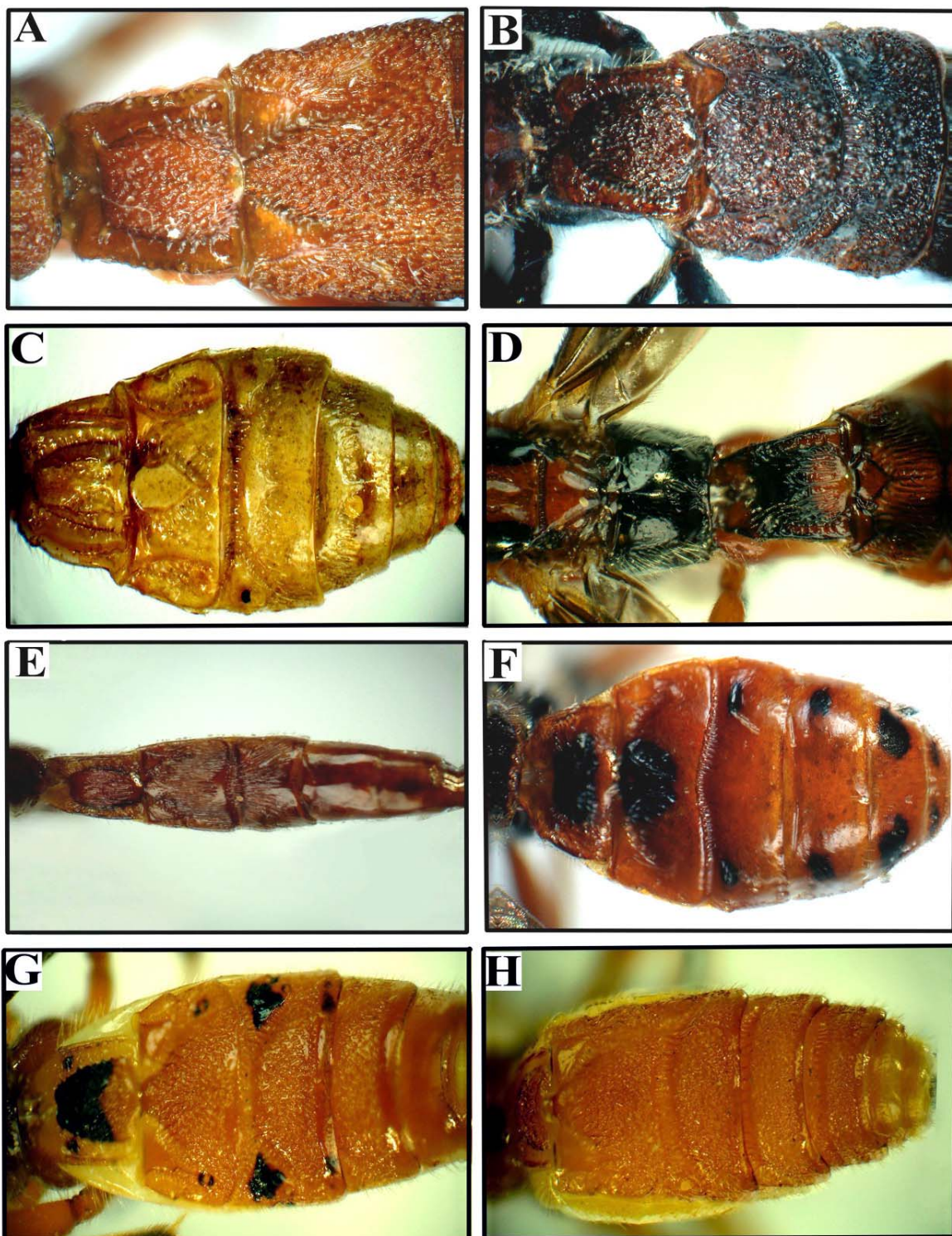
hind femura with black spot apically ..... ***Pseudovipio castrator* (Faricius, 1798)**

