

Research Article

## Faunistic study of the subfamily Milesiinae (Diptera: Syrphidae) in Saqqez, northwestern Iran

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**Abstract:** Specimens of the subfamily Milesiinae (Diptera: Syrphidae) were collected using sweeping net from Saqqez region, Kordestan province located in the northwestern Iran during 2012-2013. In total 25 species in 12 genera were identified. Of which *Eumerus transcaspicus* (Stackelberg, 1952) is reported for first time from Iran. Diagnostic characters besides supplementary photos of the new record are provided.

**Keywords:** Syrphidae, Milesiinae, Fauna, New record, Iran

### Introduction

Syrphidae is one of the largest families of the order Diptera with more than 6000 described species over the world. Considering the ability to keep the body motionless in the air for quite a period of time during flight as well as visiting the flowers, they comprise the popularly called "hover flies" or "flower flies" (Kevan and Baker, 1983). This large family consists of small to medium flies 6- 18 mm long, most of which have yellow and black striped bodies resembling bees or wasps. Adults, hovering near flowers, feed on nectar and pollen (Faegri and van der Pijl, 1979; Saribiyik, 2003). Larvae are pale green to yellow maggots resembling slugs which prey on aphids, scales and other insects.

Three subfamilies, Microdontinae, Milesiinae and Syrphinae, and 14 tribes are currently recognized in this family (Thompson and Rotheray, 1998). Flower flies of the subfamily Milesiinae are the most common and conspicuous which contain about two thirds of hoverfly fauna. This subfamily includes different tribes that have very different

morphological and habitat characters (Van veen, 2004). In this subfamily humeri is hairy and head naturally sits well forward so that the humeri is clearly visible (Stubbs and Falk, 2002). Many species of this subfamily, being regular visitors of flowers, are important pollinators of various plants including vegetables, fruit trees (Asteraceae, Brassicaceae, and Rosaceae) and flowering plants (Kevan and Baker, 1983). Most Milesiinae larvae are saprophagous that are found in sap trails, under bark, in rot-holes in trees and in decaying organic material such as dung and compost. Some live as scavengers on the remains of insects and other material. Others are leaf miners, or tunnel in stems and root (Stubbs and Falk, 2002).

Some studies have been conducted by taxonomists on the fauna of flower flies in Iran (Khiaban *et al.* 1998; Dousti, 1999; Gharali *et al.*, 2000; Alich *et al.*, 2000; Goldasteh *et al.*, 2002; Sadeghi *et al.*, 2002; Golmohammadi and Khiaban, 2004; Gilasian, 2005; Pashaei-Rad *et al.*, 2008; Gharali and Vujic, 2010; Khaghaninia *et al.*, 2011; Khaghaninia *et al.* 2012; Kazerani *et al.*, 2012; Shakeryari *et al.*, 2012). Considering to various flowerous areas as well as frequency of the springs and rivers in Saqqez region, faunistic study of the subfamily Milesiinae in the region was made an objective of the present study.

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## Materials and Methods

The specimens were collected using a sweeping net from the various areas of the Saqqez region in Kordestan province, located in the west of Iran, during 2012-2013. Saqqez is situated on the banks of the Saqqez River, on the Zagros Mountains including various species of Labiatae, Poaceae, Papilionaceae, Asteraceae, Rosaceae, Caryophyllaceae, Brassicaceae, Apiaceae and Boraginaceae.

After killing in a cyanide bottle, specimens were mounted on 00 and 0 size pins. The male genitalia were dissected and boiled in 10% KOH solution for about 60 seconds. The genitalia were washed and then stored in 0.5 ml microvials of glycerin and examined under a binocular microscope (Nikon™ SMZ 1000). All specimens are deposited in the Insect Museum of Tabriz University (IMTU). The species were identified based on Van veen (2004) and Stackelberg (1961) and the Iranian record and distribution mostly provided from Dousti and Hayat (2006) and Speight (2012).

