Research Note

NATURAL ENEMIES AND ALTERNATE HOSTS OF MARASMIA TRAPEZALIS *(GUENÉE) AFFECTING RICE IN PUERTO RICO*[1]

A leaf tier, *Marasmia trapezalis* (Guenee) (Lepidoptera: Pyralidae), is a sporadic pest of rice in Puerto Rico. Rice farmers have complained that heavy infestations during the seedling stage cause growth reduction and plant death. In addition to defoliating plants, the larvae bend and tie rice foliage for protection. Although farmers usually apply insecticides to control this pest in rice, little is known about its natural enemies and alternate hosts.

Wolcott[8] suggested that the insect was probably introduced to Puerto Rico with sugarcane (*Saccharum officinarum* L.) from the Dominican Republic. Martorell[6] listed *M. trapezalis* as pest on young sugarcane plants.

A literature search on insects of Puerto Rico revealed no natural enemies of this pest. Furthermore, no information was found on alternate hosts or natural enemies of *M. trapezalis* related to rice. The purpose of this research was to identify the natural enemies and alternate hosts of *M. trapezalis* affecting rice plants in Puerto Rico.

M. trapezalis larvae were collected from 1985 to 1987, with a standard insect net (38 cm in circumference), from infested rice fields at Arecibo, Vega Baja, Manatí, and Lajas, Puerto Rico. Collected larvae were placed in plastic bags provided with a moist piece of absorbent paper and rice foliage. Bags were deposited inside a cooler and transported to the laboratory. In the laboratory larvae were removed from the collection bags, placed on fresh pinto bean diet, and held at 13:11 light: dark cycle and temperature of 26°C. Larvae were monitored daily for mortality and parasitoid emergence. Parasitoids recovered were identified by N. E. Woodley (Diptera), P. M. Marsh, R. W. Carlson and E. E. Grissell (Hymenoptera) of the USDA Insect Identification Institute of Beltsville, Maryland (IIBII). Voucher specimens were deposited at the Puerto Rico Agricultural Experiment Station, Río Piedras, Puerto Rico.

Larvae were also hand collected from plants near rice fields. Collected larvae were reared on the same plants from which they were collected and adults identified.

Six parasitoid species were recovered from *M. trapezalis* larvae (table 1). Five of the species belong to the Hymenoptera whereas only one Diptera was recovered. All parasitoid species recovered represent

[1]Manuscript submitted to Editorial Board 31 March 1989.

[2]Ashley, T. R., 1979. Classification and distribution of fall armyworm parasites. *Fla. Entomol.* 62: 114-23.

[3]Ashley, T. R., 1986. Geographical distribution and parasitization levels for parasitoids of the fall armyworm, *Spodoptera frugiperda*. *Fla. Entomol.* 69: 516-24.

[4]Franqui, R. A., A. Pantoja and S. Medina, 1988. Host plants of pentatomids affecting rice fields in Puerto Rico. *J. Agric. Univ. P. R.* 72: 365-69.

[5]Jones, T. H. and G. N. Wolcott, 1922. The caterpillars which eat the leaves of sugarcane in Porto Rico. *P.R. J. Dep. Agric.* 6: 38-50.

[6]Martorell, L. F., 1976. Annotated food plant catalog of the insects of Puerto Rico. Puerto Rico Agric. Exp. Stn., Río Piedras, P. R., page 230.

[7]Wolcott, G. N., 1925. A pyralid-pyraustinid attacking the leaves of sugarcane in Hispaniola. *J. Econ. Entomol.* 18: 422.

[8]Wolcott, G. N., 1948. The insects of Puerto Rico. *J. Agric. Univ. P. R.* 32 (3): 650-51.

TABLE 1.—*Partial list of parasitoids affecting* Marasmia trapezalis *(Guenee) larvae recovered from rice fields in Puerto Rico, 1985-1987*

Order/Family/Genus	PR ACC. No.	Locality
DIPTERA		
Tachinidae		
Comatacta sp. possibly *insularis* Curran	67-86, 72-86, 156-86, 363-86	Arecibo, VegaBaja, Lajas
HYMENOPTERA		
Bethylidae		
Goniozus sp.[1]	68-86, 76-86	Vega Baja
Braconidae		
Cotesia marginiventris (Cresson)	66-86, 71-86	Arecibo, Vega Baja
Chalcididae		
Spilochalcis sp.	79-86	Vega Baja
Brachymeria sp.	122-85, 73-86	Arecibo
Pteromalidae		
Trichomalopsis sp.[1]	70-86, 77-86	Arecibo

[1]New record for Puerto Rico.

the first report of natural enemies of *M. trapezalis* from Puerto Rico. The recovery of *Goniozus* sp. and *Trichomalopsis* sp. represents new records for Puerto Rico. Wolcott[8] recorded *Spilochalcis* near *flavopicta* (Cresson) as parasite of the pupae of *M. trapezalis* collected in Haiti, but did not state the host plant from which the insect were recovered. *Comatacta* sp. has also been identified from Jamaica and Cuba (Woodley, IIBII, personal communication).

Cotesia marginiventris and *Brachymeria* sp., two known enemies of the fall armyworm (*Spodoptera fru giperda* (J. E. Smith)), were recovered from *S. frugiperda* related with corn, peanut, grasses and sorghum in the United States, South America and Puerto Rico,[2,3,5] but not from rice. Probably *C. marginiventris* and *Brachymeria* sp. are important factors controlling both *S. frugiperda* and *M. trapezalis* larvae affecting rice fields. Additional research is needed to verify this theory. *M. trapezalis* larvae were attacked by a predatory wasp *Polistes crinitus* (Felton) (Hymenoptera: Vespidae), but their impact in controlling natural infestations is unknown.

M. trapezalis larvae were collected and reared on Johnson grass (*Sorghum halapense* (L.) Pers.), "malojillo" (*Eriochloa polystachya* Kunth), and jungle grass (*Echinochloa colona* (L.) Link). These Gramineae commonly found in and around rice fields are also alternate hosts for other rice pests.[4,5]

This study provides important information on *M. trapezalis* natural enemies and alternate hosts. To our knowledge, this is the first report of parasitoids and alternate hosts of this pest in Puerto Rico. The information on *M. trapezalis* natural enemies and alternate hosts can be used in the development of an integrated pest management program for rice.

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