

## SCIENTIFIC NOTE

# First Record of *Diachasmimorpha longicaudata* (Ashmead) (Hymenoptera: Braconidae) Attacking *Toxotrypana curvicauda* Gerstaecker (Diptera: Tephritidae)

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Primer Registro de *Diachasmimorpha longicaudata* (Ashmead) (Hymenoptera: Braconidae) Atacando *Toxotrypana curvicauda* Gerstaecker (Diptera: Tephritidae)

RESUMEN - Se registra por primera vez a *Diachasmimorpha longicaudata* (Ashmead) parasitando a larvas de la mosca de la papaya, *Toxotrypana curvicauda* Gerstaecker en México.

PALABRAS CLAVE: Braconido parasitoide, mosca de la fruta, papaya

ABSTRACT - 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 México.

KEY WORDS: Braconid parasitoid, tephritid fruitfly papaya

Papaya fruits (*Carica papaya* L. var. Hawaiian solo) naturally infested with *Toxotrypana curvicauda* Gerstaecker 1860 were obtained from an papaya orchard located at the CEPROBI experimental field in Morelos, México [for details on weather, vegetation and localization see Aluja *et al.* (1997)]. This particular orchard was surrounded by *Ficus* spp., *Citrus* spp., *Mangifera indica* L. and *Psidium guava* L. trees. In addition, trees of a *T. curvicauda* alternative host, *Jacaratia mexicana* A. DC. (Castrejón unpublished) were distributed within the CEPROBI area.

Over 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 within the CEPROBI experimental field. Fruits were dissected at the lab with a knife and mature larvae were placed in a circular plastic container (20 cm high x 20 diameter) floored with a 10 cm layer of sterilized soil. Containers were covered with a fine mesh and located inside an emergence cage covered by a second fine mesh to eliminate contamination risk. Containers were watered as needed.

Between the 14<sup>th</sup> and 16<sup>th</sup> December, 2004 four parasitoid females emerged within the fruitflies' emergence cages. These were identified as *Diachasmimorpha longicaudata* (Ashmead) using the Wharton and Marsh (1978) keys and the identification was confirmed through comparison with previously identified specimens deposited at the Centro

de Entomología y Acarología, Montecillo (CEAM) insect collection located at Montecillos, Texcoco, Estado de México, México.

*D. longicaudata* is a common, Mexican-exotic, opine braconid, larval-prepupal koinobiont parasitoid that attacks a wide range of *Anastrepha* spp. and *Ceratitis capitata* (Weid.) (Diptera: Tephritidae) in Latin America (Aluja *et al.* 1990, López *et al.* 1999, Wharton *et al.* 1981) fruitflies. Originally from the Indo-Philippine region, it has been introduced in many countries as a biological control agent with variable results. It was introduced in Mexico in the 1950's and it is an important tool in native fruitflies IPM programs (Jiménez-Jiménez 1956, Ovruski *et al.* 2000).

When *D. longicaudata* females were caged with papaya infested with *T. curvicauda* larvae, they explored the fruit surface with their legs and antennae and attempted oviposition. In addition, apparent agonistic behavior between females was also displayed. Females stood face to face and moved their antennae and legs.

For many years, we have worked with *T. curvicauda* at the CEPROBI, and until now, never found it to be attacked by this parasitoid. One possible explanation was a change in field-management policies. In the past, we planted *C. papaya* var. cera chichona which is a larger 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 successfully

parasitized than large ones. Larvae can be closer to the surface of smaller fruit and easier reach of the parasitoid's ovipositor.

Until now, the braconids *Doryctobracon toxotrypanae* (Muesebeck) (Wharton *et al.* 1981, Boscán & Godoy 1999) and *Opius hirtus* (Wharton) were the only parasitoids associated with *T. curvicauda*. This report adds a new species to the *T. curvicauda* natural parasitoid list and a new host for *D. longicaudata*, however, this parasitism on *T. curvicauda* was possibly casual due to the low parasitism level obtained.

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