

**SOME OF FLOWER FLIES FAUNA OF THE MILESIINAE
SUBFAMILY (DIPTERA: SYRPHIDAE) OF GUNBER
REGION IN EAST AZARBAIJAN PROVINCE
INCLUDING A KEY FOR THE GENERA**

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ABSTRACT: A faunistic survey on flower flies of the subfamily Milesiinae of Gunber region in East Azarbaijan province was carried out during 2008-2010. Eighteen species belonging to eleven genera of the subfamily Milesiinae were collected and identified. Two species, *Lejogaster tarsata* Meigen 1822 and *Syritta fasciata* Wiedemann 1830, are introduced as new records for the Iran insect fauna. An identification key to the studied genera is given.

KEY WORDS: Syrphidae, Milesiinae, new records, East Azarbaijan province, Iran.

Hover flies is one of the largest and most diverse families of the order Diptera which include about 200 genera and more than 6000 described species over the world (Chandler, 1968). This group consists of small to medium flies 6- 18 mm long which can be distinguished by the special venation of the wing (spurious vein) (Kevan & 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 often hover near flowers and feed on nectar and pollen (Saribiyik, 2003). Many species are important pollinators of flowering plants (Faegri & van der Pijl, 1979; Saribiyik, 2003). In addition, the immatures of numerous species are predators of destructive aphids and other pests (Gilbert, 1981).

Flower flies of the subfamily Milesiinae are the most common and conspicuous which contain about two thirds of hoverfly fauna. Many species, being regular visitors of flowers, are important pollinators of various plants including vegetables, fruit trees (Asteraceae, Brassicaceae, and Rosaceae) and flowering plants (Kevan & Baker, 1983). In this subfamily humeri is hairy and head naturally sits well forward so that the humeri is clearly visible. Most of Milesiinae larvae are filter feeders in all kinds of aquatic media and are commonly called rat-tailed maggots (Stubbs & Falk, 2002).

The limited studies have been conducted by some taxonomists in Iran about Syrphids which yielded identification of about 200 species belonging to 58 genera (Dousti, 1999; Goldasteh et al., 2002; Golmohammadi & Khiaban, 2004; Gilasian, 2005; Dousti & Hayat 2006; Gharali & Reemer, 2008, 2010; Khaghaninia & Bashiri, 2011; Khaghaninia et al., 2012; Khaghaninia & Shakeryari, 2012; Shakeryari et al., 2012).

MATERIAL AND METHODS

The adult specimens were collected from Gunber region using common entomological net during 2008-2010. Gunber region is located in southern east of Tabriz city, Iran. This biosphere reserve situated in north west Sahand's summits,

with UTM (Universal Transfer Mercator) coordinate system, X from 594563 to 611450 E; Y from 4174485 to 4179862 N and varying latitude from 2112 m to 2189 m a.s.l (Fig. 1). This area has rich grass lands with various species of Astraceae, Umbelifera, Legominaceae and Ronunculaceae. The samples were killed in a killing jar containing potassium cyanide and the voucher specimens were deposited at Insect Museum of Tabriz University. The specimens were identified based on valid keys such as Stubbs and Falk (2002), Speight (2008) and Bei-Bienko (1988). The range and flower visited of the recorded species are provided mostly from Speight (2010).

RESULTS

Key to the genera studied

(Adapted from Speight, 2008 and Stubbs & Falk, 2002)

- 1- Face normally with knob. Abdomen with or without grey spots.....*Cheilisia*
- Face without distinct knob. Abdomen with grey spots.....2
- 2- Abdomen waist near base. Hind tibia with one black ring.....*Neoascia*
- Abdomen not waist near base. Hind tibia without black ring.....3
- 3- Face with flat hairy. Hind femur swollen.....*Eumerus*
- Face without flat hairy. Hind femur otherwise.....4
- 4- Wing with R₄₊₅ strongly looped.....5
- Wing with R₄₊₅ shallowly dipped or more nearly straight.....6
- 5- Scutellum black. Eyes spotted even if indistinctly so.....*Eristalinus*
- Scutellum not black. Eyes never with a spotted pattern.....*Eristalis*
- 6- Body very hairy. Arista pulmus.....*Volucella*
- Body not very hairy. Arista bare or with short hair.....7
- 7- Face flat and entirely covered in long drooping shaggy hairs.....*Pipizella*
- Face not of this type.....8
- 8- Thoracic dorsum with black central patch partly bisected by pale bars.....*Myathropa*
- Thoracic dorsum otherwise.....9
- 9- Hind femur swollen in a compact manner, with small spines apically.....*Syritta*
- Hind femur not swollen without spines.....10
- 10- Antennae straight (long cylindrical) with terminal arista.....*Ceriana*
- Antennae not of this type.....11
- 11- Tergites entirely metallic colored, with green, bluish or reddish reflection....*Lejogaster*