## Discussion

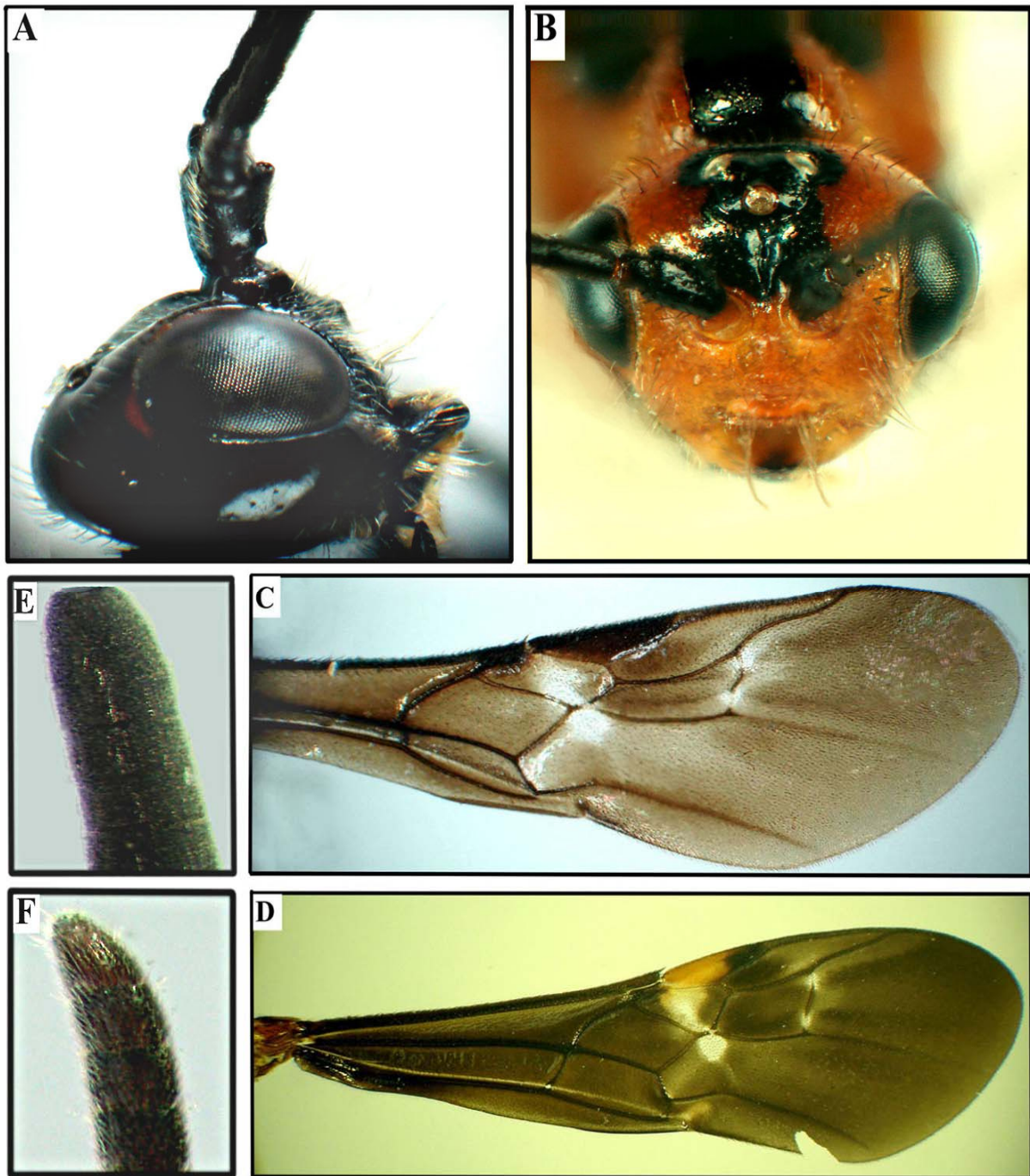
According to our research and previous literature 54 species of Braconinae are known in Iran (Fallahzadeh and Saghaei, 2010; Ghahari and Fischer, 2011; Ghahari *et al.*, 2011, 2012). According to the results of our studies, it is evident that five species (excluding the large genus, *Bracon*) were found only in the northern parts of Iran (i.e. *G. kaspariyani*, *A. ivanovi*, *V. mlokoszewiczi*, *V. striolatus* and *V. nomioides*) while three species (i.e. *P. inceptor*, *P. castrator* and *G. pectoralis*) have been collected from both southern and northern parts of Iran. Our findings and previous studies (Fallahzadeh and Saghaei, 2010; Ghahari *et al.*, 2011, 2012; Ghahari and Fischer, 2011; Rastegar *et al.*, 2012; Shestakov, 1926; Telenga, 1936) showed that the North of Iran has more diverse fauna in comparison to the South. The northern region of Iran is characterized by great variability of vegetations, natural ecosystems and farm lands due to significant differences in topography and changing climates. According to our sampling, most of the specimens were collected from March to May in Hormozgan province and from May to November in northern Iran. In the present study, the male specimens were not identified to species level, because most of the literature and identification keys are based on females. Further investigations are needed to determine the relationships between males and females in different species.

