

Short communication

Report of a thelytokous population of *Lysiphlebus fabarum* (Hym.: Aphidiidae) from Iran

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چکیده

به منظور جمع‌آوری و شناسایی پارازیتوئیدهای شته‌ی سیاه باقلا، *Aphis fabae* Scopoli از مزارع باقلای منطقه‌ی چورزق زنجان در اواسط خردادماه ۱۳۸۶ نمونه‌برداری به عمل آمد. در بین نمونه‌ها، جمعیت ماده‌زای زنبور پارازیتوئید *Lysiphlebus fabarum* (Marshall) از خانواده‌ی Aphidiidae شناسایی شد که برای اولین بار از ایران گزارش می‌شود. در زیر برخی از ویژگی‌های مهم تولید مثلی و چگونگی پراکنش جغرافیایی این جمعیت ارایه شده است.

During the spring 2007, a survey was carried out at Chavarzagh area, in Zanjan province (Iran) in order to collect and identify aphidiine parasitoids attacking to the black bean aphid, *Aphis fabae* Scopoli. Samples of *Vicia fabae* plants bearing the colonies of healthy and mummified aphids were taken from fields into the laboratory. Parts of plants with aphid colonies were cut and put in plastic containers covered with nylon mesh. The containers were kept at a constant temperature of 20°C, 65% relative humidity and under a 16: 8 (L: D) photoperiod until the emergence of parasitoids. Some of the emerged parasitoids were identified as *Lysiphlebus fabarum* (Marshall). In order to determine the mode of reproduction, an experiment was designed in which one virgin female was exposed to a colony of aphids. All progeny produced in 15 replications were female. This is the first record of thelytokous reproduction in a population of *L. fabarum* in Iran; a phenomenon previously reported from European populations. The endosymbiont rickettsia-like bacteria, *Wolbachia* strain has been reported to induce parthenogenesis in several hymenopterous parasitoids (Stary, 1996). In order to determine whether *Wolbachia* infection was responsible for the observed parthenogenesis, an experiment was designed in which 20 virgin females were isolated in containers provisioned with a mixture of tetracycline and diluted honey (50 mg/ml) in addition to free water. These females were then introduced into a three-d-old colony of aphids. Since all resulting progeny were females, *Wolbachia* infection was rejected as the cause of parthenogenesis in this case. According to the results obtained by Belshaw & Quicke

(2003), thelytokous populations of *L. fabarum* are produced by restitution metaphase in which the pronucleus fuses with a single polar body after anaphase II, a process termed "central fusion automixis" that results in diploid parthenogenesis.

The *L. fabarum* is a multivoltine, solitary endoparasitoid of aphids that is widely distributed in the north of Iran, and is representative of Mediterranean fauna. It is reported to attack more than 45 aphid species from Austria, Germany, Czech Republic, Slovak Republic, Moldavia, France, Slovenia, Bulgaria, Russian, Ukraine, Italy, Portugal, Algeria, Morocco, Georgia, Uzbekistan, Tajikistan, Iran, Burundi (introduced), and South Africa (accidentally introduced). Both biparental and thelytokous populations have been found to co-exist in the same areas, but the factors affecting the frequency and occurrence of these populations are unclear. Seasonal temperature has been proposed as a possible reason for reproductive shifts (Stary, 1999). The *L. fabarum* manifested as dominant thelytokous populations in the Czech Republic. Both biparental and thelytokous populations are common in the south of France, however biparental populations are prevalent in Italy (Stary, 1999).

References

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