## Results

Twenty five species belonging to 12 genera of the subfamily Milesiinae were collected and identified in present study. *Eumerus transcaspicus* (Stackelberg, 1952) is new record for the Iranian insect fauna. Identified species are listed as follows:

### *Cheilisia aerea* (Dufour, 1848)

**Material examined:** (2♀, 4♂): Kordestan province, Saqqez, 36°10.471' N, 46°20.291' E, 1603 m, 12 Jul. 2012.

**Iranian Records:** East Azerbaijan province (Khaghaninia *et al.*, 2010).

**Distribution:** Poland, Netherlands, southern Europe into European parts of Russia.

### *Cheilisia cumanica* (Szilady, 1938)

**Material examined:** (4♀, 1♂): Kordestan province, Saqqez, 36°04.134' N, 46°15.221' E, 1639 m, 2 Jun. 2013.

**Iranian Records:** Ghazvin (Gharali and Vujic, 2010).

**Distribution:** England, European parts of Russia, Fennoscandia, Italy, Siberia, Spain, Turkey.

### *Cheilisia nigripes* (Meigen, 1822)

**Material examined:** (4♀, 5♂): Kordestan province, Saqqez, 36°04.134' N, 46°15.221' E, 1639 m, 18 Jun. 2013.

**Iranian Records:** East Azerbaijan (Khaghaninia and Kazerani, 2014).

**Distribution:** England, Fennoscandia, Italy, South to the Pyrenees, Russia, Siberia, Spain, Turkey, Yugoslavia.

### *Chrysogaster virescens* (Loew, 1854)

**Material examined:** (12♀, 8♂): Kordestan province, Saqqez, 36°10.365' N, 46°04.061' E, 1570 m, 18 May. 2012.

**Iranian Records:** East Azerbaijan (Khaghaninia *et al.*, 2012).

**Distribution:** Britain, Central Europe, Denmark, Finland, Ireland, Spain, Switzerland.

### *Eristalinus (Lathyrrophthalmus) aeneus* (Scopoli, 1763)

**Material examined:** (4♀, 1♂): Kordestan province, Saqqez, 36°10.471' N, 46°20.290' E, 1603 m, 5 Jul. 2010.

**Iranian Records:** Urmia (Khiaban *et al.*, 1998), Ahwaz (Dousti, 1999; Dousti *et al.*, 2000), Gorgan (Goldasteh *et al.*, 2002), Guilan (Moetamednia *et al.*, 2002), Marand (Pashaei-Rad *et al.*, 2008), Mashhad (Sadeghi *et al.*, 2002), Kashmar and Bardaskan, Khorasan (Amirimoghdam *et al.*, 2004), Iran (Amirimoghdam and Sirjani, 2004).

**Distribution:** Cosmopolitan; Afrotropical region, Australia, Bermuda, Central and southern Europe, China, Ireland, Kenya, Sweden, N Africa, N America, Oriental region, Russia, Tanzania.

### *Eristalinus sepulchralis* (Linnaeus, 1758)

**Material examined:** (8♂): Kordestan province, Saqqez, 36°10.471' N, 46°20.290' E, 1603 m, 19 May. 2013.

**Iranian Records:** Urmia (Khiaban *et al.*, 1998), Ahwaz (Dousti, 1999; Dousti *et al.*, 2000), Guilan (Moetamednia *et al.*, 2002), Kurdistan (Kamangar *et al.*, 2004), Iran (Amirimoghdam and Sirjani, 2004).

**Distribution:** China, European parts of Russia, Fennoscandia, Iberia, India, Ireland, Japan, N Africa, Siberia, Turkey.

### *Eristalinus megacephalus* (Rossi, 1794)

**Material examined:** (1♀, 1♂): Kordestan province, Saqqez, 36°04.134' N, 46°15.221' E, 1639 m, 20 May. 2012.

**Iranian Records:** Ahwaz (Dousti, 1999; Dousti et al., 2000), Gorgan (Goldasteh et al., 2002), Marand (Pashaei-Rad et al., 2008), Iran (Amirimoghadam and Sirjani, 2004).

**Distribution:** India, N Africa, N America, Oriental region.

***Eristalis (Eoseristalis) arbustorum (Linnaeus, 1758)***

**Material examined:** (2♂): Kordestan province, Saqqez, 38°03.773' N, 46°16.780' E, 1461 m, 15 May. 2013.

**Iranian Records:** Iran (Peck, 1988), Urmia (Khiaban et al., 1998), Ahwaz (Dousti, 1999; Dousti et al., 2000), Gorgan (Goldasteh et al., 2002), Guilan (Moetamednia et al., 2002), Marand (Pashaei-Rad et al., 2008), Mashhad (Sadeghi et al., 2002), Kashmar and Bardaskan, Khorasan (Amirimoghadam et al., 2004), Kurdistan (Kamangar et al., 2004), Sistan (Golmohammadi and Khiaban, 2004), Iran (Amirimoghadam and Sirjani, 2004).

