



EXTENSION

Institute of Food and Agricultural Sciences

Wasp Parasitoid *Meteorus autographae* Muesebeck (Insecta: Hymenoptera: Braconidae)¹

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Distribution

Meteorus autographae is found in Newfoundland south to Florida, and then west to Wisconsin and Louisiana.

Description

Egg

The egg is clear and thin-walled. Soon after oviposition, the folded-in-two larva can be observed inside.

Larva

The larva is translucent, long and slender, with a pronounced sclerotized head. Often more than one egg is laid, but the first larva to emerge kills its siblings.

Pupa

The brown-colored, 5 mm-long cocoon usually is suspended from the edge of the leaf on a silk string.



Figure 1. Mature larva of *Meteorus autographae* Muesebeck, a parasitoid wasp. Credits: Andrei Sourakov, USDA

Adult

The adult wasp is orange, with black eyes and antennae. The body does not exceed 6 mm. The female has a well-defined black ovipositor.

Life History

This parasitoid attacks most instars of noctuid larvae in Florida.. It develops from egg to pupa in eight days at 27 degrees C. Six days later, the adult hatches and lives on average 40 days. Wasps also develop and survive better at cooler temperatures.

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Figure 2. Pre-pupation larva of *Meteorus autographae* Muesebeck, a parasitoid wasp. Credits: Andrei Sourakov, USDA

During its life span in the laboratory, a female lays on average 240 eggs, though sometimes the number of progeny can reach 350. Development from egg to pupa takes approximately eight days at 27 degrees C. It takes six more days for the adult to develop. This time triples when the temperature drops to 16 degrees C.

Hosts

The hosts for this wasp include: *Acleris variana* (Fern.), the eastern blackheaded budworm; *Agrotis ipsilon* (Hufn.), the black cutworm; *Alsophila pometaria* (Harr.), the fall cankerworm; *Anticarsia gemmatalis* Hbn., the velvetbean caterpillar; *Autographa* sp.; *A. biloba* (Steph.); *Autoplusia egena* (Guen.), the bean leafskeltonizer; *Colias eurythema* Bdv.; *Evergestis stramminalis* Hbn.; *Helicoverpa zea* (Boddie), the bollworm (also called corn earworm and tomato fruitworm); *Orgyia leucostigma* (Sm.), the whitemarked tussock moth; *Peridroma saucia* (Hbn.), the variegated cutworm; *Plathypena scabra* (F.); *Pseudaletia unipuncta* (Haw.), the armyworm; *Pseudoplusia includens* (Wlkr.), the soybean looper;



Figure 3. Cocoon of *Meteorus autographae* Muesebeck, a parasitoid wasp. Credits: Andrei Sourakov, USDA



Figure 4. Male *Meteorus autographae* Muesebeck, a parasitoid wasp. Credits: Andrei Sourakov, USDA

Spodoptera eridania (Cram.), the southern armyworm; *S. exigua* (Hbn.), the beet armyworm; *S. frugiperda* (Sm.), the fall armyworm; *S. ornithogalli* (Guen.), the yellowstriped armyworm; *Trichoplusia*



Figure 5. Female *Meteorus autographae* Muesebeck, a parasitoid wasp. Credits: Andrei Sourakov, USDA

ni (Hbn.), the cabbage looper; and *Udea rubigalis* (Guen.), the celery leaf-tier (also called the greenhouse leaf-tier).

Importance

M. autographae was found to be an important control agent of soybean looper (up to 24% of this pest's larvae were found to be parasitized in South Carolina). In Florida, it was found emerging from cabbage looper larvae. Many other species of noctuids were found to be a suitable host, and, most importantly, all larval instars were parasitized. Many other cabbage looper control agents (e. g., *Cotesia marginiventris*) attack only young larvae, which limits their effectiveness in control of these pests.

Selected References

Grant J. F. and M. Shepard. 1984. Laboratory biology of *Meteorus autographae* (Hymenoptera: Braconidae), an indigenous parasitoid of soybean looper (Lepidoptera: Noctuidae) larvae. *Environ. Entomol.* 13: 838-842.

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Mitchell, E. R. et al. (February 2000). Stage by stage comparison of parasitoids important in biocontrol of cabbage pests. USDA. <http://www.usda.ufl.edu/biocontrol/guide.htm> (March 2000).