



Research Article

First record of *Ooencyrtus pallidipes* (Ashmead) (Hymenoptera: Encyrtidae) parasitizing eggs of *Erionota torus* Evans (Lepidoptera: Hesperiiidae) in India

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ABSTRACT: The banana skipper *Erionota torus* Evans has recently emerged as a serious pest of banana. In the present study for the first time egg parasitism of *E. torus* by *Ooencyrtus pallidipes* (Ashmead), a gregarious parasitoid, is reported from India. The natural percent parasitism observed was 80–82% in the banana field located at Komanal, Shivamogga district, Karnataka. Since this parasitoid has served as an effective biological control agent for *E. torus* in Mauritius and Taiwan, possibilities are there that it can establish as a potential biological control agent in India as well.

KEY WORDS: *Ooencyrtus pallidipes*, gregarious egg parasitoid, banana skipper

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INTRODUCTION

Erionota torus Evans (1941) (Lepidoptera: Hesperiiidae), a pest of *Musa* spp. (banana) is of recent concern in southern parts of India. The preferred common name of this pest is ‘banana skipper’. The larvae feed on the leaves and constructs series of large cylindrical leaf rolls, thus adding to the loss. The indigenous range of this pest extends from northern India (Himalaya east) and Southern China to South East mainland Asia. It has spread to Mauritius, southern Philippines, Taiwan, Japan, western India and southern India (recently in 2015). This invasive pest has been effectively controlled by the introduction of parasitoids in Mauritius and Taiwan. As *E. torus* is quite often been confused with *E. thrax*, it has not received due attention as a potential invasive pest species in the past (CABI, 2015).

Two species of parasitoids, *Cotesia erionotae* (Wilkinson) (Braconidae) and *Ooencyrtus pallidipes* (Ashmead) (Encyrtidae) have been effective as biological control agents for *E. torus* in Mauritius and Taiwan, and for *E. thrax* in Guam, Saipan, Hawaii and Papua New Guinea. The natural enemies of *E. torus*, where only *E. torus* prevail, have been summarized by Cock (2015). In areas where *E. torus* and *E. thrax* coexist, the published records refer to *E. thrax*, but there is likelihood that they have been de-

rived from either or both *Erionota* spp. There is also a possibility that most or all of the parasitoids of *E. thrax* might also parasitize *E. torus*, but as per the literature they have been associated with *E. thrax* and not *E. torus* (CABI, 2015).

In this paper we report for the first time egg parasitism of *E. torus* by *O. pallidipes* in India (specifically southern India). *Erionota torus* eggs were collected from the farmer’s field located at Komanal near to the College of Agriculture, Shivamogga, Karnataka, during June 2016. An egg cluster consisting of seventeen eggs was kept for emergence of parasitoids in the laboratory. Percent parasitism observed was 80–82 %.

Ooencyrtus pallidipes (Ashmead, 1904)

BRIEF DIAGNOSIS

Female – Body dark brown to blackish; head metallic green; mesoscutum dull bluish green; scutellum dull green anteriorly with slightly coppery tinge, shining metallic green in posterior one quarter; flagellum testaceous-yellow; all legs including coxae yellow. Metasoma completely dark brown to blackish, sometimes with small whitish/yellowish marks on TI laterally. Ovipositor sheaths yellow.

Body length 1.15 mm. Antenna filiform, F1–F5 longer than wide, F6 slightly longer than wide. Frontovortex $0.3 \times$ width of head. Mandibles with one tooth and one broad truncation. Scutellum anteriorly punctate-reticulate, posterior one quarter smooth; fore wing with large asetose basal area; linea clava open. Ovipositor very slightly exserted, 1.3 times as long as mid tibia.

Male 0.95–0.98 mm. Similar to female except flagellum pale yellow, F1 smaller than any individual segment in between F2–F6, all segments longer than wide and covered with setae longer than diameter of individual segment; frontovortex $0.2 \times$ width of the head.