**Distribution:** India, N Africa, N America, Western Europe.

***Eristalis tenax (Linnaeus, 1785)***

**Material examined:** (4♀, 4♂): Kordestan province, Saqqez 38°51.505' N, 46°55.471' E, 1370 m, 10 Jul. 2010.

**Iranian Records:** Iran (Modarres Awal, 1994), Urmia (Khiaban et al., 1998), Fars (Alichi et al., 2000), Ahwaz (Dousti, 1999; Dousti et al., 2000), Gorgan (Goldasteh et al., 2002), Guilan (Moetamednia et al., 2002), Marand (Pashaei-Rad et al., 2008), Mashhad (Sadeghi et al., 2002), Kashmar and Bardaskan, Khorasan (Amirimoghadam et al., 2004), Sistan (Golmohammadi and Khiaban, 2004), Iran (Amirimoghadam and Sirjani, 2004).

**Distribution:** cosmopolitan, northern Europe, (Speight, 2012).

***Eumerus falsus (Becker, 1922)***

**Material examined:** (2♂): Kordestan province, Saqqez, 36°10.365' N, 46°04.061' E, 1570 m, 12 Jul. 2010.

**Iranian Records:** Alchorshir, Lorestan (Peck, 1988), Iran (Amirimoghadam and Sirjani, 2004).

**Distribution:** Belgium, Fennoscandia, Iberia, Nederland, Russia, Spain, Turkestan, Tadjikistan.

***Eumerus sogdianus (Stachelberg, 1952)***

**Material examined:** (2♂): Kordestan province, Saqqez, 36°10.471' N, 46°20.290' E, 1603 m, 13 Jul. 2012.

**Iranian Records:** Urmia (Khiaban et al., 1998), Baluchestan (Khiaban et al., 1998), Kurdistan (Kamangar et al., 2004), Iran (Amirimoghadam and Sirjani, 2004).

**Distribution:** Denmark south to southern Spain; from Belgium eastwards through central and southern Europe into European parts of Russia and on into central Asia (Kazakhstan, Tajikistan, Uzbekistan, Mongolia); China (Speight, 2012).

***Eumerus strigatus (Fallen, 1817)***

**Material examined:** (1♀, 1♂): Kordestan province, Saqqez, 36°10.471' N, 46°20.290' E, 1603 m, 15 Jun. 2013.

**Iranian Records:** Khorasan, Tehran, Kerman (Modarres Awal, 1997), Iran (Amirimoghadam and Sirjani, 2004).

**Distribution:** Australia, Canada, Fennoscandia, Iberia and the Mediterranean, Japan, N America, New Zealand, Russia, Turkey.

***Eumerus transcaspicus (Stackelberg, 1952)\**** (Figs 1-3)

**Material examined:** (3♂): Kordestan province, Saqqez, 33°04.134' N, 46°15.221' E, 1639 m, 20 May. 2013.

**Iranian Records:** New record for Iran.

**Distribution:** Asia Minor, Syria, Turkmenia, Tajikistan (Speight, 2012).

**Diagnostic characters:** 10-12 mm; Frons and face are covered with grayish tomentum, with white hairs, vertex and back of the head blue-black, shiny; third antennal joint elongated oval, prominent, yellowish red; wings in the apical half without a large black spot; forehead is relatively very wide; the narrowest point distinctly wider than third antennal segment; mesothorax is a bronze-green or gold color, heavily dotted, lightly wrinkled with 3 unclear white bands in its cephalic part (Fig. 1); legs black, the top of the femur, the main part (1/3 -1/2) of tibiae and tarsi reddish yellow, abdomen bronze-green color, with 3 pairs of white, crescent shaped spots; 4th tergite has a yellow border at its caudal edge; genitalia as in Figs 2 and 3.



**Figure 1-3** *Eumerus transcaspicus*: 1. Dorsal view of male, 2. Lateral view of genitalia, 3. Dorsal view of genitalia.