Among the neighboring countries of Iran, most studies on Braconinae have been conducted in Turkey (Beyarslan *et al.*, 2006, 2010; Beyarslan, 2010, 2011; Beyarslan and Aydogdu, 2013) and Russia (Tobias, 1986). The number of recorded species of the subfamily Braconinae is comparatively higher in these countries because of the extensive samplings in larger areas. Since the sampling sites included a small part of Iran, it would be expected that many additional species remain to be discovered in future surveys.



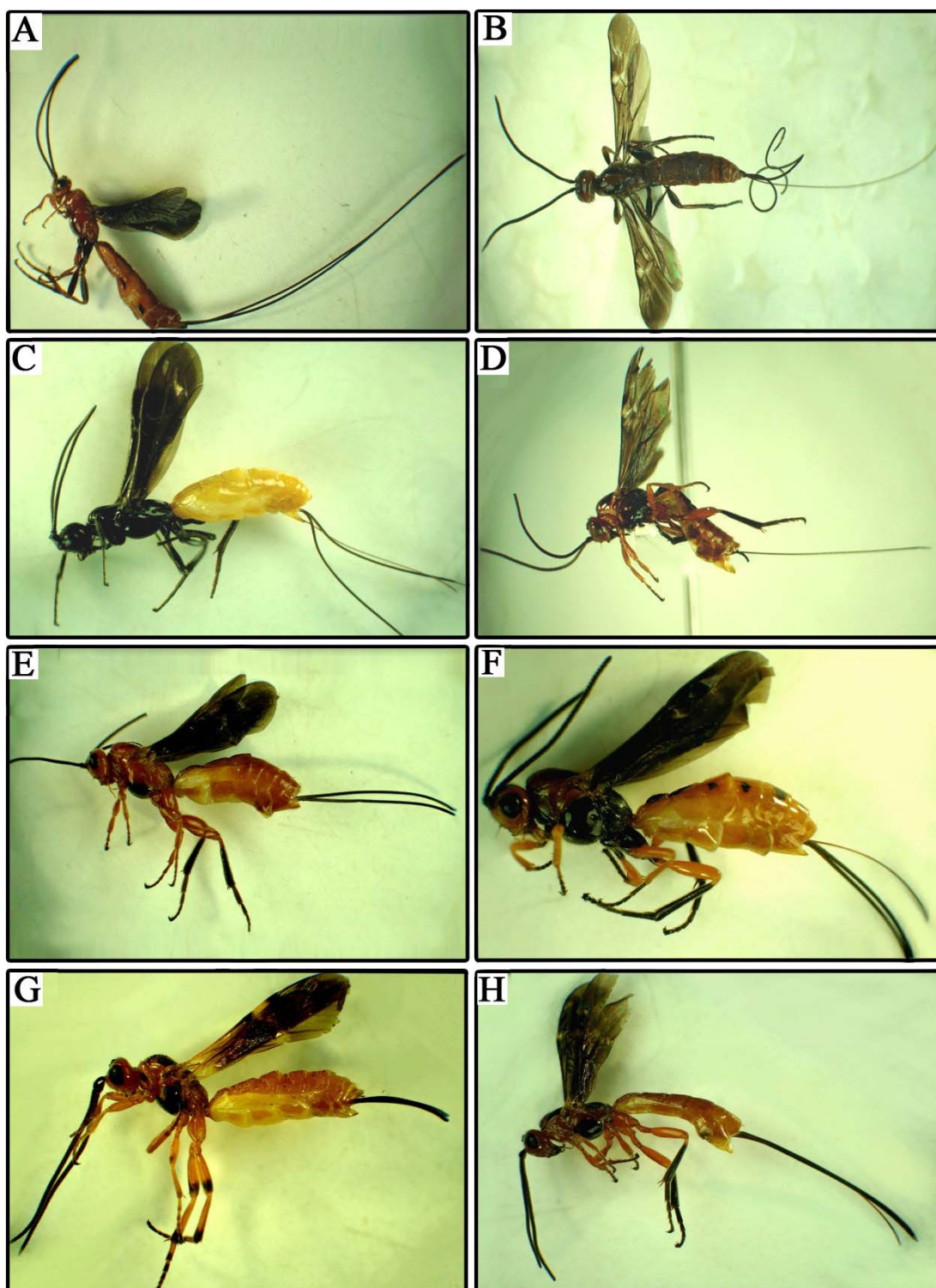


**Figure 1** Metasoma of Braconinae species: A. *Glyptomorpha pectoralis*; B. *Glyptomorpha kaspariyani*; C. *Atanycolus ivanovi*; D. *Vipio nomioides*; E. *Vipio striolatus*; F. *Vipio mlokossewiczii*; G. *Pseudovipio inscriptor*; H. *Pseudovipio castrator*.



**Figure 2** A. head of *Atanycolus ivanovi* (lateral view); B. head of *Vipio nomioides* (front view); C. forewing of *Glyptomorpha kaspariyani*; D. forewing of *Glyptomorpha pectoralis*; E. antenna of *Glyptomorpha kaspariyani*; F. antenna of *Atanycolus ivanovi*.





**Figure 3** General habitus of Braconinae species: A. *Glyptomorpha pectoralis*; B. *Glyptomorpha kaspariyani*; C. *Atanycolus ivanovi*; D. *Vipio nomioides*; E. *Vipio striolatus*; F. *Vipio mlokoszewiczi*; G. *Pseudovipio inscriptor*; H. *Pseudovipio castrator*.

### Acknowledgments

We would like to thank the Department of Entomology, Tarbiat Modares University for providing financial support for this research. The authors thank two referees, Dr. Ehsan Rakhshani (University of Zabol, Iran) and Dr. Abbas Mohammadi-Khoramabadi (Shiraz University, Iran) for their constructive comments and suggestions on the earlier version of this paper. We are grateful to Dr. A. Nadimi (Gorgan University of Agricultural Sciences & Natural Resources, Iran) and Dr. M. Khayrandish (Shahid Bahonar University of Kerman, Iran) for helping us in collecting the specimens from northern Iran.

