

**Short scientific note**Submitted: May 25<sup>th</sup>, 2017 - Accepted: June 10<sup>th</sup>, 2017 - Published: June 30<sup>th</sup>, 2017**A new host record for *Euthera fascipennis* (Diptera: Tachinidae)**Santolo FRANCATI<sup>1</sup>, Maria Luisa DINDO<sup>1,\*</sup>, Pierfilippo CERRETTI<sup>2</sup><sup>1</sup> Dipartimento di Scienze Agrarie, Alma Mater Studiorum Università di Bologna - santolo.francati2@unibo.it; marialuisa.dindo@unibo.it<sup>2</sup> Dipartimento di Biologia e Biotecnologie 'Charles Darwin' Sapienza Università di Roma - pierfilippo.cerretti@uniroma1.it

\* Corresponding author

**Abstract**

*Dolycoris baccarum* (Linnaeus) (Heteroptera: Pentatomidae) is reported for the first time as a host of *Euthera fascipennis* (Loew) (Diptera: Tachinidae). A single specimen of *E. fascipennis* was reared from an adult of *D. baccarum* collected in northern Italy (Crevalcore, Bologna, Emilia Romagna Region). This is the first host record for *E. fascipennis* in Italy and the first distributional record of this tachinid in northern Italy.

**Key words:** Parasitoid, new host association, Pentatomidae, *Dolycoris baccarum*, Emilia Romagna.

The tachinid species *Euthera fascipennis* (Loew, 1854) belongs to the tribe Eutherini, a small group of bug-killing flies, with uncertain phylogenetic affinities (O'Hara, 2012). The tribe consists of two genera: the cosmopolitan *Euthera* Loew, 1866 with 13 species and the Palaearctic, monotypic *Redtenbacheria* Schiner, 1861. *Euthera fascipennis* is the only representative of the genus in Europe (Pape et al. 2015) and is also found in North Africa and the Afrotropical and Oriental regions. This small tribe has been traditionally assigned to the Phasiinae, primarily because its members parasitize pentatomids (Crosskey 1976; Tschorsnig & Richter 1998). Other studies, including recent ones, have placed Eutherini in the Dexiinae (see O'Hara 2013, and references therein).

The genus *Euthera* includes some of the most striking and beautiful tachinids, the general aspect of which recalls that of the tabanid genus *Chrysops* Meigen, 1803 (Fig. 1). Yet, records of *Euthera* species are scarce in the literature and specimens, let alone reared ones, are not abundant in collections. Females are known to be ovolarviparous [Cerretti (2010) stated oviparous in error], laying ready-to-hatch plano-convex eggs directly on the bodies of their hosts. Little is known about the ecology of these parasitoids, although they seem to be attracted to pheromones of their hosts (Aldrich et al. 2007).

*Halys dentatus* (Fabricius) and *Apodiphus amygdale* (Germer) (Heteroptera: Pentatomidae) were respectively recorded as hosts of *E. fascipennis* in the New Delhi area of North India (Sabrosky 1965, as *E. mannii* Mik) and in the Kemalpaşa District of western Turkey (IOBC 1993; see also Tschorsnig 2017). No hosts of *E. fascipennis* in

Europe have been previously reported. Of the two aforementioned pentatomid species, only *A. amygdale* is known from Europe (including mainland Italy and the Balkans; Rider 2006), but it has so far not been recorded there as a host of *E. fascipennis*.

Since 2015, field surveys on tachinid parasitoids of pentatomids have been conducted at the Department of Agricultural Sciences (DipSA) of the University of Bologna (Italy). Adults of different pentatomid species were collected in different areas of the Emilia Romagna Region (North Italy). All samples were transferred to the laboratory of DipSA and maintained at 25°C ± 1°C, 70% RH and 16:8 L:D (Dindo et al. 2007). For each date of sampling, the insects were placed inside plastic boxes of 13 x 36 x 24 cm, with a perforated cover closed with a fine metallic mesh, to allow ventilation (one species per box). All pentatomids were fed with soybean seeds (*Glycine max* [L.] Merrill), sunflowers seeds (*Helianthus annuus* L.) and fresh green beans (*Phaseolus vulgaris* L.). The boxes were checked daily for tachinid puparia. Puparia from each host species were collected and placed in plexiglass cages of 20 x 20 x 20 cm, under the same rearing conditions as described above. A plastic cylinder with water, covered with a net, was inserted in each cage to increase humidity and promote emergence (Dindo & Grenier 2014).

During these surveys, a puparium was obtained from an adult of *Dolycoris baccarum* (the sloe bug), collected from Crevalcore (Bologna Province) (44°43.21'N, 11°09.32'E) on November 2, 2016. An adult of *E. fascipennis* emerged nine days later. *Dolycoris baccarum* is a small pentatomid (7–12 mm) native to the western Mediterranean area and



**Fig. 1** – *Euthera fascipennis* (Loew) on fruits of a Mediterranean dwarf palm (*Chamaerops humilis* Linnaeus: Arecaceae) at Ancona (Marche, Italy) (Photo courtesy: Marco Bondini).

is widespread in Europe and parts of Asia (i.e., India, China and Japan) (Panizzi et al. 2000; Nakamura & Numata 2006). This species is also known to be parasitized by the following phasiine tachinids in Europe: *Ectophasia craspipennis* (Fabricius), *E. oblonga* (Robineau-Desvoidy), *Gymnosoma carpocoridis* Dupuis, *Gymnosoma clavatum* (Rohdendorf), *G. dolycoridis* Dupuis, *G. rotundatum* (Linnaeus), *Elomya lateralis* (Meigen), *Cylindromyia auriceps* (Meigen), *C. brassicaria* (Fabricius), and *C. brevicornis* (Loew) (Tschorsnig 2017). Interestingly, all of these other tachinid species occur in Italy (Cerretti 2010) but none has been recorded there as a parasitoid of *D. baccharum* (Cerretti & Tschorsnig 2010). The association between *E. fascipennis* and *D. baccharum* is reported here for the first time. Moreover, *E. fascipennis* had so far been recorded only in southern Italy, this is the first record of this tachinid in northern Italy.