Verified species are listed as follows:

Ceriana caucasica Paramonov 1927, *Cheilisia proxima* Zetterstedt 1838, *C. scutellata* Fallen 1817, *Eristalinus megacephalus* Rossi 1794, *E. sepulchralis* Linnaeus 1758, *Eristalis arbustorum* Linnaeus 1758, *E. tenax* Linnaeus 1758, *Eumerus lucidus* Loew 1848, *E. sogdianus* Stacklberg 1952, *Lejogaster tarsata** Meigen 1822, *L. metallina* Fabricius 1777, *Myathropa florum* Linnaeus 1758, *Neoascia podagrica* Fabricius 1775, *Pipizella virens* Fabricius 1805, *Volucella inanis* Linnaeus 1758, *Syritta fasciata** Wiedemann 1830, *S. flaviventris* Macquart 1842 and *S. pipiens* Linnaeus 1758.

The new records (marked with one asterisk) are explained as follow:

Lejogaster tarsata (Meigen, 1822) (New record for Iran fauna) (Fig. 2)

Material examined: 7 specimens (3♂♂, 4♀♀): Gunber valley; 3743.203 N 4612.547 E, 2167 m, 8 July 2009.

Diagnostic characters: The males have a green thorax and a bronze or reddish-copper colored abdomen. The antennae are not expanded as in *L.*

metallina. The females also usually have a greenish tint on the thorax, but the centre of the abdomen usually has strong blue reflections from some angles. The third antennal segment in this sex is much longer than broad and there is a conspicuous orange area ventrally. Wing length 4.5- 6 mm (Stubbs & Falk, 2002).

Flowers visited: white umbellifers, *Matricaria*, *Ranunculus* and *Potentilla*.

Range: From Fennoscandia south to the Mediterranean and Mediterranean islands (Corsica, Sicily); from Ireland east through central and southern Europe into European parts of Russia; Afghanistan and on by way of Uzbekistan, Tajikistan, Kirghizia, Turkmenia and Kazakhstan to Mongolia, south-eastern Siberia and the Pacific coast.

***Syritta fasciata* Wiedemann 1830 (New record for Iran fauna)**

(Fig. 3)

Material examined: 4 specimens (4♀♀): Gunber valley; 3742.842 N 4613.144 E, 2188 m, 24 August 2010.

Diagnostic characters: The sides of the thorax are densely covered in grey, almost silver- dusting. Lateral margins of tergite 4 undusted. Fore and mid femora and tibia yellow-brown, male surstyli with only a sub-basal bump (Speight, 2008).

Flowers visited: White umbellifers; *Achillea*, *Allium*, *Aster*, *Calluna*, *Cardamine*, *Cirsium palustre*, *Convolvulus*, *Crataegus*, *Epilobium*, *Euphorbia*, *Galium*, *Jasione montana*, *Leontodon*, *Polygonum cuspidatum*, *Potentilla erecta*, *Prunus laurocerasus*, *Ranunculus*, *Rosa canina*, *Senecia jacobaea*, *Sorbus aucuparia* and *Tussilago*.

Distribution: Becoming cosmopolitan; known from most of the Palaearctic, including North Africa, most of North America, South America and the Oriental region. But records from the Afrotropical region are apparently erroneous.

