

Short communication

***Sympetrum flaveolum* (Odonata: Libellulidae) a new species record for Iran**Z. Eslami^{1&*}, Sh. Pashaei Rad¹ and H. J. Dumont²

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چکیده

راسته Odonata شامل آسیابک‌ها و سنجاقک‌های آبی و شکارگر است که گاهی به‌عنوان عوامل کنترل بیولوژیک و همچنین شاخص اکولوژیکی کیفیت اکوسیستم‌های آبی مطرح می‌شوند. در این تحقیق طی نمونه‌برداری از منطقه شمال غربی استان اصفهان، گونه *Sympetrum flaveolum* (Linnaeus) از شهر چادگان، جمع‌آوری و شناسایی شد و سپس به تأیید نگارنده سوم رسید. گونه فوق برای اولین بار از ایران گزارش می‌شود.

The order Odonata, (dragonflies and damselflies) comprises over 5800 known species (Schorr *et al.*, 2012). All species are predators as adult. The larvae or naiads are sometimes considered as biological control agents and important predators on various macro invertebrates, including mosquitoes (Saha *et al.*, 2012). The Odonata are a group of freshwater insects closely linked to specific habitat conditions and are widely used as ecological indicators for the quality and integrity of freshwater ecosystems (Hardersen, 2000; Sahlen & Ekestubbe, 2001; Smith *et al.*, 2007; Silva *et al.*, 2010; Arimoro *et al.*, 2011; Simaika & Samways, 2011; Dolny & Harabis, 2012).

The genus *Sympetrum* Newman (Libellulidae) contains over 60 species and occurs on all continents

except Australia (Needham *et al.*, 2000), with predominantly red and relatively small species. The yellow-winged Darter, *Sympetrum flaveolum* (Linnaeus), is a Palearctic species (Steinmann, 1997), spreading in Europe and West Siberia as well as central Asian areas such as Kazakhstan (Schoorl, 2000) and Mongolia (Kosterin & Valentin, 2010). It has also been reported from Armenia, Azarbaijan, Turkey, Georgia (Kalkman, 2006), and from East Asia as far as Japan (Kadoya *et al.*, 2009). According to the latest checklist of Odonata of Iran (Heidari & Dumont, 2002), *S. flaveolum* has not already been reported from the country and thereby it is recorded here for the first time from Iran. We used the keys by Schmidt (1929) and Dumont (1991) for the identification of the species.

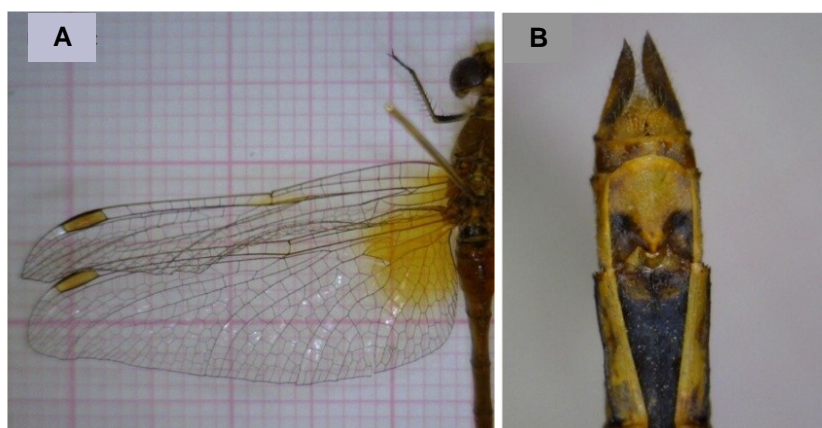


Fig. 1. *Sympetrum flaveolum*: (A) dorsal view of wings, (B) tip of female abdomen. (Original).

Material examined – 1 ♀, Iran: Isfahan province, Chadegan suburb, 18.vii.2012, N 50°30' E 32°53', irrigation reservoir with poor vegetation.

Diagnosis – A golden-yellow area on the hind wing exceeding cubito-anal vein, often reaching to posterior margin of wing in females; yellow spot near the nodus (Bei-Bienko, 1967); the amber spot on the hind wing extends to the level of discoidal cell, not strongly

extended, remains short of posterior margin of the wing (fig. 1, A); female with typical black legs, bright yellow stripe, and vulvar lips with close pointed tips (fig. 1, B); abdomen 23 mm and the hindwing 27 mm in length.