**Acknowledgements** – We would like to thank James E. O’Hara (Canadian National Collection of Insects, Ottawa, Canada) for his constructive comments on an earlier draft of this manuscript.

## References

- Aldrich J.R., Khirman A., Camp M.J. 2007. Methyl 2,4,6-decatrienoates attract stink bugs and tachinid parasitoids. *Journal of Chemical Ecology*, 33: 801–815.
- Cerretti P. 2010. I tachinidi della fauna italiana (Diptera Tachinidae), con chiave interattiva dei generi ovest-paleartici. Cierre Edizioni, Verona.
- Cerretti P., Tschorsnig H.P. 2010. Annotated host catalogue for the Tachinidae (Diptera) of Italy. *Stuttgarter Beiträge zur Naturkunde A. Neue Serie*, 3: 305–340.
- Crosskey R.W. 1976. A taxonomic conspectus of the Tachinidae (Diptera) of the Oriental Region. *Bulletin of the British Museum (Natural History)*. Entomology Supplement, 26, 357 pp.
- Dindo M.L., Marchetti E., Baronio P. 2007. *In vitro* rearing of the parasitoid *Exorista larvarum* (Diptera: Tachinidae) from eggs laid out of host. *Journal of Economic Entomology*, 100: 26–30.
- Dindo M.L., Grenier S. 2014. Production of dipteran parasitoids. In: Morales-Ramos J., Rojas G., Shapiro-Ilan D. (Eds). *Mass production of beneficial organisms – invertebrates and entomopathogens*, Academic Press (Elsevier), pp. 221–242. DOI: 10.1016/B978-0-12-391453-8.00004-2.
- IOBC-List 12 1993. Determination list of entomophagous insects Nr. 12. *IOBC/WPRS Bulletin* 16(3): 56 pp. Commission “Identification Service of Entomophagous Insects”. Edited by S. VIDAL (ISBN 92-9067-050-9).
- Nakamura K., Numata H. 2006. Effects of photoperiod and temperature on the induction of adult diapause in *Dolycoris baccharum* (L.) (Heteroptera: Pentatomidae) from Osaka and Hokkaido, Japan. *Applied Entomology and Zoology*, 41: 105–109. DOI: 10.1303/aez.2006.105.
- O’Hara J.E. 2012. Review of *Euthera* (Diptera: Tachinidae) in North America with the description of a new species. *The Canadian Entomologist*, 144: 206–215.
- O’Hara J.E. 2013. History of tachinid classification (Diptera, Tachinidae). *ZooKeys*, 316: 1–34.

- Panizzi A.R., McPherson J.E., James D.G., Javahery M., McPherson R.M. 2000. Stink bugs (Pentatomidae). In: Schaefer C.W., Panizzi A.R. (Eds). Heteroptera of economic importance. CRC Press, Boca Raton, FL, USA, pp. 421–474.
- Pape T., Beuk P., Pont A.C., Shatalkin A.I., Ozerov A.L., Woźnica A.J., Merz B., Bystrowski C., Raper C., Bergström C., Kehlmaier C., Clements D.K., Greathead D., Kameneva E.P., Nartshuk E., Petersen F.T., Weber G., Bächli G., Geller-Grimm F., Van de Weyer G., Tschorsnig H.-P., de Jong H., van Zuijlen, J.-W., Vaňhara J., Roháček J., Ziegler J., Majer J., Hůrka K., Holston K., Rognes K., Greve-Jensen L., Munari L., de Meyer M., Pollet M., Speight, M.C.D., Ebejer M.J., Martinez M., Carles-Tolrá M., Földvári M., Chvála M., Barták M., Evenhuis N.L., Chandler P.J., Cerretti P., Meier R., Rozkosny R., Prescher S., Gaimari S.D., Zatwarnicki T., Zeegers T., Dikow T., Korneyev V.A., Richter V.A., Michelsen V., Tanasijtshuk V.N., Mathis W.N., Hubenov Z., de Jong Y. 2015. Fauna Europaea: Diptera – Brachycera. Biodiversity Data Journal, 3: e4187. DOI: 10.3897/BDJ.3.e4187.
- Rider D.A. 2006. Family Pentatomidae. In: Aukema B., Rieger C. (Eds). Catalogue of the Heteroptera of the Palaearctic Region 5, Nederlandse Entomologische Vereniging, pp. 233–402.
- Sabrosky C.W. 1965. Hosts of the tachinid tribe Eutherini (Diptera). Proceedings of the Entomological Society of Washington, 67: 61.
- Tschorsnig H.-P. 2017. *Preliminary host catalogue of Palaearctic Tachinidae (Diptera)*. First version, provided online at <http://www.nadsdiptera.org/Tach/WorldTachs/CatPalHosts/Home.html>, 28 April 2017
- Tschorsnig H.-P., Richter V.A. 1998. Family Tachinidae. In: Papp L., Darvas B. (Eds). Contributions to a manual of Palaearctic Diptera (with special reference to flies of economic importance). Vol. 3. Higher Brachycera. Science Herald, Budapest, pp. 691–827.