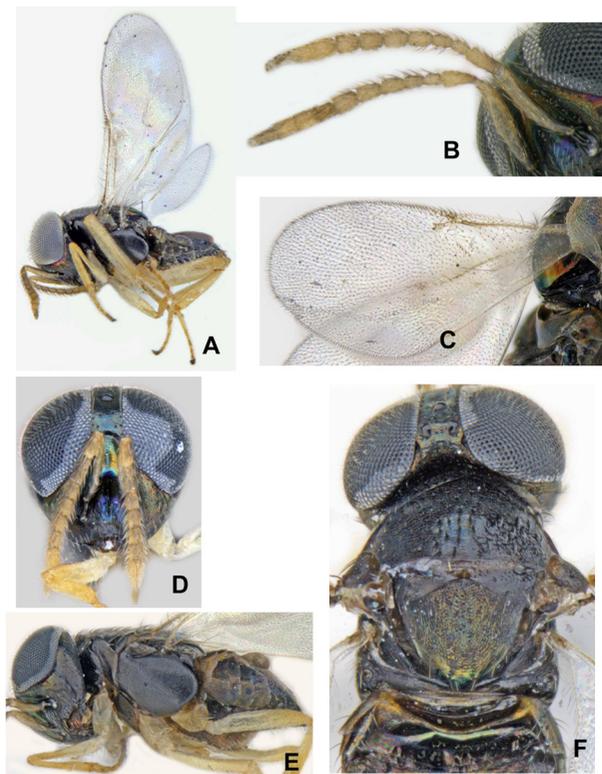


Fig. 1. *Ooencyrtus pallidipes* – A, female in habitus; B, antennae; C, fore wing; D, head in frontal view; E, body in lateral view; F, mesosoma with head in dorsal view.

Ooencyrtus pallidipes can be easily confused with the closely allied species *O. papilionis* Ashmead. However there are few distinct characters which separate *O. papilionis* from *O. pallidipes*: metasoma basally 2–4 tergites yellow, distal tergites brown to dark brown. Antenna with F1 and F2 or F1–3 quadrate or wider than long. Scutellum with deep punctate-reticulate sculpture anteriorly, posterior two-fifth or so smooth and shiny. There are other additional characters, such as ovipositor not or hardly exserted, about one-third the length of the mid tibia, which differ in these two species.

COMMENTS

There are some slight differences from the diagnosis given by Huang & Noyes (1994), but these are negligible. However, colour and sculpture is almost similar as given in Huang & Noyes (1994). The record of this species from India by Hayat & Subba Rao (1981) [under the name *O. erionotae*] was based on Subba Rao's identification from CIE collection, and is doubtful (pers. comm. Dr. M. Hayat)!

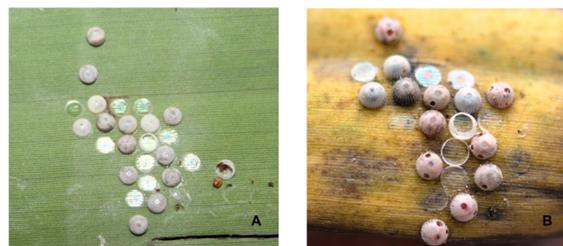


Fig. 2. *Erionota torus* – A, parasitized eggs; B, parasitized eggs with emergence holes of *Ooencyrtus pallidipes*.

BIOLOGY

The freshly laid eggs of *E. torus* are preferred for parasitism by *O. pallidipes*. It is reported to cause 80–82 % parasitism and on an average 2–3 adults emerged per parasitized egg. Earlier it has been recorded from several Lepidoptera, including Eupterotidae, Gracillariidae, Nymphalidae, Papilionidae and Pieridae, but the eggs of Gracillariidae are too small to support this species. A record from egg of a buprestid represents a misidentification. Perhaps there is also an erroneous host record from unspecified aphid, possibly because a mummified aphid is almost similar in size, shape and colour to a parasitized egg of *E. thrax* (Cock, 2015).

Material examined: 4♀, 2♂, INDIA, Karnataka, Shivamogga, 10.vi.2016, ex: egg of *E. torus* on *Musa* sp., coll. Sharanabasappa, Code: NBAIR/Enc/10616.

REMARKS

This report confirms the existence of *O. pallidipes* in India. Efforts on the mass production of this parasitoid are in progress.

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