

# Parasitism on *Araneus venatrix* (Koch, 1838) (Araneae: Araneidae) by *Hymenoepimecis silvanae* Loffredo and Pentead-Dias, 2009 (Ichneumonidae, Pimplinae) with description of male of the wasp

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(With 1 figure)

## Abstract

The wasp *Hymenoepimecis silvanae* Loffredo and Pentead-Dias, 2009, was recorded parasitising females of *Araneus venatrix*. The male of *H. silvanae* is described and illustrated. Specimens were collected in the Parque Estadual de Intervales and Reserva Biológica Serra do Japi, both located in the state of São Paulo, Brazil.

**Keywords:** *Polysphincta*, *Hymenoepimecis*, parasitoid of spider, host.

## Parasitismo em *Araneus venatrix* (Koch, 1838) (Araneae: Araneidae) por *Hymenoepimecis silvanae* Loffredo and Pentead-Dias, 2009 (Ichneumonidae, Pimplinae), com descrição do macho da vespa

## Resumo

A vespa *Hymenoepimecis silvanae* Loffredo and Pentead-Dias, 2009 foi registrada parasitando fêmeas de *Araneus venatrix*. O macho de *H. silvanae*, é descrito e ilustrado. Os espécimes foram coletados no Parque Estadual de Intervales e na Reserva Biológica Serra do Japi, ambos localizados no Estado de São Paulo, Brasil.

**Palavras-chave:** *Polysphincta*, *Hymenoepimecis*, parasitoide de aranha, hospedeiro.

## 1. Introduction

Spiders are present in the diet of several predators, and are also attacked by parasites and parasitoids with varying degrees of food specificity (Gonzaga, 2008). Of these, wasps of the subfamily Pimplinae (Hymenoptera, Ichneumonidae) included in *Polysphinctine* genus-group (Polysphinctini sensu Townes 1969; hereafter “polysphinctines” are exclusively ectoparasitoid koinobiont of spiders (Gauld and Dubois, 2006).

*Hymenoepimecis* is a large-sized polysphinctine genus distributed from Mexico and Cuba to southern Brazil (Gauld 2000, Gauld and Dubois 2006). The species are characterised by the presence of a pocket-like structure on the pronotum, mesopleuron with carina epicnemial vestigial or absent, absence of the vein 3<sub>rs-m</sub> in fore wing (Gauld, 1991), colour yellowish brown and large ocelli (Gauld and Dubois, 2006). All known species are koinobiont parasitoids of adult spiders of the family Nephilidae, Tetragnathidae and Araneidae (Fincke et al., 1990; Eberhard, 2000; Gauld, 2000; Gonzaga and Sobczak,

2007; Sobczak et al., 2009; Gonzaga et al., 2010). Despite this wide geographical distribution, little is known on host identities. Record of host uses are available for eight species: *Hymenoepimecis bicolor* (Brulle, 1846) attacks immature females and males of *Nephila clavipes* (Linnaeus, 1767) (Nephilidae) (Gonzaga et al., 2010); *Hymenoepimecis sooretama* Sobczak et al., 2009 (Sobczak et al., 2009) entered the three-dimensional structure of the web and attacks *Manogea porracea* (C.L. Koch, 1838) (Araneidae) (Sobczak et al., 2009); *Hymenoepimecis veranii* Loffredo and Pentead-Dias, 2009, parasitoid of *Araneus omnicolor* (Keyserling, 1893) (Araneidae) (Gonzaga and Sobczak 2007, Sobczak et al., 2011); *Hymenoepimecis robertsae* Gauld 1991, attacks females of *N. clavipes* in Panamá (Fincke et al., 1990) and Costa Rica (Gonzaga et al., 2010); *Hymenoepimecis argyraphaga*, Gauld 2000, a parasitoid of *Leucauge argyra* (Walckenaer, 1842) (Tetragnathidae) in Costa Rica (Eberhard 2000). *Hymenoepimecis japi* Sobczak et al., 2009 (Sobczak et al.,

2009) changes the behaviour of web building in the spider *Leucauge roseosignata* Mello-leitão, 1943 (Tetragnathidae). A single individual of *Hymenoepimecis heidyae* Gauld 1991 in Costa Rica was record in *Kapogea sexnotata* (Simon 1895) (Araneidae) (Gauld, 2000). The aim of this study was to describe the male of *Hymenoepimecis silvanae*, and the record of its host *Araneus venatrix* (Araneidae).