According to Kalkman *et al.* (2003), the size of yellow area on the wing is highly variable to be used as a character at sub-species level.

References

- Arimoro, F. O., Nwadukwe, F. O. & Mordi, K. I.** (2011) The influence of habitat and environmental water quality on the structure and composition of the adult aquatic insect fauna of the Ethiopie River, Delta State, Nigeria. *Tropical Zoology* 24, 159-171.
- Bei-Bienko, G. IA.** (1967) *Keys to the insects of the European part of the USSR*. 1214 pp. Leningrad: Zoological Institute.
- Dolny, A. & Harabis, F.** (2012) Underground mining can contribute to freshwater biodiversity conservation: allogenic succession forms suitable habitats for dragonflies. *Biological Conservation* 145, 109-117.
- Dumont, H. J.** (1991) *Fauna Palaestina, Insecta V – Odonata of the Levant*. 297 pp. Keterpress Enterprises, Jerusalem.
- Hardersen, S.** (2000) The role of behavioural ecology of damselflies in the use of fluctuating asymmetry as a bioindicator of water pollution. *Ecological Entomology* 25, 45-53.
- Heidari, H. & Dumont, H. J.** (2002) An annotated checklist of Odonata of Iran. *Zoology of the Middle East* 26, 133-150.
- Kadoya, T., Suda, S-I. & Washitani, I.** (2009) Dragonfly crisis in Japan: a likely consequence of recent agricultural habitat degradation. *Biological Conservation* 142, 1899-1905.
- Kalkman, V. J.** (2006) Key to the dragonflies of Turkey, including species known from Greece, Bulgaria, Lebanon, Syria, the Trans-Caucasus and Iran. *Brachytron* 10, 3-82.
- Kalkman, V. J., Wasscher, M. & Van Pelt, G. J.** (2003) An annotated checklist of the Odonata of Turkey. *Odonatologica* 32, 215-236.
- Kosterin, O. E. & Valentin, V. Z.** (2010) Odonata of Tuva, Russia. *International Journal of Odonatology* 13, 277-328.
- Needham, J. G., Westfall, M. J. & May, M. L.** (2000) *Dragonflies of North America, Gainesville, Florida*. 939 pp. Scientific Publishers.
- Saha, N., Aditya, G., Banerjee, S. & Saha, G. K.** (2012) Predation potential of odonates on mosquito larvae: implications for biological control. *Biological Control* 63, 1-8.
- Sahlen, G. & Ekestubbe, K.** (2001) Identification of dragonflies (Odonata) as indicators of general species richness in boreal forest lakes. *Biodiversity and Conservation* 10, 673-690.
- Schmidt, E.** (1929) Ordnung: Libellen, Odonata. In Brohmer, P., Ehrmann, P. & Ulmer, G. (Eds) *Die Tierwelt Mitteleuropas 4 (1b)*. 66 pp. Quelle and Meyer, Leipzig.
- Schoorl, J. W.** (2000) Notes on Central Asian dragonflies (Insecta: Odonata). *Zoologische Mededelingen, Leiden* 74, 205-213.

- Schorr, M., Lindeboom, M. & Paulson, D.** (2012) World Odonata list, version November 2010. Available from: <http://www.pugetsound.edu/academics/academic-resources/slater-museum/biodiversity-resources/dragonflies/world-odonata-list> (accessed 27 July 2013).
- Silva, D., De Marco, P. & Resende, D. C.** (2010) Adult odonate abundance and community assemblage measures as indicators of stream ecological integrity: a case study. *Ecological Indicators* 10, 744-752.
- Simaika, J. P & Samways, M. J.** (2011) Comparative assessment of indices of freshwater habitat conditions using different invertebrate taxon sets. *Ecological Indicators* 11, 370-378.
- Smith, J., Samways, M. J. & Taylor, S.** (2007) Assessing riparian quality using two complementary sets of bioindicators. *Biodiversity and Conservation* 16, 2695-2713.
- Steinmann, H.** (1997) *World catalogue of Odonata*. 636 pp. Walter de Gruyter, New York.

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