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A new record of flower flies (Diptera: Syrphidae) for the fauna of Iran

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ABSTRACT. During the study of flower flies (Diptera: Syrphidae) associated with colza (*Brassica napus*) fields in Sari (Mazandaran Province, Iran) in 2015–2016, a total of six species *i.e.* *Episyrphus balteatus* (De Geer), *Eupeodes corollae* (Fabricius), *Melanostoma mellinum* (Linnaeus), *Paragus bicolor* (Fabricius), *Syrphus ribesii* (Linnaeus) and *Platycheirus jaerensis* Nielsen are recorded for this region. Among them, *P. jaerensis* Nielsen is newly recorded for the Iranian fauna.

Key words: Syrphidae, Colza, *Platycheirus*, new record, Iran

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Introduction

Colza or canola (*Brassica napus* L.) is one of the important crops of the family Brassicaceae that is economically important as a resource of oils. Several insects and mites are associated with this plant (Khanjani, 2005). Therefore, we studied the fauna of insects associated with colza in Sari, and collected different groups of insects.

The Syrphidae, commonly named hoverflies or flower flies, is one of the largest families of the order Diptera, with more than 6000 described species in the world (Kuznetsov, 2002). Many species are important pollinators of flowering plants (e.g. Asteraceae, Brassicaceae, Rosaceae) (Kan, 1988). Compared with the adults, the larvae are important predators of aphids,

scale bugs and other insects, making them as important natural enemies of the pest species, as a single larva may consume up to 400 aphids (Bennewicz, 2011). The hoverflies are also recorded as efficient predators in cereal crops too (Lapchin et al., 1987).

The Iranian Syrphidae was reviewed by Dousti & Hayat (2006), and an annotated checklist of the subfamily Syrphinae of Iran was also published by Kazerani et al. (2013). On the other hand, there are few works on this group of insects on colza fields (Gharali & Lotfalizadeh, 2002; Malkeshi et al., 2004; Khajehzadeh, 2004; Jalilian et al., 2014). The fauna of Syrphidae in Mazandaran province was studied by Gilasian & Vujic (2004) and Kazerani et al. (2013). The genus *Platycheirus* is one of the largest genera in the family

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Syrphidae in the Palaearctic region (Barkalov, 2013) and belongs to tribe Bacchini, Subfamily Syrphinae. Seven species of this genus were recorded from Iran (Shojaei Hesari et al. 2016).

In the present work we collected some other species from Sari, among them, *Platycheirus jaerensis* Nielsen is newly recorded for the fauna of Iran.

Material and methods

Adult flower flies were collected with sweep-netting on colza fields in Sari (36°39'35"N, 53°4'30"E, 132m), Mazandaran province (north of Iran), during October 2015 to May 2016. The collected material was preserved in 70% ethanol alcohol and then determined by different credit identification keys especially, Stubbs & Falk (2002). Finally, the specimens were identified and confirmed by Dr. Samad Khaghaninia (Tabriz University). One male (mounted on slide) of newly recorded species is deposited in the Collection of Department of Plant Protection, College of Agriculture, Ilam University, Iran (ILAMU) and other specimens are deposited in the Department of Plant Protection of Sari University of Agricultural Sciences and Natural Resources.

Results

In this study, we collected a few species of aphids, whereas the following flower flies (family Syrphidae) had high numbers especially on flower stage of colza.

Episyrphus balteatus (De Geer)

Material examined: Mazandaran province, Sari, 10♀4♂, 10.V.2015, leg.: N. Zamani.

Eupeodes corollae (Fabricius)

Material examined: Mazandaran province, Sari, 4♀, 10.V.2015, leg.: N. Zamani.

Melanostoma mellinum (Linnaeus)

Material examined: Mazandaran province, Sari, 4♀, 17.VI.2016, leg.: N. Zamani.

Paragus bicolor (Fabricius)

Material examined: Mazandaran province, Sari, 4♀1♂, 13.VI.2015, leg.: N. Zamani.

Platycheirus jaerensis Nielsen (New record) (Fig. 1-2)

Material examined: Mazandaran province, Sari, 5♀, 23.V.2016, leg.: N. Zamani.