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LITERATURE CITED

- Bei-Bienko, G.** 1988. Keys to the insects of the European part of the USSR. Volume V. Diptera and Siphonaptera. Part II. Smithsonian Institution Libraries and the National Science Foundation Washington, D.C. 10-148.
- Chandler, A. E. F.** 1968. A preliminary key to the eggs of some of the commoner aphidophagous Syrphidae (Diptera) occurring in Britain. Transaction Royal Entomological Society London, 120 (8): 199-217.
- Coe, R. L.** 1953. Diptera: Syrphidae. Handbks. ident. Br. Insects. R. ent. Soc. London, 10 (1): 1-98.
- Dousti, A. F.** 1999. Fauna and Diversity of Syrphid flies in Ahwaz region. M.S. Thesis, Shahid-Chamran University, 129 pp.
- Dousti, A. F. & Hayat, R.** 2006. A catalogue of the Syrphidae (Insecta: Diptera) of Iran. J. Entomol. Res. Soc., 8 (3): 5-38.
- Faegri K., & van der Pijl, L.** 1979. The principles of pollination ecology. Pergamon, Oxford, England.
- 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.

Gilbert, F. S. 1981. Foraging ecology of hoverflies: Morphology of the mouthparts in relation to feeding on nectar and pollen in some common urban species. *Ecol. Entomol.*, 6: 245-262.

Goldasteh, Sh., Bayat Asadi, H., Shojaee, M. & Baniameri, V. A. 2002. A faunistic survey of Syrphidae (Diptera) in Gorgan region. *Proceeding of the 15th Iranian Plant Protection Congress*, p. 168.

Golmohammadi, Gh. & Khiaban, N. 2004. Hoverflies (Diptera: Syrphidae) fauna of wheat fields in Sistan region. *Proceedings of 16th Iranian Plant Protection Congress*, p. 132.

Kevan, P. G. & Baker, H. G. 1983. Insects as flower visitors and pollinators. *Annu. Rev. Entomol.*, 28: 407-453.

Khaghaninia, S. & Bashiri, M. 2011. First records of two rare found hover flies (Diptera: Syrphidae) from Iran. *Proceeding of Global Conference on Entomology*. pp. 151.

Khaghaninia, S. & Shakeryari, A. 2012. New records of hover flies (Diptera: Syrphidae) for the Iran insect fauna from East Azerbaijan province. *Russian Entomology Journal Impress*.

Khaghaninia, S., Shakeryari, A. & Gharaei, B. 2012. Synopsis of the genus *Chrysogaster* Loew, 1857 (Diptera: Syrphidae) in Iran. *Munis Entomology and Zoology*, 7 (1): 363-390.

Saribiyik, S. 2003. Fauna of Syrphinae and Milesinae (Diptera: Syrphidae) around Tuz lake. *Kastamonu Education Journal*, 11 (2): 439- 450.

Shakeryari, A., Khaghaninia, S. & Haddad Irani Nejad, K. 2012. Four species as new records of tribe Chrysogasterini (Diptera: Syrphidae) from Iran. *Munis Entomology and Zoology*, 7 (1): 385-390.

Speight, M. C. D. 2008. Species accounts of european Syrphidae (Diptera) 2008. In: Speight, M. C., Castella, E., Sarthou, J. P. and monteil, C. (eds). *Syrph the Net, the database of european Syrphidae*, Vol. 56, 66 pp., Syrph the Net Publication, Dublin.

Speight, M. C. D. 2010. Species accounts of European Syrphidae (Diptera) 2010. In: Speight, M.C.D., Castella, E., Sarthou, J.-P. and Monteil, C. (eds.). *Syrph the Net, the database of European Syrphidae*, vol. 59, 285 pp., Syrph the Net publications, Dublin.

Stubbs, A. E. & Falk, S. J. 2002. British hover flies. An illustrated identification guide. Pub. The british Entomology and Natural History Society, Reading, UK.