***Eumerus tricolor* (Fabricius, 1798)**

**Material examined:** (4♀, 1♂): Kordestan province, Saqqez, 38°51.505' N, 46°55.471' E, 1370 m, 12 Jul. 2010.

**Iranian Records:** Fars (Dousti and Hatyat, 2006).

**Distribution:** Belgium, Central Europe to European parts of Russia, Netherlands, Siberia.

***Helophilus pendulus* (Linnaeus, 1758)**

**Material examined:** (4♀, 1♂): Kordestan province, Saqqez, 36°04.838' N, 46°58.838' E, 1886 m, 24 Jun. 2012.

**Iranian Records:** Guilan (Moetamednia *et al.*, 2002), Iran (Amirimoghadam and Sirjani, 2004).

**Distribution:** Eurasia to the Pacific coast, Fennoscandia, Iberia, Iceland, Ireland, Southern Europe.

***Helophilus trivittatus* (Fabricius, 1805)**

**Material examined:** (2♂): Kordestan province, Saqqez, 38°03.773' N, 46°16.780' E, 1461 m, 15 May. 2013.

**Iranian Records:** Iran (Peck, 1988; Amirimoghadam and Sirjani, 2004), Urmia (Khiaban *et al.*, 1998), Ahwaz (Dousti, 1999; Dousti *et al.*, 2000), Gorgan (Goldasteh *et al.*, 2002), Marand (Pashaei-Rad *et al.*, 2008), Iran (Amirimoghadam and Sirjani, 2004).

**Distribution:** Afghanistan, Eurasia, Fennoscandia south to the Mediterranean, Ireland.

***Lejogaster metallina* (Fabricius, 1776)**

**Material examined:** (2♀, 1♂): Kordestan province, Saqqez, 38°03.773' N, 46°19.780' E, 11461 m, 12 Jul. 2013; (3♀, 3♂): Saqqez, 36°10.365' N, 46°04.061' E, 11461 m, 24 May. 2012.

**Iranian Records:** East Azerbaijan (Khaghaninia *et al.*, 2011).

**Distribution:** Iberia, Ireland, N Africa, Northern Fennoscandia.

***Lejogaster tarsata* (Megerle in Meigen, 1822)**

**Material examined:** (5♀, 3♂): Kordestan province, Saqqez, 38°03.773' N, 46°19.780' E, 1461 m, 12 Jul. 2010; (3♀, 2♂): Saqqez, 36°10.365' N, 46°04.061' E, 11461 m, 14 Jul. 2013.

**Iranian Records:** East Azerbaijan (Shakeryari *et al.*, 2012).

**Distribution:** Afghanistan, Fennoscandia, Ireland, Kazakhstan, Kirghizia, Mediterranean islands (Corsica, Sicily), Mongolia, Siberia, Southern Europe into European parts of Russia, Tajikistan, Turkmenia, Uzbekistan.

***Melanogaster nuda* (Macquart, 1829)**

**Material examined:** (4♀, 4♂): Kordestan province, Saqqez 36°04.134' N, 46°15.221' E, 1639 m, 22 May. 2013; (2♂): Saqqez, 36°10.365' N, 46°04.061' E, 1570 m, 12 Jul. 2010.

**Iranian Records:** Mazandaran (Gilasian, 2005).

**Distribution:** Belgium, European Russia, Finland, France, Spain, Sweden, Syria, Turkey.

***Myathropa florea* (Linnaeus, 1758)**

**Material examined:** (2♂): Kordestan province, Saqqez, 38°03.773' N, 46°16.780' E, 1461 m, 28 May. 2012.

**Iranian Records:** Urmia (Khiaban *et al.*, 1998), Guilan (Moetamednia *et al.*, 2002), Mashhad (Sadeghi *et al.*, 2002), Kashmar and Bardaskan, Khorasan (Amirimoghdam *et al.*, 2004), Iran (Amirimoghdam and Sirjani, 2004).

**Distribution:** Eurasia to the Pacific coast, Fennoscandia, Ireland, N Africa.

***Orthonevra brevicornis* (Loew, 1840)**

**Material examined:** (4♂): Kordestan province, Saqqez, 38°03.773' N, 46°16.780' E, 1461 m, 15 May. 2013; (2♂): Saqqez, 33°04.134' N, 46°15.221' E, 1639 m, 20 May. 2013; (4♀, 1♂): Saqqez 36°10.471' N, 46°20.290' E, 1603 m, 5 Jul. 2010.