### References

- Al-e-Mansour, H. and Mostafavi, M. S. 1993. The first record of braconidae bees on forest and range vegetation in the Fars province. Proceedings of 11<sup>th</sup> Iranian Plant Protection Congress, Guilan, Iran, p. 236.
- Ameri, A., Talebi, A. A. Kamali, K. and Rakhshani, E. 2012. Study of the tribe Phanerotomini Baker (Hymenoptera: Braconidae) in Hormozgan province of Iran with two new record. Biosystematica, 6 (2): 31-38.
- Beyarslan, A. 2011. Two new species, *Bracon (Lucobracon) kuzguni* sp. n. and *Bracon (Lucobracon) breviradius* sp. n., from Turkey (Hymenoptera: Braconidae: Braconinae). Turkish Journal of Zoology, 35 (3): 503-508.
- Beyarslan, A. 2010. *Bracon (Glabrobracon) jenoii* sp. n. (Hymenoptera: Braconidae: Braconinae) from Turkey. Biologia, 65 (1): 110-112.
- Beyarslan, A. and Aydoğdu, M. 2013. Additions to the rare species of Braconidae fauna (Hymenoptera: Braconidae) from Turkey. Munis Entomology & Zoology, 8 (1): 369-374.
- Beyarslan, A., Aydogdu, M., and Erdoğan, Ö. Ç. 2006. A survey of Turkish *Glyptomorpha* (Hymenoptera, Braconidae, Braconinae) fauna with redescription of *G. baetica* from a new host. Biologia, 61 (2): 139-143.
- Beyarslan, A., Erdoğan, Ö. Ç. and Aydoğdu, M. 2010. A synopsis of *Bracon* species of Turkey with description of a new species (Hymenoptera: Braconidae: Braconinae). Biologia, 65 (1): 104-109.
- Dezianian, A. and Quicke, D. L. J. 2006. Introduction of potato tuber moth parasite wasp *Bracon (Habrobracon)* aff. *radialys* Telenga from Iran. Proceedings of 17<sup>th</sup> Iranian Plant Protection Congress, Tehran, Iran, p. 65.
- Fallahzadeh, M. and Saghaei, N. 2010. Checklist of Braconidae (Insecta: Hymenoptera) from Iran. Munis Entomology and Zoology, 5 (1): 170-186.
- Farahani, S. and Talebi A. A. 2012. A review of the tribe Meteorini (Cresson, 1887) (Hymenoptera: Braconidae, Euphorinae) in northern Iran, with eight new records. Iranian Journal of Animal Biosystematics, 8 (2): 135-157.
- Farahani, S., Talebi, A. A. and Rakhshani, E. 2012. First records of *Macrocentrus* Curtis, 1833 (Hymenoptera: Braconidae: Macrocentrinae) from northern Iran. Zoology and Ecology, 22 (1): 41-50.
- Farahani, S., Talebi, A. A. and Rakhshani, E. 2013a. A contribution to the tribe Chelonini Foerster (Hymenoptera: Braconidae: Cheloninae) of northern Iran, with first records for eight species and an updated check list of Iranian species. Zoosystematics and Evolution, 89 (2): 227-238.
- Farahani, S., Talebi, A. A. and Rakhshani, E. 2013b. A contribution to the knowledge of Euphorinae (Hymenoptera: Braconidae), with six new records from Iran. Journal of Entomological and Acarological Research, 45: 43-51.
- Ghahari, H., Fischer, M. and Jussila, R. 2012. Braconid and ichneumonid wasps (Hymenoptera, Ichneumonoidea) as the parasitoids of *Plutella xylostella* (L.) (Lepidoptera: Plutellidae) in Iran. Entomofauna, 18: 281-288.



