Citrus Blackfly Parasitoid, *Amitus hesperidum* Silvestri (Insecta: Hymenoptera: Platygasteridae)¹

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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

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

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

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Figure 1. Adult female *Amitus hesperidum* Silvestri, a parasitoid of the citrus blackfly. Credits: Division of Plant Industry

Figure 2. Adult male *Amitus hesperidum* Silvestri. Credits: Division of Plant Industry

under laboratory condition ($T=27^{\circ}\text{C}$). 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; it 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).

Figure 3. *Amitus hesperidum* parasitoids (A) adults near healthy pupae; (B) adult with empty pupal cases of citrus blackfly, *Aleurocanthus woglumi* Ashby, from which adult parasitoids have emerged. Credits: Division of Plant Industry

Hosts

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

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