## 2. Material and Methods

Three females of the spider *A. venatrix* with larva of *H. silvanae* attached to the abdomen were located along the forest border in December of 2009 in the Parque Estadual de Intervalos (24° 16' S and 48° 25' W), Ribeirão Grande, state of São Paulo, Brazil; and one female of *A. venatrix* was photographed in the field (Figure 1a), and collected in February of 2010 in Serra do Japi (23° 15' S and 46° 57' W), an area of subtropical forest located in Jundiá, state of São Paulo, Brazil.

Spiders parasitised from both places were collected, enclosed in plastic recipients (30 × 25 × 25 cm) and fed daily with *Drosophila* sp. specimens. In the laboratory, the parasitoid specimens that emerged from the cocoons were examined, measured and photographed in a Leica M 205 C stereomicroscope. Voucher specimens of the parasitoid were deposited in the collection of the Universidade Federal de São Carlos – UFSCar, (DCBU- A.M. Pentead-Dias, curator), and the spiders are deposited in the Instituto Butantan, São Paulo (IBSP, A.D. Brescovit, curator).

## 3. Results and Discussion

After 10 days (n: 4) two females and two males of *H. silvanae* emerged from the cocoon. Loffredo and Pentead-Dias (2009) described the female of *H. silvanae* with holotype collected using a Malaise trap in Campos do Jordão, SP, Brasil. The male of *H. silvanae* used in this work emerged from a female of *A. venatrix* is described below:

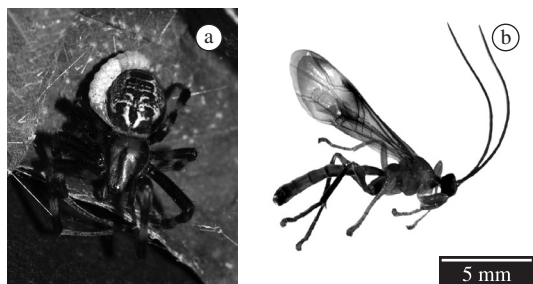
**Male:** Length: 10.5 mm. Fore wings: 0.85 mm (Figure 1b). Antenna with 33 joints, lower face smooth elongate 0.7× as broad as high, convex with two shallow furrows from median area to upper; presence of small tubercle between base of scapes; head with gena long; posterior ocellus separated from eye by 1.2× its own maximum diameter. Pronotum long, distance from tegula to head

is about 0.7× the distance from tegula to hind margin of propodeum, scutellum convex; mesopleurum smooth and polished with anterodorsal and posteroventral parts with fine and scattered hairs. propodeum smooth and polished with scattered hairs, submetapleural carina absent. Fore wing with cu-a more or less interstitial to base of Rs & M, vein3r-s absent, hind wing with abscissa of Cu1 meeting cu-a equidistant between M and 1A. Metasoma moderately slender, tergite I 2.9× as long as posteriorly margin broad with convergent lateral carinae present only anteriorly, sternite I with slight rounded swelling posteriorly, tergites I-VI centrally smooth and with scattered hairs around, tergite II 1.3× and tergite III 1.4× as long as posteriorly broad. Head black, apical margin of clypeus testaceous, mandible except tip, and palpi pale yellow, antenna black. Mesosoma, metasoma and pronotum mostly orange brown, metasoma with tergites II-V with posterior margin darker. Sternite I smooth, orange brown; II – VI light brown and coreaceous. Two pairs of anterior legs yellow, hind leg orange brown with coxa posteriorly, tibia posteriorly and tarsi, tibial spurs brownish. Wings hyaline yellowish; fore wing apically and centrally, between nervelus and junction of radius with stigma with fascia infumate, pterostigma almost all yellow, anteriorly blackish.

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**Figure 1.** a) Female of *A. venatrix* with larva of *H. silvanae*; b) Habitus of male of *H. silvanae*.

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