Short description: Body length 6mm. Face protrudes forwards and downwards, with greyish-yellow pollinosity, hairs on face yellow; frons broad and shiny bronze-black with broad ill-defined pollinose spots, occupying more than 3/4 of frons; hairs on frons black. Antennal segments brownish-black, First and second antennal segments orange, third segment darker dorsally; thorax black with hairs yellow; mesonotum and scutellum with hairs yellow; pleura shiny black. Halteres yellow. Front and middle legs brownish yellow, hind legs darker, yellowish on 1/3 basal of femur. Abdomen shiny black, tergite II with a pair of quadrate to semi-circular spots, close to the anterior margin of the tergite; tergites 3-4 with a pair of squarish spots reaching the anterior margins of the tergites.

Distribution: Norway, Finland, Sweden (van Steenis & Goeldlin de Tiefenau, 1998), Iran (New record).

Syrphus ribesii (Linnaeus)

Material examined: Mazandaran province, Sari, 8♀, 23.V.2015, leg.: N. Zamani.

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Conflict of Interests

The authors declare that there is no conflict of interest regarding the publication of this paper.

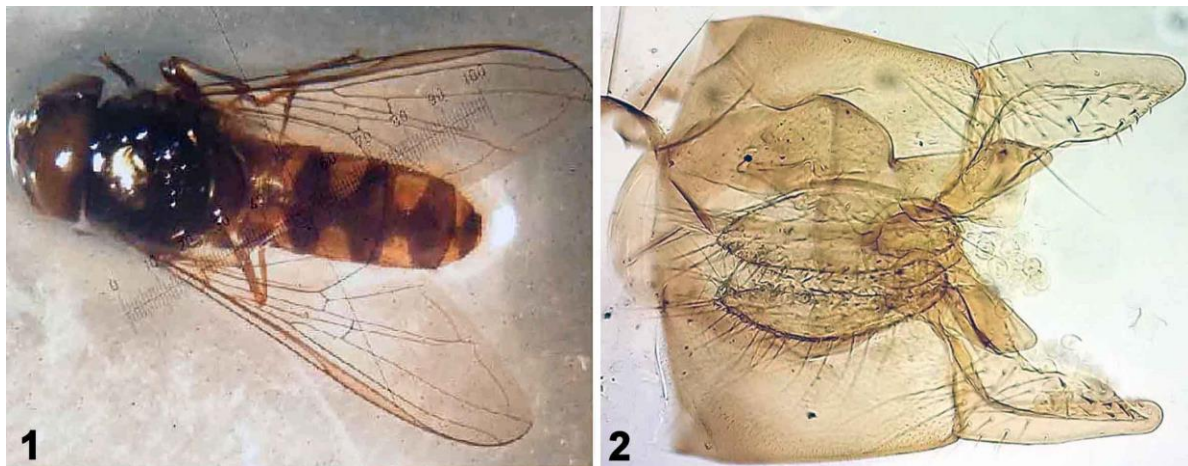


Figure 1-2. *Platycheirus jaerensis*: (1) Adult female, dorsal view; (2) Male genitalia, dorsal view.