- Ghahari, H., Fischer, M. and Papp, P. 2011. A study on the Braconidae (Hymenoptera: Ichneumonoidea) from Ilam province, Iran. *Calodema*, 160: 1-5
- Ghahari, H., Fischer, M. and Papp, P. 2011. A study on the Braconidae (Hymenoptera: Ichneumonoidea) from Qazvin province, Iran. *Entomofauna*, 9: 197-208.
- Ghahari, H. and Fischer, M. 2011. A study on the Braconidae (Hymenoptera: Ichneumonoidea) from some regions of northern Iran. *Entomofauna*, 8: 181-196.
- Ghahari, H., Fischer, M. and Jussila, R. 2012. Braconid and ichneumonid wasps (Hymenoptera, Ichneumonoidea) as the parasitoids of *Plutella xylostella* (L.) (Lepidoptera: Plutellidae) in Iran. *Entomofauna*, 18: 281-288.
- Ghahari, H., Fischer, M., Papp, J. and Tobias, V. I. 2012. A contribution to the knowledge of braconids (Hymenoptera: Braconidae) from Lorestan province, Iran. *Entomofauna*, 7: 65-72
- Heraty, J. M. and Hawks, D. 1998. Hexamethylsilazane: A chemical alternative for drying insects. *Entomological News*, 109: 369-374.
- Mehrpavar, M., Hatami, B. and Starý, P. 2005. Report of *Aphidius rosae* (Hym.: Braconidae), a parasitoid of rose aphid, *Macrosiphum rosae* (Hom.: Aphididae) from Iran. *Journal of Entomological Society of Iran*, 25 (1): 63-64.
- Monajemi, N. and Esmaili, M. 1981. Population dynamics of alfalfa aphids and their natural controlling factors, in Karadj. *Journal of Entomological Society of Iran*, 6 (1-2): 41-63.
- Papp, J. 1966. A synopsis of the *Bracon* F. species of the Carpathian Basin (Hymenoptera, Braconidae), I. Subgenus *Glabrobracon* Fahr. *Annales Historico-Naturales Musei Nationalis Hungarici*, 58: 373-394.
- Papp, J. 2000. First synopsis of the species of *obscurator* species-group, genus *Bracon*, subgenus *Glabrobracon* (Hymenoptera: Braconidae, Braconinae). *Annales Historico-Naturales Musei Nationalis Hungarici*, 92: 229-264.
- Papp, J. 2005. A revision of the *Bracon* (*Lucobracon*) species described by Szépligeti from the western Palaearctic Region (Hymenoptera: Braconidae, Braconinae). *Annales Historico-Naturales Musei Nationalis Hungarici*, 97: 197-224.
- Papp, J. 2008. A revision of the *Bracon* (subgenera *Bracon* s. str., *Cyanopterobracon*, *Glabrobracon*, *Lucobracon*, *Osculobracon* subgen. n., *Pigeria*) species described by Szépligeti from the western Palaearctic region (Hymenoptera: Braconidae, Braconinae). *Linzer Biologische Beiträge*, 40 (1): 1741-1837.
- Quicke, D. L. J. and Sharkey, M. J. 1989. A key to and notes on the genera of Braconinae (Hymenoptera: Braconidae) from America North of Mexico with descriptions of two new genera and three new species. *The Canadian Entomologist*, 121: 337-361.
- Rakhshani, E., Talebi, A. A., Manzari, S., Tomanovic, Z., Starý, P. and Rezwani, A. 2007a. Preliminary study of genus *Praon* Haliday (Hymenoptera, Braconidae, Aphidiinae) in Iran. *Journal of Entomological Society of Iran*, 26 (2): 19-34.
- Rakhshani, E., Talebi, A.A., Starý, P., Tomanovic, Z and Manzari, S. 2007b. Aphid-parasitoid (Hymenoptera: Braconidae: Aphidiinae) associations on willows and poplar in Iran. *Acta Zoologica Academiae Scientiarum Hungaricae*, 53 (3): 281-292.
- Rakhshani, E., Talebi, A. A., Starý, P., Tomanovic, Z., Kavallieratos, N. G. and Manzari, S. 2008a. A review of *Aphidius* Nees (Hymenoptera: Braconidae: Aphidiinae) in Iran: host associations, distribution and taxonomic notes. *Zootaxa*, 1767: 37-54.
- Rakhshani, E., Tomanovic, Z., Starý, P., Talebi, A. A., Kavallieratos, N. G., Zamani, A. A. and Stamenkovic, 2008b. Distribution and diversity of wheat aphid parasitoids (Hymenoptera: Braconidae: Aphidiinae) in Iran. *European Journal of Entomology*, 105: 863-870.

