

First record of *Leptopilina boulandi* Barbotin et al. (Hymenoptera: Figitidae: Eucoilinae) parasitizing of *Zaprionus indianus* gupta (Diptera: drosophilidae) in Brazil

Primeiro registro de *Leptopilina boulandi* Barbotin et al. (Hymenoptera: Figitidae: Eucoilinae) parasitando *Zaprionus indianus* gupta (Diptera: drosophilidae) no Brasil

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Abstract

This paper reports the first occurrence of the parasitoid *Leptopilina boulandi* Barbotin et al. (Hymenoptera: Figitidae: Eucoilinae) collected in pupae of *Zaprionus indianus* Gupta (Diptera: Drosophilidae) using traps baited with fruits (pear, apple and banana). The experiment was undertaken at the Faculdade de Agronomia do Instituto Luterano de Ensino Superior (experimental campus), Itumbiara, Goiás, between March and November 2001. A total of 03 specimens were obtained from 139 *Z. indianus* pupae. The overall prevalence of parasitism was of 2.2%.

Key words: Biocontrol, natural enemy, fruits, Brazil.

Resumo

Este trabalho relata a primeira ocorrência do parasitóide *Leptopilina boulandi* Barbotin et al. (Hymenoptera: Figitidae: Eucoilinae) em pupas de *Zaprionus indianus* Gupta (Diptera: Drosophilidae) obtidas usando armadilhas contendo isca á base de frutas (pêra, maçã e banana). O experimento foi realizado na Faculdade de Agronomia do Instituto Luterano de Ensino Superior (campus experimental), Itumbiara, Goiás, entre março e novembro de 2001. Coletaram-se 03 espécimes de *L. boulandi* em 139 pupas de *Z. indianus*, totalizando 2,2%.

Palavras-chave: Controle biológico, inimigo natural, frutos, Brasil.

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The genus *Zaprionus* contains 56 species (LACHAISE; TSACAS, 1983), and the *Z. indianus* seems to be the only worldwide distribution, mainly due to international trading of fruits. This Drosophilidae is probably originated from Africa, where it was detected in fruits of 74 plants species (LACHAISE; TSACAS, 1983).

The first record published on the occurrence of this fly in the American continent was in khaki fruit in Santa Isabel, São Paulo, Brazil. Its poliphagy and relatively fast lifetime in high hot weather have contributed for its settling and dispersion through this country (VILELA; TEIXEIRA; STEIN, 1999). A loss of 50% was recorded in the fig production in the state of São Paulo, Brazil due to this fly (VILELA; TEIXEIRA; STEIN, 1999; 2001).

The Figitidae, comprising approximately 110 genera and 15.000 species, is the most species-rich and abundant in the cynipoid. However, relatively few taxonomic studies have been undertaken on the diverse tropical fauna and many species await description (HANSON; GAULD, 1995). The Eucoilinae are solitary endoparasitoids in the larval stage of cyclorrhaphous Diptera and emerge as adults from the puparium (QUILAN, 1979; WHARTON; VRUSKI; GILTRAP, 1998).

Species of the genus *Leptopilina*, well-known parasitoids of Drosophilidae, may also be reared from rotting fruit (WHARTON; VRUSKI; GILTRAP, 1998).

The use of some chemical substances to control this fly may result in high production costs, enabling the fruits exportation, causing damages to the environment and to human health as well. So, search for effective natural enemies may be a viable alternative to control this pest in a long-term control program.

This article report the occurrence of the parasitoid *Leptopilina bouvardi* parasitizing *Zaprionus indianus*.

The study was conducted between March and November 2001 at the "Faculdade de Agronomia" located in Itumbiara County, State of Goiás, Central Brazil (18°25'S; 49°13'W). The property has an area

of approximately 29 hectares (experimental campus). Flies were attracted to traps made of dull black tin foil cans, measuring 19 cm in height and 9 cm in diameter, with two Venetian blind type openings placed in the inferior third to allow insects entering. To the upper part of the cans, nylon funnels with opened extremities and bases turned down, were attached. These traps were then wrapped with plastic bags, which after removal would allow the capture of flies and parasitoids. Fruits (pear, apple and banana) deposited on the ground were used as baits inside the cans. Five of these traps were suspended on *Eucalyptus* sp. trees at 1 m above the soil level, 2 m apart from each other and 50 m away from a domestic garbage deposit. The specimens collected were taken to the laboratory, killed with ethyl ether and preserved in 70% ethanol for further identification. After retrieval of insects, the traps contents were placed into plastic containers containing a layer of sand to serve as substrate for larvae population. After remaining 15 days in the field the sand of these containers was sifted for extraction of pupae obtained in a natural environment. These pupae were then individually transferred to gelatin capsules (number 00) to obtain flies and/or parasitoid.

The identification of Drosophilidae was performed by Dr. Carlos Ribeiro Vilela, Universidade de São Paulo.

Between March and November 2001, 03 specimens of *Leptopilina bouvardi* Barbotin et al. (Hymenoptera: Figitidae: Eucoilinae) were collected in the months of September (two specimens) and November (one specimen) of 2001 in the spring. They were obtained from 139 pupae of *Z. indianus*, representing 2.2% of parasitism. This prevalence was considered low and was probably due to the availability of resources, to the density of hosts and to the searching capacity of the parasitoids.

The fly control using fly-spray always ends up in selecting resistant populations, being just a palliative. Mendes e Linhares (1993) believe in the need of researching on new methods concerning fly control;

and as a possibility to control these insects, some natural regulators can be used, such as parasitoids which are responsible for the reduction of fly populations. This is the first report of *L. boulandi* parasitizing pupae of *Z. indianus* in Brazil.

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