References

- Barkalov, A.V. (2013) A new *Platycheirus* Le Peletier et Serville, 1828 (Diptera, Syrphidae) species of the *manicatus* subgroup, from the Taimyr Peninsula (Northern Siberia). *Zootaxa*, 3681, 175–181.
<http://dx.doi.org/10.11646/zootaxa.3681.2.7>
- Bennewicz, J. (2011) Aphidivorous hoverflies (Diptera: Syrphidae) at field boundaries and woodland edges in an agricultural landscape. *Polish Journal of Entomology*, 80, 129–149.
<https://doi.org/10.2478/v10200-011-0010-7>
- Dusti A.F. & Hayat, R. (2006) A catalogue of the Syrphidae (Insecta: Diptera) of Iran. *Journal of the Entomological Research Society*, 8(3), 5–38.
- Gharali, B. & Lotfalizadeh, H.A. (2002) The syrphid fauna of colza in Mughan plain. *Proceedings of the 15th Iranian Plant Protection Congress, 2002, 7–11 September, Kermanshah, Iran, Vol I: pp. 103–104.*
- Gilasian E. & Vujić, A. (2004) A preliminary study on the syrphid fauna (Diptera) in Mazandaran province. *Proceedings of the 16th Iranian Plant Protection Congress, 2004, 28 August – 1 September, Tabriz, Iran, p. 131.*
- Jalilian, F., Karimpour, Y., Malkeshi, S.H., Gilasian, E., Kavianpour, M.R., Mahjoob, S. M., Tohidi, M.T. & Bagheri Matin, Sh. (2014) Evaluation of population fluctuation of predacious species of syrphid flies (Dip.: Syrphidae) on Cabbage aphid *Brevicoryne brassicae* in rapeseed fields. *Agricultural Pest Management*, 1 (1), 46–54.
- Kan, E. (1988) Assessment of aphid colonies by hoverflies. I. Maple aphids and *Episyrphus balteatus* (de Geer) (Diptera: Syrphidae). *Journal of Ethology*, 6, 39–48.
<https://doi.org/10.1007/BF02348860>
- Kazerani, F., Talebi, A.A. & Gilasian, E. (2013) An annotated checklist of the subfamily Syrphinae (Diptera: Syrphidae) of Iran. *Entomofauna*, 34, 517–556.
- Khajehzadeh, Y. (2004) Survey of cabbage aphid *Brevicoryne brassicae* (L). population fluctuation and its dominant natural enemies. *Final report of project, Agricultural Research, Education and Extension Organization*, 26 pp.
- Khanjani, M. (2005) *Field crop pests (insects and mites) in Iran*. Bu-Ali Sina University Press, Hamadan, Iran. 719 pp. (In Persian)
- Kuznetsov, S.Y. (2002) The phylogeny of the family Syrphidae (Diptera). *Proceedings of the 12th Congress of Russian Entomological Society*, p. 189.
- Lapchin, L., Ferran, A., Iperti, G., Rabasse, J.M. & Lyon, J.P. (1987) Coccinellidae (Coleoptera: Coccinellidae) and syrphids (Diptera: Syrphidae) as predators of aphids in cereal crops: a comparison of sampling methods. *Canadian Entomologist*, 119, 815–822.
<https://doi.org/10.4039/Ent119815-9>

- Malkeshi, S. H., Gilasian, E., Ranji, H., Ghadirirad, S., Modarres Njafabadi, S., Pirhadi, A. & Khajezadeh, Y. (2004) An investigation on the natural enemies of the cabbage aphid, *Brevicoryne brassicae* L. in canola farms. *Proceedings of the 16th Iranian Plant Protection Congress, 28 August - 1 September, 2004, Tabriz, Iran*, Vol I: p. 48.
- Shojaei Hesari, E., Pashaei Rad, Sh. & Seifalahzade, M. (2016) Two new records of the family Syrphidae (Insecta: Diptera) from Iran. *Journal of Crop Protection*, 5(4), 643-648. <https://doi.org/10.1007/BF02348860>
- Stubbs, A.E. & Falk, S.J. (2002) *British hover flies. An illustrated identification guide*. The British Entomology and Natural History Society, Reading, UK. 467 pp.
- van Steenis, J. & Goeldlin de Tiefenau, P. (1998) Description of and key to the European females of the *Platycheirus peltatus* sub-group (Diptera, Syrphidae), with a description of the male and female of *P.islandicus* Ringdahl, 1930, stat.n. *Mitteilungen der Schweizerischen entomologischen Gesellschaft*, 71, 187-199.

گزارش جدیدی از مگس‌های گل (Diptera: Syrphidae) برای فون ایران

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چکیده: در طی مطالعه‌ی مگس‌های سیرفیده (Diptera: Syrphidae) مرتبط با مزارع کلزای (*Brassica napus*) شهرستان ساری (استان مازندران، ایران) در سال‌های ۱۳۹۴-۱۳۹۵، تعداد شش گونه شامل *Episyrphus balteatus* (De Geer)، *Melanostoma mellinum* (Linnaeus)، *Eupeodes corollae* (Fabricius)، *Paragus bicolor* (Fabricius) و *Syrphus ribesii* (Linnaeus) و *Platycheirus jaerensis* Nielsen از این منطقه گزارش می‌شوند که در بین آن‌ها، گونه‌ی *P. jaerensis* Nielsen برای فون ایران جدید می‌باشد.

واژگان کلیدی: Syrphidae، کلزا، *Platycheirus*، گزارش جدید، ایران.