SCIENTIFIC NOTE

Parasitism of *Brassolis sophorae laurentii* Stichel (Lepidoptera: Nymphalidae, Brassolinae) Pupae by *Conura morleyi* (Ashmead) (Hymenoptera: Chalcididae, Chalcidini), in the State of Alagoas, Brazil

Maria-Dulce L. Marcicano[1], Iracilda M.M. Lima[2], Marcelo T. Tavares[3] e Mirna M. Casagrande[4]

[1]*Depto. Fitotecnia e Fitossanidade, Centro de Ciências Agrárias - CECA, Univ. Federal de Alagoas -UFAL Campus Delza Gitaí, BR 104 Norte, km 85, 57100-000, Rio Largo, AL, dulceleao@gmail.com*
[2]*Depto. Zoologia, Inst. Ciências Biológicas e da Saúde - ICBS, UFAL, Praça Afrânio Jorge s/n Prado, 57010-020, Maceió, AL, iralima20@gmail.com*
[3]*Depto. Ciências Biológica,Univ. Federal do Espírito Santo - UFES, Av. Marechal Campos, 1468 29040-090, Vitória, ES, mtavares@npd.ufes.br*
[4]*Depto. Zoologia, Setor Ciên. Biológicas, Univ. Federal do Paraná - UFPR, C. postal 19020 81531-980, Curitiba, PR, mibras@ufpr.br*

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Parasitismo de Pupas de *Brassolis sophorae laurentii* Stichel (Lepidoptera: Nymphalidae: Brassolinae) por *Conura morleyi* (Ashmead) (Hymenoptera: Chalcididae: Chalcidini) em Alagoas

RESUMO - Este trabalho registra o parasitismo de pupas de *Brassolis sophorae laurentii* Stichel por *Conura morleyi* (Ashmead) em Alagoas. Essa espécie de parasitóide exibiu desenvolvimento de forma gregária, tendo sido observada a saída de 146 indivíduos por pupa através de um único orifício, e com proporção sexual de um macho para uma fêmea.

PALAVRAS-CHAVE: Insecta, biogeografia, *Cocos nucifera*, parasitóide, *Spilochalcis*

ABSTRACT - This scientific note reports the association between the parasitoid *Conura morleyi* (Ashmead) and *Brassolis sophorae laurentii* Stichel pupae in the State of Alagoas, Brazil. This parasitoid exhibits gregarious development, with production up to 146 individuals per pupa throughout a single opening. The sex proportion of the parasitoids was one male for one female.

KEY WORDS: Insecta, biogeography, parasitoid, *Cocos nucifera*, *Spilochalcis*

Brassolis sophorae (L.) and *B. astyra* (Godart) (Lepidoptera: Nymphalidae: Brassolinae) are recognized as palm (Arecaceae) pests in South America. They are common species in the Northeast Region of Brazil, and they feed on leaves of *Cocos nucifera* L. (Arecaceae) (Arruda & Arruda 1971, Bastos 1972). Among their natural enemies, some parasitoid species are found on pupae, but available information is still rare in specific literature.

This scientific note reports the association of a parasitoid species (Hymenoptera: Chalcididae) with pupae of a subspecies of *B. sophorae* in the State of Alagoas, Brazil.

Six pupae of *B. sophorae* were collected in November 1999, near fragments of Mata Atlântica, in Maceió County locality of Tabuleiro do Martins (9º 33' 16" S; 35º 49' 42" W). The pupae were carefully removed from the surface of an old wall on which they were attached, near the coconut trees (old larvae disperse looking for pupation sites), in order to maintain the silk adhered in the cremaster.

In the Laboratório de Entomologia of the Museu de História Natural (Universidade Federal de Alagoas, Brazil), the pupae were isolated in plastic transparent containers (10 cm of diameter) and kept under room conditions of 25.5ºC and 70% RH, and 12h of photophase.

The pupae were attached with the aid of a pin, in the center of a piece of organdy fabric (15 cm of side). This cloth was put over each recipient opening and held by a rubber band. The pupae remained suspended just as they are found in natural environment. The recipient transparency allowed the visualization of parasitoid escape phenomena after their prior eclosion inside the pupae body (Fig. 1A).

Soon after the exit, the parasitoid specimens were killed by freezing and preserved in a 70% alcoholic solution for late separation of both sexes and identification.

From only one pupae, out of the six collected, parasitoids exited and were identified as *Conura* (*Spilochalcis*) *morleyi* (Ashmead) (Hymenoptera: Chalcididae: Chalcidinae: Chalcidini) (Fig. 1B). Two synonyms *Spilochalcis morleyi* Ashmead and *S. pax* Girault (Delvare 1992), for this species are reported in the literature. Specimens are deposited in the Coleção Entomológica, Departamento de Ciências

