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First record of *Diachasmimorpha longicaudata* (Ashmead) 1905 (Hymenoptera: Braconidae) parasitizing the papaya fruit fly *Toxotrypana curvicauda* Gerstaecker 1860

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Summary

López-Martínez V. 2005. First record of *Diachasmimorpha longicaudata* (Ashmead) 1905 (Hymenoptera: Braconidae) parasitizing the papaya fruit fly *Toxotrypana curvicauda* Gerstaecker 1860. Entomotropica 20(2): 121-123.

A new host record is reported for the braconid wasp *Diachasmimorpha longicaudata* (Ashmead) (Hymenoptera: Braconidae), parasitizing papaya fruit fly larvae *Toxotrypana curvicauda* Gerstaecker (Diptera: Tephritidae) in Mexico.

Additional key words: braconid parasitoid, tephritid fruitfly.

Resumen

López-Martínez V. 2005. Primer registro de *Diachasmimorpha longicaudata* (Ashmead) 1905 (Hymenoptera: Braconidae) parasitando la mosca de la papaya *Toxotrypana curvicauda* Gerstaecker 1860. Entomotropica 20(2): 121-123.

Se registra por primera vez a *Diachasmimorpha longicaudata* (Ashmead) (Hymenoptera: Braconidae) parasitando a larvas de la mosca de la papaya, *Toxotrypana curvicauda* Gerstaecker (Diptera: Tephritidae) en México.

Palabras clave adicionales: bracónido parasitoide, mosca de la fruta.

Papaya fruits naturally infested by *Toxotrypana curvicauda* Gerstaecker 1860 were obtained from an experimental papaya (*Carica papaya* L. var. Hawaiian Solo) orchard located at the CEPROBI experimental field [for details on weather, vegetation and localization see: Aluja et al. (1997)]. This particular orchard is surrounded by *Ficus* spp., *Citrus* spp., *Mangifera indica* L. and *Psidium guava* L. trees. In addittion, trees of the alternative host, *Jacaratia mexicana* A. DC. (Castrejón 1987) are distributed within the CEPROBI Campus. In a four months period (from September to December, 2004) more than 1200 *T. curvicauda* larvae were collected and transported to the CEPROBI Chemical Ecology Laboratory. Between the 14th and 16th December 2004, four parasitoid females emerged among the fruitflies reared in the cages. These were identified as *Diachasmimorpha longicaudata* (Ashmead) 1905, using the Wharton and Marsh (1978) keys and by comparison with previously identified specimens deposited at the Centro de Entomología y Acarología, Montecillo (CEAM) insect collection. *D. longocaudata* is a very common parasitoid attacking the widely distributed *Anastrepha* spp, and *Ceratitis* sp. fruitflies (Aluja et al 1990; López et al 1999; Niklaus-Ruiz Borges and Basedow 1997; Wharton et al 1981). It has been introduced in many countries as a biological control agent with variable results. In Mexico it was introduced in the 50´s and is now an important tool in native fruitflies IPM programs (Jiménez-Jiménez 1956; Ovruski et al 2000).

When parasitoids were caged with papaya fruit infested with *T. curvicauda* larvae, they explored the fruit surface with their legs and antennae and attempted oviposition (Figure 1). In addition, clear agonistic behavior between females was also

Figure 1. *Diachasmimorpha longicaudata* introducing its ovipositor in a papaya fruit. Note ovipositor position and legs anchorage.

displayed. Females placed face to face and moved their antennas and legs.

For many years we worked with *T. curvicauda* at the CEPROBI, but did not find this parasitoid attacking the papaya fruit fly in the past. There are two possible explanations:

1) In the past, we use to plant *C. papaya* var. "cera chichona" which is a large fruit variety. In contrast, the parasitoids were collected from larvae obtained from a small fruit variety (Hawaiian Solo). According to López et al. (1999), small fruit are more likely to be targeted by parasitoids than large ones. Our observation supports the latest statement, as *D. longicauda* individuals were collected from infested papaya fruits *var.* Hawaiian Solo, also *T. curvicauda* prefers small fruit varieties (Hawaiian Solo) over large fruit ones, like var. "cera amarilla" or "cera roja" (Aluja et al. 1994).

2) We found these *D. longicaudata* individuals during winter when *T. curvicauda* population starts to decline (Castrejón 1987, Castrejón-Gómez et al. 2004) and hosts (fruits and *Anastrepha* larvae) are scarce except those from trees surrounding our papaya orchard. But the guava tree nearby the orchard produced fruit during November and December, 2005, and hence was probably the parasitoid source.

Until now, the braconid *Doryctobracon toxotrypanae* (Muesebeck) 1958 (Wharton *et al*. 1981, Boscán de Martínez and Godoy 1999) was the only parasitoid associated to *T. curvicauda*. Thus, this report adds a new species to the *T. curvicauda* parasitoid list and a new host for *D. longicaudata.*

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