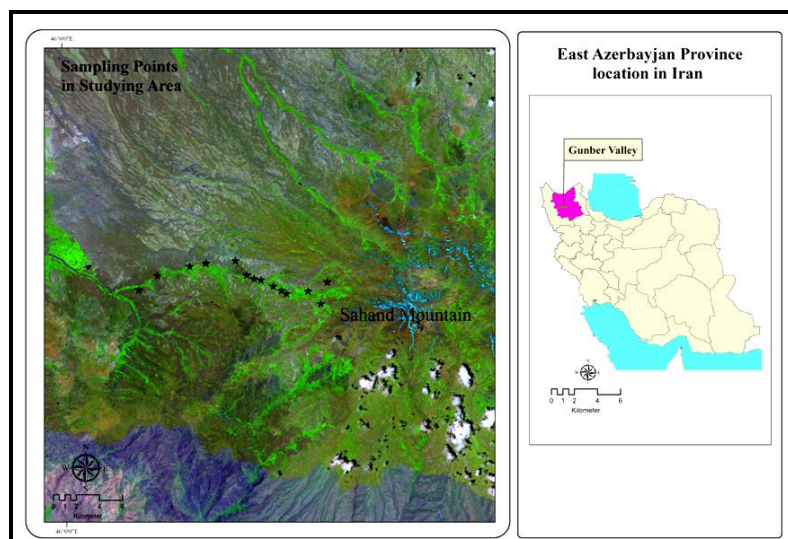


Figure 1. Location of sampling points on satellite image (SPOT) of Gunber region.

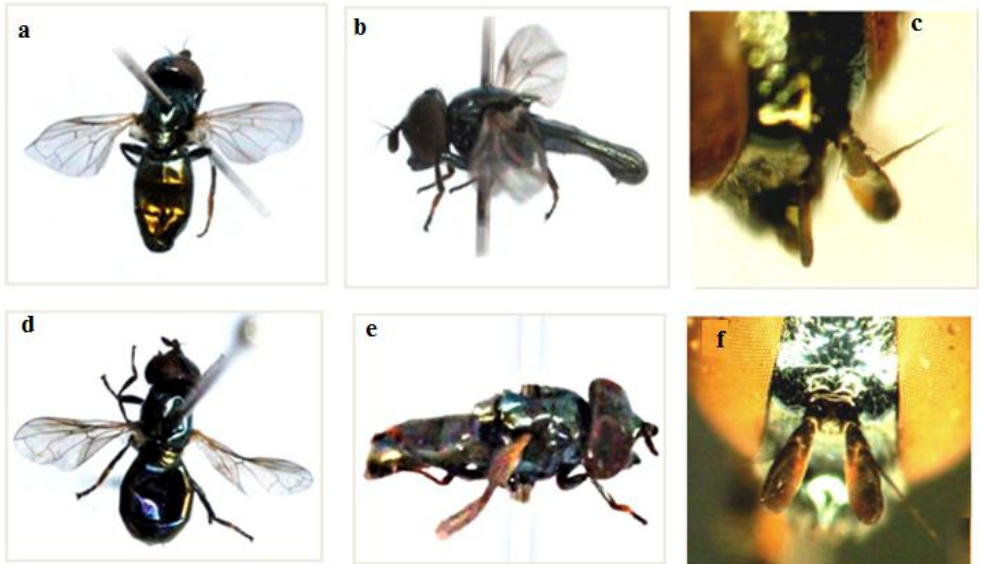


Figure 2. *Lejogaster tarsata*: Male: a- (dorsal view), b- (lateral view), c- (antennae); Female: d- (dorsal view), e- (lateral view), f- (Antennae).

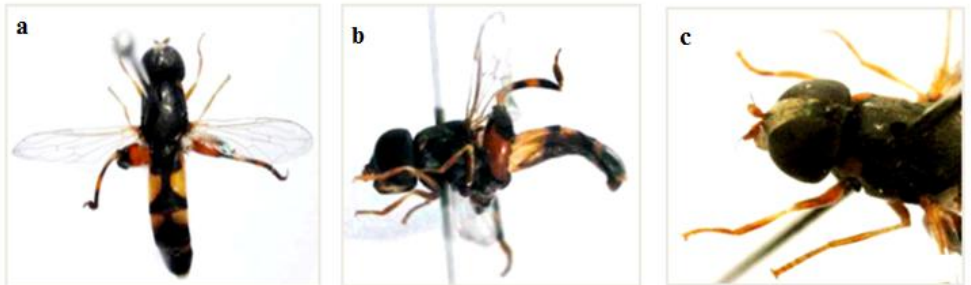


Figure 3. *Syritta fasciata*: Female: a- (dorsal view), b- (lateral view), c- (fore and mid legs).