First record of *Tachinaephagus zealandicus* Ashmead, 1904 (Hymenoptera: Encyrtidae) parasitizing the blowfly *Sarconesia chlorogaster* (Wiedemann, 1830) (Diptera: Calliphoridae) in Brazil

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Recieved: October 9, 2014 – Accepted: November 7, 2014 – Distributed: May 31, 2015
(With 1 figure)

The blowfly *Sarconesia chlorogaster* (Wiedemann, 1830) (Diptera: Calliphoridae) (Figure 1a) is endemic in South America and occurs in colder regions with more temperate climates. It has been recorded in: Argentina, Uruguay, Bolivia, Chile, Peru and the Southern region of Brazil (Dear, 1979). Due to the necrophagous habits of their larvae, *S. chlorogaster* is commonly recorded feeding on carcasses (e.g. Moura et al., 1997) and human bodies (Vairo et al., 2015). Thus, this species can help estimate the time elapsed between death and the discovery of a body, defined as postmortem interval (PMI).

*Tachinaephagus zealandicus* Ashmead, 1904 (Hymenoptera: Encyrtidae) is a gregarious endoparasitoid wasp that attacks the third instar of the maggots, the post feeding larvae, or the prepupae of synanthropic flies (Calliphoridae, Muscidae, Sarcophagidae) (Olton and Legner, 1974). This species, probably native to Australia and New Zealand, has been introduced into various parts of the world since the late 1960s and early 1970s (Legner and Olton, 1968) in attempts to control pest species of synanthropic Diptera. It is currently established in areas of Africa (Prinsloo, 1979), Europe (e.g. Frederickx et al., 2013), North America (e.g. Legner and Olton, 1968) and

Figure 1. (a). *Sarconesia chlorogaster* (Wiedemann), female, lateral view, scale bar = 5mm; (b). Pupae of *S. chlorogaster* parasitized by *Tachinaephagus zealandicus*. Black arrow indicates parasitoid emergence hole, scale bar = 2mm; (c). *T. zealandicus* Ashmead, female, lateral view, scale bar = 1mm.
South America. In Brazil, T. zealandicus was reported in the states of São Paulo, Minas Gerais and Rio de Janeiro parasitizing flies of the families Muscidae (e.g. Silveira et al., 1989), Sarcophagidae (Carvalho et al., 1995) and Calliphoridae. The parasitoid has been recorded attacking the following calliphorid species: Cochliomyia hominivorax (Coquerel, 1858) (Silveira et al., 1989), Chrysomya putoria (Wiedemann, 1830) (Almeida et al., 2002) and Chrysomya megacephala (Fabricius, 1794) (e.g. Carvalho et al., 2003).

Here we present the first record for T. zealandicus parasitizing S. chlorogaster and the genus Sarconesia and the first record of its occurrence in Paraná State.

In 2012, during a study involving colonies maintained in field conditions of S. chlorogaster in Curitiba (25°25’S; 49°14’W), Paraná State, Brazil, we noticed the presence of many parasitoids emerging from the puparium (Figure 1b) of this species. After that, in the next generation, all pupae were individualized in test tubes to confirm the occurrence of parasitoids. We observed that about 3% of pupae were parasitized and the average of parasitoids emergence were 30 individuals per pupae. Parasitoids were identified as T. zealandicus (Figure 1c) using Subba Rao (1978) key to species. Parasitism occurred in more than one generation while the colony was maintained under field conditions.

These new records presented here are valuable due to the possibility of using S. chlorogaster in PMI estimates based on insects, since the presence of parasitoids can either help or hinder these estimates (Holdaway and Evans, 1930; Amendt et al., 2000; Turchetto and Vanin, 2004). Thus, more studies are needed to evaluate the effect of this parasitoid on development of S. chlorogaster and its possible implications for PMI estimations.

Acknowledgements

We would like to thank CNPq (Conselho Nacional de Desenvolvimento Científico e Tecnológico) for financial support: MCL (CNPq: process number 141043/2012-1) and DRL (CNPq: process number 143491/2011-3).

References


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