

Short communication

**The first report of *Microplitis fulvicornis* (Hym.: Braconidae: Microgastrinae) as a parasitoid of *Spodoptera exigua* (Lep.: Noctuidae) from Iran**

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چکیده

طی انجام پژوهشی روی جدول زندگی صحرایی شب‌پره *Spodoptera exigua* (Hübner) در استان خراسان رضوی، زنبور پارازیتوئید *Microplitis fulvicornis* (Wesmael) متعلق به خانواده Braconidae جمع‌آوری شد. افراد این زنبور از داخل لاروهای سن سوم *S. exigua* خارج شدند. نام علمی این زنبور توسط نگارنده آخر تأیید شد. این گونه برای اولین بار از ایران گزارش می‌شود.

The beet armyworm, *Spodoptera exigua* (Hübner), originated from southern Asia (Wilson, 1932) and has been introduced to other regions since 19<sup>th</sup> century (Capinera, 2005). It became an important insect pest with a world wide distribution, a polyphagous species of vegetables and flower crops, and a major pest of sugar beet, corn and alfalfa in Iran (Kheyri, 1991).

To determine the larval parasitoids of *S. exigua*, first instar larvae were collected from Khorasan Razavi province in Iran during summer of 2007. The host larvae were kept under laboratory conditions ( $25 \pm 1^\circ\text{C}$ ,  $60 \pm 5\% \text{RH}$ , 16L: 8D h), where fed on fresh leaves of sugar beet until parasitoids emerged. Seventeen larvae of parasitoids emerged from the third instar larvae of *S. exigua* by making a hole between the third and fourth abdominal legs of the host larvae. The parasitoid turned out to be solitary, so only one larva of the parasitoid emerged from a single host larva. The small larvae of the parasitoids made whitish (white-grayish) cocoons and the adults emerged after four days. The parasitized host larvae did not feed and died within 7-8 days after emerging of the parasitoid larvae. The longevity of adult parasitoids was 3-4 days without feeding. The parasitoids were identified as *Microplitis fulvicornis* (Wesmael) and the identification was confirmed by the last author. This species is newly

reported from Iran. This parasitoid has been reported from many countries in the western Palaearctic, and it is a rather common, however, not too frequent species throughout Europe (Hellén, 1955; Papp, 1981; Tobias & Kotenko, 1986; Belokobylskij *et al.*, 2003). It is also recorded from the neighboring Turkey (Inanç & Beyarslan, 2001). Though numerous hymenopteran and dipteran (tachinid) parasitoids have been recorded from *S. exigua*, this is the first host ever reported for the microgastrine wasp, *M. fulvicornis*.

A near microgastrine species to *M. fulvicornis*, the widely distributed *Microplitis tuberculifer* (Wesmael) is recorded from *S. exigua* on maize in neighboring Turkey (Sertkaya *et al.*, 2004). Several species of the genus *Microplitis* Förster are known as important biocontrol agents such as *Microplitis mediator* (Haliday) on *Helicoverpa armigera* (Hübner) and *Microplitis croceipes* (Cresson) on *Heliothis* spp. and other noctuids (Li Jian *et al.*, 2004). While the pressure of *Microplitis* parasitoids on host(s) populations can be significant, their role as potential biocontrol agents (including as reared for commercial use) should be tested based on careful preliminary studies of the impact on non-target species (Lozan *et al.*, 2009).

References

- Belokobylskij, S. A., Taeger, A., Achterberg, C., Haeselbarth, E. & Riedel, M. (2003) Checklist of the Braconidae (Hymenoptera) of Germany. *Beiträge zur Entomologie* 53(2), 341-435.

- Capinera, J. L.** (2005) Beet armyworm, *Spodoptera exigua* (Hübner) (Insecta: Lepidoptera: Noctuidae). University of Florida Extension report no. EENY-105.
- Hellén, W.** (1955) Übersicht über die Microgasterinen Finnlands (Hym., Brac.). *Notulae Entomologicae* 34, 106-121.
- Inanç, F. & Beyarslan, A.** (2001) Die Microgastrinae-Fauna der Ost-Marmara Region der Türkei (Hymenoptera, Braconidae). *Entomofauna* 22(11), 221-244.
- Kheyri, M.** (1991) *Major pests of sugar beet and their control methods*. 126 pp. Agricultural Research Education and Extension Organization.
- Li Jian, Ch., Wenliang, P. & Xiaofeng, Z.** (2004) Control effect of *Microplitis mediator* on *Helicoverpa armigera* in Xinjiang cotton field. *China Cotton* 31(9), 17-19.
- Lozan, A., Spitzer, K. & Jaros, J.** (2009) Good parasitic wasps gone bad: a short review of two stories of the oceanic and habitat islands. *Communications and Abstracts, Symposium Internationale Entomofaunisticum Europae Centralis* 21, 59-62.
- Papp, J.** (1981) Contributions to the braconid fauna of Hungary, III, Opiinae and Microgasterinae (Hymenoptera: Braconidae). *Folia Entomologica Hungarica* 42(34)(2), 127-141.
- Sertkaya, E., Bayram, A. & Kornosor, S.** (2004) Egg and larval parasitoids of the beet armyworm *Spodoptera exigua* on maize in Turkey. *Phytoparasitica* 32(3), 305-312.
- Tobias, V. I. & Kotenko, A. G.** (1986) Family Braconidae, subfamily Microgastrinae. pp. 1-509 in Medvedev, G. (Ed.) *Key to the insects of European part of USSR*, 3(4). Nauka, Leningrad. [In Russian].
- Wilson, J. W.** (1932) Notes on the biology of *Laphrygma exigua*. *Florida Entomologist* 16, 33-39.

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