

Leafminer Parasitoid *Opius dissitus* Muesebeck (Insecta: Hymenoptera: Braconidae)¹

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Introduction

The wasp *Opius dissitus* Muesebeck is a solitary, larva-pupal, Hymenopteran endoparasitoid of *Liriomyza* leafminers. Several studies report that *O. dissitus* were reared from *Liriomyza* (Diptera: Agromyzidae) leafminers infesting plant leaves of celery, tomato, potato, beans, etc. (unpublished data, Li et al.; Stegmaier 1972).

Distribution

Opius dissitus is reported from Africa, Asia, Europe, and North America (Bordat et al. 1995a; Petcharat et al. 2002; Stegmaier 1972; Neuenschwander 1987).

Description and Life Cycle

Adults

The adult *O. dissitus* are black in color. The antennae are black and thin, and almost the same length as their body.

Eggs

Opius dissitus females lay their eggs directly inside the late stage *Liriomyza* larvae bodies. The average size of the egg is about 0.28 mm (Bordat et al. 1995a).



Figure 1. Dorsal view of an adult *Opius dissitus* Muesebeck, an endoparasitoid of *Liriomyza* leafminers.

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Larvae

The *O. dissitus* larvae develop inside the *Liriomyza* leafminer larvae. However, the parasitized leafminer larvae still consume the tissue of plant leaves until their pupation. The *O. dissitus* larvae develop through two instars inside the leafminer larvae (Bordat et al. 1995a), and eventually kill the leafminer in the pupal stage. The mature *O. dissitus* larvae then pupate inside the leafminer pupae. The optimal temperature for *O. dissitus* development on host of *L. trifolii* is reported as 25–30°C (Bordat et al. 1995b).

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Pupae

Opius dissitus early stage pupae are yellow and have red eyes, while the mature stage pupae are black in color. *Opius dissitus* adults emerge out of the leafminer pupae. One adult emerges from a single parasitized pupa (unpublished data, Li et al.)



Figure 2. Early stage pupa of *Opius dissitus* Muesebeck, an endoparasite of *Liriomyza* leafminers.
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Figure 3. Early stage pupa of *Opius dissitus* Muesebeck, an endoparasite of *Liriomyza* leafminers.
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Hosts

In Florida, *Opius dissitus* larvae were found and collected, then reared to adults, from the leaves of several crops infested by *Liriomyza* leafminers (Stegmaier 1972; Schuster and Wharton 1993). Important *Liriomyza* economic pest species include the pea leafminer, *L. huidobrensis* (Blanchard); the vegetable leafminer, *L. sativae* Blanchard; and the American serpentine leafminer, *L. trifolii* (Burgess).

Economic Importance

Opius dissitus is a potential biological control agent for *Liriomyza* leafminers on vegetable and ornamental plants. *Opius dissitus* was found to be the most abundant parasitoid (63% of all the parasitoids) of *L. trifolii* on snap bean crops in south Florida, and the seasonal density of *O. dissitus* had a similar pattern with *L. trifolii* (unpublished data, Li et al.). *Opius dissitus* was also found to be one of the major hymenopteran parasitoids of *Liriomyza* leafminer on tomato crops (Schuster and Wharton 1993). Pettitt (2004) reported that *O. dissitus* was reared and released to control *Liriomyza* leafminers at the Walt Disney World Resort.

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