

# A Citrus Blackfly Parasitoid, *Amitus hesperidum* Silvestri (Insecta: Hymenoptera: Platygasteridae)<sup>1</sup>

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## Introduction

*Amitus hesperidum* Silvestri is one of the most effective parasites of the **citrus blackfly**, *Aleurocanthus woglumi* Ashby. This parasite was described by Silvestri in 1927 from *Aleurocanthus citriperdus* in Hong Kong and Singapore (Silvestri 1927). It was collected in India and introduced into Mexico for controlling citrus blackfly (Smith et al. 1964). Because of the success in Mexico, it was imported into Texas (Summy et al. 1983) and Florida (Hart et al. 1978) to suppress the population of citrus blackfly in these states.

## Distribution

*Amitus hesperidum* has been reported as native to Asia. It is found in Sri Lanka, China (Hong Kong, Szechuen), India, Java, Malaya, Pakistan, and has been introduced into Guam, Venezuela, Mexico, and the United States (Florida and Texas) to control citrus blackfly (Silvestri 1927, Smith et al. 1964, Flanders 1969). In Florida, it was released in Brevard, Broward, Collier, Dade, Highlands, Hillsborough, Indian

River, Lee, Manatee, Martin, Monroe, Okeechobee, Palm Beach, Pinellas, Sarasota, and St. Lucie Counties.

## Description

The female is shiny black and tiny (0.75 mm long). The female's antenna is 0.65 mm long and 10-segmented, with the last three segments closely united and forming a club. The wings are shiny. The hind tarsus is 5-segmented. The male is similar to the female, with the antenna ten-segmented and filiform. The scape is curved, with all flagellar joints longer than wide and covered with short erect hairs (Silvestri 1927).

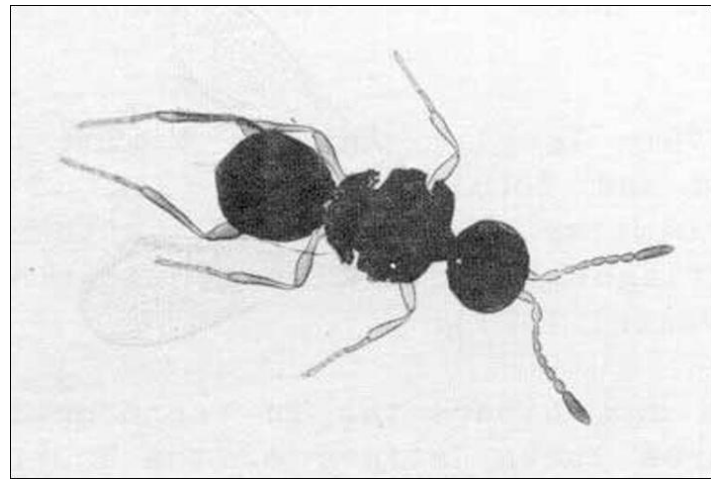


Figure 1. Adult female *Amitus hesperidum* Silvestri, a parasitoid of the citrus blackfly. See clubbed antennae.

Credits: Division of Plant Industry

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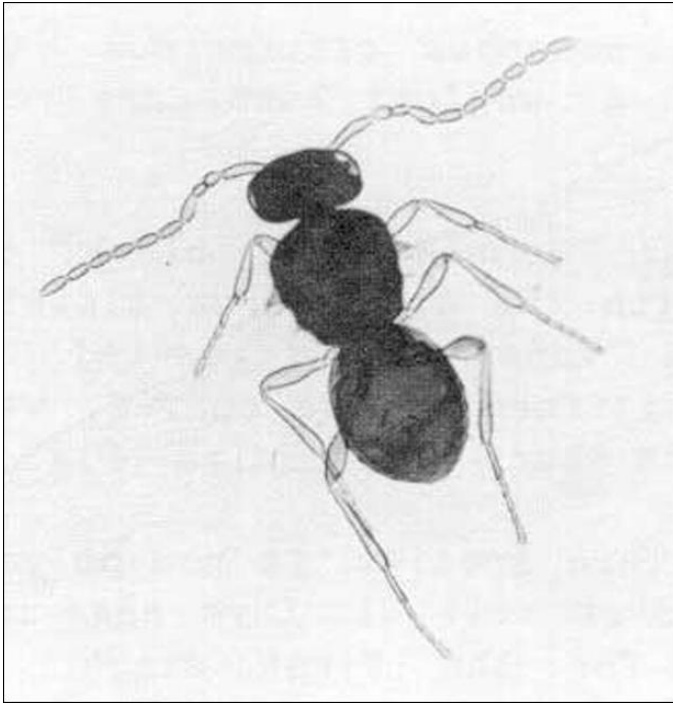


Figure 2. Adult male *Amitus hesperidum* Silvestri. See filiform antennae.  
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Figure 3. Adult female (lower left) and male (upper right) of *Amitus hesperidum* Silvestri, a parasitoid of the citrus blackfly. See clubbed antennae on female and filiform antennae on male.  
Credits: Jeffrey Lotz, Division of Plant Industry

## Biology

This species is non-polyembryonic and biparental in reproduction with a sex ratio of 1:1. It lays eggs in all three larval stages of the host, with a preference for the first stage. A female of the citrus blackfly usually produces two, three

or occasionally four adult parasites, whereas a male host pupa produces only one. Both male and female parasites can be produced from a female of the citrus blackfly pupa. *Amitus hesperidum* females have a life span of four to five days, and males live three to four days. Life cycle from egg to adult varies from 45 to 60 days under laboratory condition ( $T=27^{\circ}\text{C}$ ).



Figure 4. Adult *Amitus hesperidum* parasitoids near healthy pupae of citrus blackfly, *Aleurocanthus woglumi* Ashby.  
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Figure 5. Empty pupal cases of the citrus blackfly, *Aleurocanthus woglumi* Ashby, from which adult parasitoids of *Amitus hesperidum* have emerged.  
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In the field, *A. hesperidum* is well synchronized with the host and has a high rate of reproduction. A female

can produce more than 60 offspring. This parasitoid is very effective with the high density of the citrus blackfly in Florida. However, the female has a poor searching capability and survives only four to five days under field conditions. The parasite population will die out soon after suppressing *A. woglumi* populations (Flander 1969; Nguyen et al. 1983).

## Hosts

*Aleurocanthus citriperdus* Quaintance and Baker, *A. spiniferus* (Quaintance), and *A. woglumi* Ashby are reported as hosts (Silvestri 1927; Smith et al. 1964).

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