**Iranian Records:** East Azerbaijan (Shakeryari *et al.*, 2012).

**Distribution:** Belgium, Britain, Denmark, European parts of Russia, Finland, France, Germany, Poland, Siberia.

***Orthonevra nobilis* (Fallen, 1817)**

**Material examined:** (7♀, 4♂): Kordestan province, Saqqez, 36°04.134' N, 46°15.221' E, 1639 m, 18 May. 2013.

**Iranian Records:** East Azerbaijan (Shakeryari *et al.*, 2012).

**Distribution:** China, European parts of Russia, Greece, Ireland, Italy, Norway, Siberia, Spain, Turkey, Yugoslavia.

***Syritta pipiens* (Linnaeus, 1758)**

**Material examined:** (3♀, 10♂): Kordestan province, Saqqez, 36°04.134' N, 46°15.221' E, 1639 m, 20 May. 2012.

**Iranian Records:** Iran (Peck, 1988), Urmia (Khiaban *et al.*, 1998), Ahwaz (Dousti, 1999; Dousti *et al.*, 2000), Gorgan (Goldasteh *et al.*, 2002), Guilan (Moetamednia *et al.*, 2002), Mashhad (Sadeghi *et al.*, 2002), Kashmar and Bardaskan, Khorasan (Amirimoghdam *et al.*, 2004), Kurdistan (Kamangar *et al.*, 2004), Iran (Amirimoghdam and Sirjani, 2004).

**Distribution:** Cosmopolitan.

***Volucella bombylans* (Linnaeus, 1758)**

**Material examined:** (1♂): Kordestan province, Saqqez, 38°03.773' N, 46°16.780' E, 1461 m, 18 Jun. 2013.

**Iranian Records:** Mazandaran (Gilasian, 2005).

**Distribution:** Central and southern Europe into Russia, Fennoscandia, Iberia, Ireland, Japan, N America.

***Volucella inanis* (Linnaeus, 1758)**

**Material examined:** (4♀, 1♂): Kordestan province, Saqqez, 38°51.505' N, 46°55.471' E, 1370 m, 12 Jul. 2010.

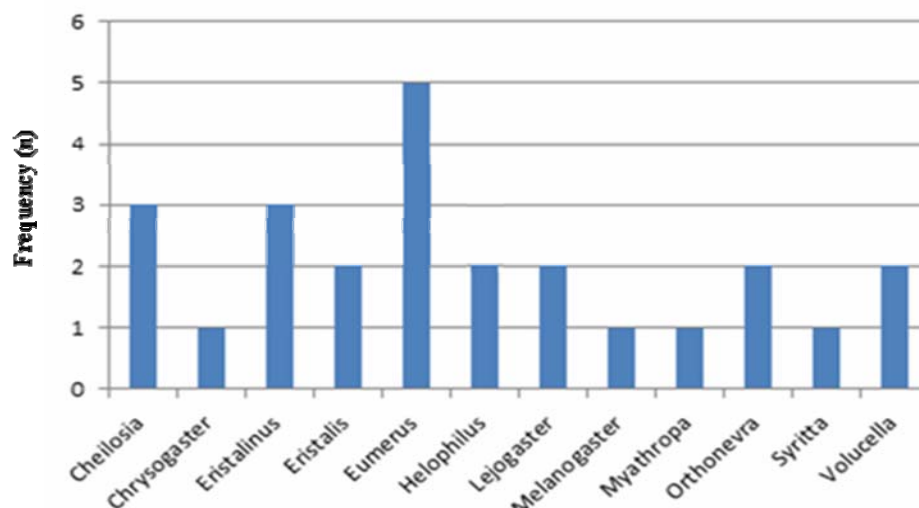
**Iranian Records:** Urmia (Khiaban *et al.*, 1998), Iran (Amirimoghdam and Sirjani, 2004).

**Distribution:** Afghanistan, China, Britain, European parts of Russia, Fennoscandia, Islands, Mongolia, North Africa, Siberia, Spain, Syria, Turkey; This species is strongly migrant.

**Discussion**

The adult specimens were collected in humid pasturage and suburban gardens. Many *Volucella* and *Syritta* species occur in wasp nests where they presumably feed on detritus and decomposing material (Stubbs and Falk, 2002). We collected both genera from open areas in most types of deciduous forest and humid *Pinus* forest. Semi-aquatic conditions occur along banks and in peat bogs. Here, decaying leaves and other vegetation build up, forming suitable habitats for *Melanogaster*, *Lejogaster*, *Orthonevra* and *Chrysogaster* larvae. The adult hoverflies are attracted to the vegetation and abundant flowers on the banks (Van veen, 2004) and they occurred from humid *Pinus sylvestris* forest and wet *Salix* woodland to occasionally in spring and flush areas in heath or unimproved grassland. In this study the members of the tribe Chrysogasterini were collected at low altitude areas near to rivers and springs on Asteraceae, *Ranunculus* and Parsley Family.