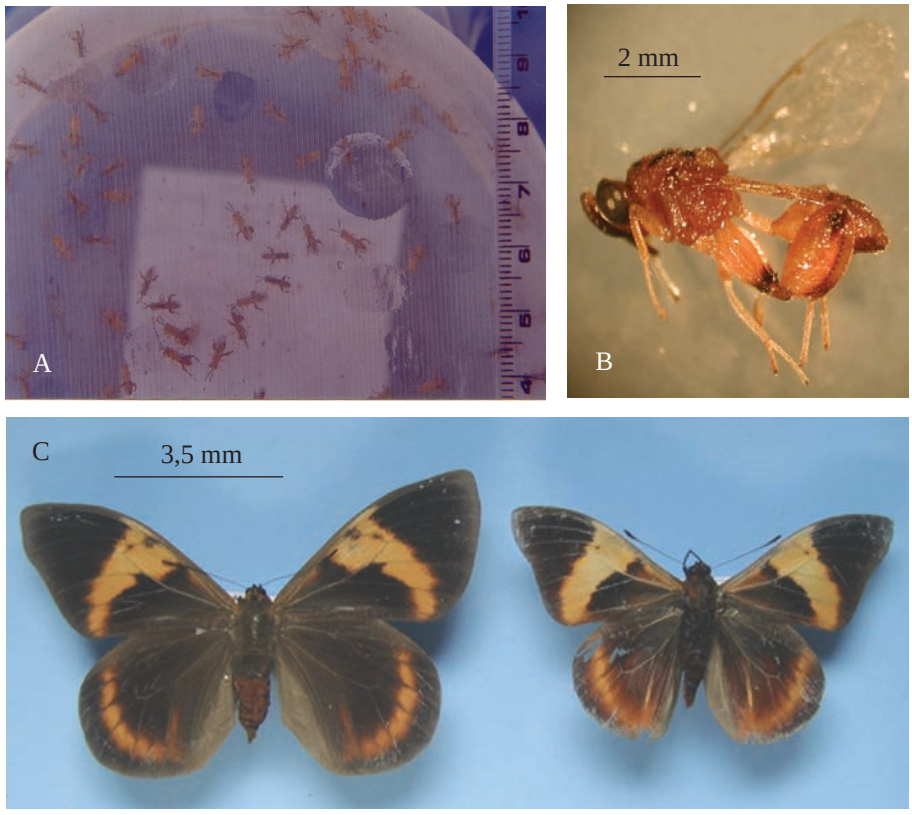

Fig. 1. *C. morleyi*, parasitoid of *B. sophorae laurentii* pupae. A, gregarious behavior of *C. morleyi*; B, female of *C. morleyi*; C, female of *B. sophorae* on the left.

Biológicas (Universidade Federal do Espírito Santo, Brazil) and in the Coleção Entomológica, Museu de História Natural (Universidade Federal de Alagoas, Brazil).

The specimens of *B. sophorae* were identified as *B. sophorae laurentii* Stichel (Fig. 1C) and their specimens were deposited in Coleção Entomológica Padre Jesus Santiago Moure (Universidade Federal do Paraná, Brazil).

After emerging inside the pupae of *B. sophorae laurentii*, adults of *C. morleyi* exited by a single orifice made through the host integument in the dorsal region or the pupa body. Among the parasitized pupae, one pupa alone produced 146 parasitoid (73 males and 73 females, therefore with a sexual proportion of one male for one female). The gregarious developmental behavior was also reported by Ruszczyk & Ribeiro (1998) in natural parasitism of *B. sophorae* pupae (females and males) by *Spilochalcis morleyi* Ashmead (valid name *C. morleyi*). These authors concluded that this parasitoid species seems to fit the number of descendants to the host size. The parasitoids were larger when originated from female pupae, which were of a greater length and weight than the males pupae.

B. sophorae presents a wide distribution in tropical countries in South America. In Brazil, this species is recordered in the States of Amazonas, Pará, Maranhão, Mato Grosso, Paraná, Rio Grande do Sul, São Paulo, Rio de Janeiro, Minas Gerais, Bahia, Espírito Santo, Sergipe and Pernambuco (Ferreira *et al.* 1998).

C. morleyi was recordered for Central and South America (Fig. 2): Costa Rica (Haeselbarth 1989), Panama, Trinidad & Tobago, Colombia, Ecuador, Guyana, French Guiana, Brazil, Paraguay and Argentina (Arias & Delvare 2003). In Brazil the records are for the States of São Paulo and Bahia (De Santis 1980, Ruszczyk & Ribeiro 1998).

The list of its hosts is restricted, including two genus of Brassolinae: *Brassolis* —*B. sophorae* and *B. astyra*— and *Opsiphanes* —*Opsiphanes* sp. and *O. invirae* (Herting 1976, Ruszczyk & Ribeiro 1998). There is only a single record of plant associates: *Cocos nucifera* L. (Delvare 1992).

This scientific note confirms the association of *Conura morleyi* (Ashmead) with pupae of *B. sophorae laurentii* Stichel, in the State of Alagoas, Brazil, by (1) detailing the distribution presented in the literature in a general form and extending the distributions in more than 1.200 km north direction; (2) confirming the gregarious behavior; and (3) recording the escape throughout a single opening.

This is the first time that an approach is taken in a subspecific level for the genus *Brassolis* in the Northeast region of Brazil, and the association of *C. morleyi* with their pupae stage, in the State of Alagoas.

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Fig. 2. Geographical distribution of *C. morleyi*) in Central and South America, with specific reports in Brazil.

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