- Rastegar, J., Sakenin, H., Khodaparast, S. and Havaskary, M. 2012. On a collection of Braconidae (Hymenoptera) from East Azarbaijan and vicinity, Iran. *Calodema*, 226: 1-4.
- Shaw, M. R. and Huddleston, T. 1991. Classification and biology of braconid wasps (Hymenoptera: Braconidae). *Handbooks for Identification of British Insects*, 7 (11): 1-126.
- Shestakov, A. 1926. [Species palaearticae novae Braconidarum subfamiliae Braconinarum (Hymenoptera)] *Entomologicheskoye Obozreniye*, 19: 208-212.
- Telenga, N. A. 1936. Braconidae. Pt. 1. Hymenoptera. *Fauna USSR. Hymenoptera* 5 (2), Moskva-Leningrad: Akademiya nauka SSSR. 402 pp.
- Tobias, V. I. 1986. Braconinae. 463-476 pp. In: Medvedev, G. S., *Keys to the insects of the European part of the USSR: Volume III, Hymenoptera Part IV*. 883 pp.
- van Achterberg, C. and Mehrnejad, M. R. 2002. The braconid parasitoids (Hymenoptera: Braconidae) of *Kermania pistaciella* Amsel (Lepidoptera: Tineidae: Hieroxestinae) in Iran. *Zoologische Mededelingen*, 76 (2): 27-39.
- Wang, Y. P., Shi, M., Chen, X. X. and He, J. H. 2009. The genus *Atanycolus* Foerster (Hymenoptera, Braconidae, Braconinae) in China, with description of one new species. *Zookeys*, 27: 31-41.
- Yoder, M. J., Mikó, I., Seltmann, K. C., Bertone, M. A. and Deans, A. R. 2010. A Gross Anatomy Ontology for Hymenoptera. *PLoS ONE*, 5 (12): e15991.
- Yu D. S., van Achterberg, C. and Horstmann, K. 2012. *World Ichneumonoidea 2011. Taxonomy, Biology, Morphology and Distribution. Taxapad (Scientific Names for Information Management), Interactive Catalogue*, Ottawa. Available on: [www.taxapad.com](http://www.taxapad.com). (accessed November 19, 2013).

## مشارکت در ارتقای دانش زنبورهای زیرخانواده (Braconinae (Hymenoptera: Braconidae) در بخش‌هایی از مناطق شمالی و جنوبی ایران

محمد زرگر، علی‌اصغر طالبی\*، حمیدرضا حاجی قنبر، سمیرا فراهانی و علی عامری

گروه حشره‌شناسی کشاورزی، دانشکده کشاورزی، دانشگاه تربیت مدرس، تهران، ایران.

\* پست الکترونیکی نویسنده مسئول مکاتبه: talebia@modares.ac.ir

دریافت: ۱۶ آذر ۱۳۹۲؛ پذیرش: ۱۱ دی ۱۳۹۲

**چکیده:** فون زنبورهای جنس‌های *Pseudovipio*, *Glyptomorpha* Holmgren, *Atanycolus* Foerster و *Vipio* Latreille و *Szepligeti* متعلق به زیرخانواده *Braconinae* مطالعه گردید. نمونه‌ها در طی سال‌های ۱۳۸۹-۱۳۹۱ از بخش‌هایی از شمال (استان‌های البرز، تهران، قزوین و گیلان) و جنوب ایران (استان هرمزگان) جمع‌آوری شد. هشت گونه مورد شناسایی قرار گرفت که از آنها دو گونه به‌نام‌های *Vipio striolatus* Telenga, 1936 و *Glyptomorpha kaspariyani* Tobias, 1976 برای فون ایران گزارش جدید هستند. ویژگی‌های ریخت‌شناسی و کلیدشناسایی جنس‌ها و گونه‌های جمع‌آوری شده ارائه گردید.

**واژگان کلیدی:** *Braconinae*, *Glyptomorpha*, *Vipio*، گزارش جدید، ایران