Most of our samplings were carried out around the edge of wetland and open areas with deciduous plants as well dry grassland and clearings in dry woodland. The most specious genus in this study is *Eumerus* with five species followed by the genera *Cheilosia* and *Eristalis* each with three species (Fig. 4).



**Figure 4** Number of species in each genus of Milesiinae in Saqez.

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#### References

- Alichi, M., Asadi, G. H. and Gharali B. 2000. Aphidophagous syrphids of Fars province. Proceedings of the 14<sup>th</sup> Iranian Plant Protection Congress, 1: 181.
- Amirimoghadam, F. and Sirjani, M. 2004. Check list of hoverflies (Diptera: Syrphidae) of Iran. Proceedings of the 15<sup>th</sup> International Plant Protection Congress, Beijing, 505.
- Amirimoghadam, F., Sadeghi, H., Pashae Rad, Sh., Sheydaee, M. and Sirjani, M. 2004. Survey of hoverflies (Dip.: Syrphidae) in Kashmar & Bardaskan. Proceedings of the 16<sup>th</sup> Iranian Plant Protection Congress, 1: 102.
- Dousti, A. F. 1999. Fauna and Diversity of Syrphid flies in Ahwaz region. M.S. Thesis, Shahid-Chamran University. 129 pp.
- Dousti, A. F., Hodjat, S. H., Soleyman and Nejadian, E. 2000. A faunistic survey of Syrphidae (Diptera) in Ahwaz region. Proceedings of the 14<sup>th</sup> Iranian Plant Protection Congress, 1: 353.
- Dousti, A. F. and Hayat, R. 2006. A catalogue of the Syrphidae (Insecta: Diptera) of Iran. Journal of Entomological Society, 8 (3): 5-38.
- Faegri K. and van der Pijl, L. 1979. The Principles of Pollination Ecology. Pergamon, Oxford, England.
- Gharali, B., Alichi, M. and Radjabi, G. R. 2000. The new records of syrphid flies (Diptera: Syrphidae). Proceedings of the 14<sup>th</sup> Iranian Plant Protection Congress, 1: 348.
- Gharali, B. and Vujic, A. 2010. *Cheilosia cumanica* (Dip: Syrphidae), a new record of flower flies from Iran. Journal of Entomological Society of Iran, (30) 1: 83-86.
- Gilasian, E. 2005. New record of one genus and six species of Syrphidae (Diptera) from Iran. Journal of Entomological Society of Iran, 25 (1): 75-76.
- Goldasteh, Sh., Bayat Asadi, H., Shojaee, M. and Baniameri, V. A. 2002. A faunistic survey of Syrphidae (Diptera) in Gorgan region. Proceedings of the 15<sup>th</sup> Iranian Plant Protection Congress, 1: 168.
- Golmohammadi, Gh. and Khiaban, N. 2004. Hoverflies (Diptera: Syrphidae) fauna of wheat fields in Sistan region. Proceedings

