

Scientific note

First record of *Euplectrus floryae* (Hymenoptera: Eulophidae) parasitizing *Erinnyis ello* (Lepidoptera: Sphingidae) in Brazil

Primer registro de *Euplectrus floryae* (Hymenoptera: Eulophidae) como parasitoide de *Erinnyis ello* (Lepidoptera: Sphingidae) en Brasil

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Abstract: This is the first report of *Euplectrus floryae* (Hymenoptera: Eulophidae) in Brazil and also the first report of this species parasitizing larvae of *Erinnyis ello* (Lepidoptera: Sphingidae) on cassava. The occurrence of *E. floryae* on larvae of this pest on cassava opens up the possibility to integrate this natural enemy in biological control programs for cassava crops.

Key words: Biological control. Cassava. Larval parasitoid.

Resumen: Este es el primer registro de *Euplectrus floryae* (Hymenoptera: Eulophidae) en Brasil y también el primer reporte de esta especie parasitando larvas de *Erinnyis ello* (Lepidoptera: Sphingidae) en yuca. La presencia de *E. floryae* sobre larvas de esta plaga de la yuca abre la posibilidad de la integración de este enemigo natural de los programas de control biológico en este cultivo.

Palabras clave: Control biológico. Yuca. Parasitoide de larvas.

Introduction

Species of *Euplectrus* (Westwood, 1832) (Hymenoptera: Eulophidae) are gregarious larval ectoparasitoids that parasitize many Lepidoptera species (Coudron *et al.* 1997). Females of this genus inject a chemical arrestant through the ovipositor prior to egg laying. This substance is able to stop the caterpillar from molting (Coudron and Brandt 1996), causing paralysis of the caterpillar in the same instar it was when parasitized (Coudron *et al.* 1997). This ability to affect the development of the hosts gives to the parasitoids a potential value to be used in biological control programs (Coudron and Brandt 1996).

Among Eulophidae genera, *Euplectrus* is the only one where larvae live externally on the host, forming a cocoon for the pupal stage. In the same way, it is also the only genus in which the species produce silk from the anus using modified Malpighian tubules (Ferrière 1941), for the spinning of the cocoon. Eggs are laid externally in groups on the host caterpillar. The larvae are attached to the host by their mouthparts and feed on hemolymph through the cuticle of the host larva. When they are ready to pupate, larvae of some of the species move to the underside of the caterpillar, while others spin a ruff of cocoons around it (Schauff and Janzen 2001).

Some species of *Euplectrus* have been reported to successfully control insect pests. *Euplectrus platyhypenae* (Howard, 1885) was used to control *Spodoptera mauritia* (Boisduval, 1833) (Lepidoptera: Noctuidae) in Mexico (Osborn 1938), *S. litura* (Fabricius, 1775) (Lepidoptera: Noctuidae) in the Philippines (Uichanco, 1934), and *Levuana iridescens* (Bethune-Baker, 1906) (Lepidoptera: Zygaenidae) in Fiji (Rao *et*

al. 1971). In Israel, *E. laphygmae* (Ferrière, 1941), was introduced to control *Spodoptera littoralis* (Boisduval, 1833). In the United States, *E. puttleri* (Gordh, 1980) was used to control *Anticarsia gemmatilis* (Hubner, 1818) (Lepidoptera: Noctuidae) (Puttler *et al.* 1980), and *Euplectrus* sp. was cited as controlling *Penicillaria jocosatrix* (Guenée, 1852) (Lepidoptera: Noctuidae) in Guam (Nafus 1991). *Euplectrus floryae* (Schauff and Janzen 2001) is commonly found parasitizing larvae of the second and third instars of *Enyo ocypte* (Linnaeus, 1758) (Lepidoptera: Sphingidae) in forest regions in Costa Rica (Schauff and Janzen 2001).

Erinnyis ello (Linnaeus, 1758) (Lepidoptera: Sphingidae) is a defoliator, in Brazil known as “mandarová-da-mandioca”, and is the main pest on cassava in Brazil, being able to cause high defoliation levels, and thus significantly reducing the production of cassava, especially so during the later larval stages (Fazolin *et al.* 2007). Among the control methods of this pest, biological control using its natural enemies has been shown to be effective.

Materials and methods

Five parasitized caterpillars of *E. ello* were collected on leaves of cassava in Dourados, Mato Grosso do Sul State, Brazil (22°16'30”S 54°49'00”W, 408 m) in February 2012. This caterpillars were transported to the laboratory in plastic trays. In the laboratory, each larva was placed individually in glass tubes, sealed with PVC plastic film and maintained at 25 ± 1 °C, a relative humidity of 70 ± 10% and with 12 hours photoperiod, until the emergence of the parasitoids.

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Results and discussion

The mean number of parasitoid emerged by caterpillar was six (ranged from 4 to 8 individuals/larvae). The adult parasitoids obtained from these caterpillars were identified as *E. floryae* and the specimens are deposited in the Entomological Collection of the Universidade Federal do Espírito Santo, Vitória, Brazil. This is the first record of *E. floryae* from Brazil and the first host-record with larvae of *E. ello*. Until now this parasitoid was recorded only in Costa Rica parasitizing caterpillars of *Enyo ocypete*, *Perigonia ilus* (Boisduval, 1870), *P. lusca* (Fabricius, 1777) and *Aellopos fadus* (Cramer, 1776), all of them from the Sphingidae family (Schauff and Janzen 2001). The potential of this parasitoid for biological control of *E. ello* in cassava plantations should be investigated.

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