- of the 16<sup>th</sup> Iranian Plant Protection Congress, 1: 132.
- Kamangar, S., Mansour Ghazi, M. and Gharali, B. 2004. Identification of syrphid flies in wheat fields, and a survey on population fluctuations of the dominant species in Kurdistan province. Proceedings of the 16<sup>th</sup> Iranian Plant Protection Congress, 1: 144.
- Kazerani, F., Talebi, A. A. and Gilasian, E. 2012. First record of the genus and species *Pipiza accola* Virolvitsh (Diptera: Syrphidae) from Iran. Journal Crop Protection, 1 (4): 287-291.
- Kevan, P. G. and Baker, H. G. 1983. Insects as flower visitors and pollinators. Annual Review Entomology, 28: 407-453.
- Khaghaninia, S., Shakeryari, A. and Gharaei, B. 2012. Synopsis of the genus *Chrysogaster* Loew, 1857 (Diptera: Syrphidae) in Iran. Munis Entomology and Zoology, 7 (1): 363-390.
- Khaghaninia, S., Shakeryari, A. and Saribiyik, S. 2011. Three species as new records for Iran hover flies of the subfamily Milesiinae (Diptera: Syrphidae) from East Azerbaijan province, Proceedings of Global Conference on Entomology, 14-17 September, Kuching Sarawak, Malaysia, 37.
- Khaghaninia, S. and Kazerani, F. 2014. A Review of the Genus *Cheilosia* (Diptera, Syrphidae) from Iran. Vestnik Zoologii, 48 (4): 269-274
- Khiaban, N. G., Hayat, R., Safaralizadeh, M. and Parchami, M. 1998. A faunistic survey of Syrphidae in Uromieh region. Proceedings of the 13<sup>th</sup> Iranian Plant Protection Congress, 1: 231.
- Moetamednia, B., Sahragard, A., Salehi L. and Jalali, J. 2002. Syrphidae species in Guilan province. Proceeding of the 15<sup>th</sup> Iranian Plant Protection Congress, 1: 166.
- Modarres Awal, M. 1997. List of Agricultural pests and their natural enemies in Iran, Diptera section. Ferdowsi University Press, Iran. 76-82 pp.
- Pashaei-Rad, Sh., Talaei-Hassanloei, R., Gharali, B. and Bagheri, A. 2008. Report of the genus *Parhelophilus* Grischner (Dip.: Syrphidae) from Iran. Journal of Entomological Society of Iran, 28 (1): 81-8.
- Peck, L. V. 1988. Family Syrphidae, In: Soos, A. and Papp, L. (Eds.), Catalogue of Palaearctic Diptera (Syrphidae-Conopidae). Elsevier, Amsterdam, 230 pp.
- Sadeghi, H., Kayvanfar, N. and Mojtahedzadeh, K. 2002. Hover flies (Dip.: Syrphidae) fauna of Mashhad region. Proceedings of the 15<sup>th</sup> Iranian Plant Protection Congress, 169.
- Saribiyik, S. 2003. Fauna of Syrphinae and Milesinae (Diptera: Syrphidae) around Tuz lake. Kastamonu Education Journal, 11 (2): 439-450.
- Shakeryari, A., Khaghaninia, S. and Haddad Irani Nejad K. 2012. Four species as new records of tribe Chrysogasterini (Diptera: Syrphidae) from Iran. Munis Entomology and Zoology, 7: 385-390.
- Speight, M. C. D. 2012. Species accounts of European Syrphidae (Diptera), In: Speight, M. C. D., Castella, E., Sarthou, J. P. and Monteil, C. (Eds.), Syrph the Net, the database of European Syrphidae. Volume 65, Dublin: Syrph the Net publications, pp. 74-80.
- Stackelberg, A. A. 1961. Palaearctic species of the genus *Eumerus* Mg. (Diptera, Syrphidae). Trudy Vsesoyeznogo Entomologicheskogo Obshchestva, 48: 181-229.
- Stubbs, A. E. and Falk, S. J. 1983. British Hoverflies, an Illustrated Identification Guide. British Entomological and Natural History Society, London.
- Thompson, F. C. and Rotheray, G. E. 1998. Family Syrphidae. In: Papp, L. and Darvas, B. (Eds.), Manual of Palaearctic Diptera. Vol. 3, Science Herald, Budapest, pp. 81-139.
- Van veen, M. P. 2004. Hover Flies of Northwest Europe: Identification Keys to the Syrphidae. KNNV Publishing, Utrecht. 254 pp.

مطالعه مگس‌های زیرخانواده Milesiinae (Diptera: Syrphidae) در شهرستان سقز، شمال غرب ایران

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**چکیده:** نمونه‌های مورد مطالعه از زیرخانواده Milesiinae (Diptera: Syrphidae) با استفاده از تور حشره‌گیری از شهرستان سقز، استان کردستان واقع در شمال غرب ایران طی سال‌های ۱۳۹۱-۱۳۹۲ جمع‌آوری شدند. در این مطالعه ۲۵ گونه متعلق به ۱۲ جنس شناسایی شدند. از بین آن‌ها، گونه *Eumerus transcaspicus* (Stackelberg, 1952) برای اولین بار از ایران گزارش می‌شود. مشخصات افتراقی همراه با عکس‌های گونه رکورد ارائه شده‌است.

**واژگان کلیدی:** Milesiinae, Syrphidae، فون، گزارش جدید، ایران