



Research Article

First report of larval parasitism of *Ethmia nigroapicella* Saalmüller (Lepidoptera: Gelechioidea: Ethmiidae) by *Therophilus festivus* (Muesebeck) (Braconidae: Agathidinae) in India

ANKITA GUPTA* and UMESHKUMAR SANJEEV

ICAR-National Bureau of Agricultural Insect Resources, Post Bag No. 2491, H. A. Farm Post, Bellary Road, Hebbal, Bangalore, Karnataka 560024, India

*Corresponding author Email: drankitagupta7@gmail.com

ABSTRACT: Larval parasitism of *Ethmia nigroapicella* Saalmüller (Lepidoptera: Gelechioidea: Ethmiidae) by *Therophilus festivus* (Muesebeck) is reported from Karnataka, India. This is the first illustrated record of solitary parasitism by *T. festivus* on its host *E. nigroapicella*.

KEY WORDS: *Ethmia nigroapicella*, larval parasitoid, *Therophilus festivus*

(Article chronicle: Received: 31-03-2016; Revised: 09-05-2016; Accepted: 18-05-2016)

INTRODUCTION

Therophilus festivus (Muesebeck, 1953) is known as a parasitoid of Tortricidae, Pyralidae, Blastobasidae, Carposinidae, Noctuidae, Gelechiidae and Cossidae. van Achterberg and Long (2010) expressed the improbability of such a wide host range as no reared material was examined by them. This species is distributed in Vietnam, China, India, Japan (including Okinawa), Korea, Nepal, Philippines (Mindoro), Russia (Far East) and was introduced into the U.S.A. Bhat and Gupta (1977) mentioned three hosts for this parasitic wasp- *Grapholita prunivora* (Walsh), *Grapholita molesta* (Busck) and *Holocera pulverea* Meyr. Additionally other lepidopteran hosts hitherto recorded across the globe- *Adoxophyes orana* Fischer von Roslerstamm, *Carposina niponensis* Walsingham, *Hartalodes derogate* (Fabricius), *Ostrinia furnacalis* (Guenee) *Pectinophora gossypiella* (Saunders), *Pseudohypatopa pulverea* (Meyrick), *Helicoverpa armigera* (Hübner) and *Zeuzera coffeae* Nietner (Yu *et al.*, 2012).

The present study is of significance as this is the first illustrated report of larval parasitism of *Ethmia nigroapicella* Saalmüller (Lepidoptera: Gelechioidea: Ethmiidae) by *T. festivus* in India.

Therophilus festivus (Muesebeck, 1953)

Figs 1A–G

Diagnosis (Female). *Colour.* Black; antenna blackish brown; basal half of hind tibia and lateral sides of T1 and T2 white; fore and mid legs (except coxae) and base of T2 yellow; remainder of metasoma and hind leg black (except basal half of hind tibia); mandible brown; palpi yellow; wings infuscated.

Body length 5.5 mm, fore wing 4.4 mm, ovipositor sheath 4.3 mm.

Head. Antenna with 32 segments, length of third segment 1.05 times fourth segment, length of third, fourth and penultimate segments 2.9, 2.7 and 1.5 times their width, respectively; length of maxillary palpi 0.7 times height of head; malar space 1.6 times as long as basal width of mandible; in dorsal view length of eye 2.4 times temple; ocelli in low triangle, POL: OD: OOL= 16: 8.9: 22.8; face setose, largely smooth and finely punctulate; clypeus largely smooth and moderately convex; frons with obsolete medial ridge, with wide flattened triangular area in front of anterior ocellus; vertex and temple shiny and smooth, temple with sparse punctures.

Mesosoma. Length of mesosoma twice its height; pronotum largely smooth, with carinae anteriorly, with some punctures dorso-posteriorly; area near lateral carina of mesoscutum indistinctly crenulate; mesoscutum spaced punctulate, medio-posteriorly lobes flattened posteriorly; notauli

complete and narrowly crenulate, ending distinctly in front of scutellar sulcus; scutellar sulcus half as long as dorsal face of scutellum, shallow, curved and with 3 short carinae; scutellum shiny and smooth (except for some punctures at apex); mesopleuron comparatively robust; precoxal sulcus narrow, rather deep, crenulate; mesopleuron below precoxal sulcus spaced punctulate; remainder of mesopleuron shiny and largely smooth; metapleuron densely setose, dorsally rather coarsely punctate; propodeum rugose, without median carina, and with areola posteriorly; propodeal spiracle rather small and oval.

Wings. Fore wing: second submarginal cell narrow and petiolate, vein SR1 slightly curved at apex otherwise straight; vein r very short, $r: 3-SR+SR1 = 1:26$. Hind wing: vein M+CU 0.8 times as long as vein 1-M.

Legs. Length of hind femur, tibia and basitarsus 4.1,

6.4 and 8.9 times their width, respectively; hind femur finely rugose at base and apex and with short setae; length of outer and inner spur of middle tibia 0.5 and 0.6 times middle basitarsus, respectively; middle tibia with a row of 2 pegs at apex; length of outer and inner spurs of hind tibia 0.3 and 0.4 times hind basitarsus, respectively.

Metasoma. First tergite subparallel-sided, slightly widened apically and 1.2 times as long as its apical width; second tergite not elongate, densely and moderately coarsely striate; remainder of metasoma smooth; ovipositor sheath 1.08 times as long as fore wing.

Material studied. 4♀, 2♂ (ICAR-NBAIR), India: Karnataka, Bangalore, Savandurga, 31.xiii.2015, ex. caterpillar of *Ethmia nigroapicella* Saalmüller (Lepidoptera: Gelechioidea: Ethmiidae) (Figs 2A–D), coll. ICAR–NBAIR, code 31815.

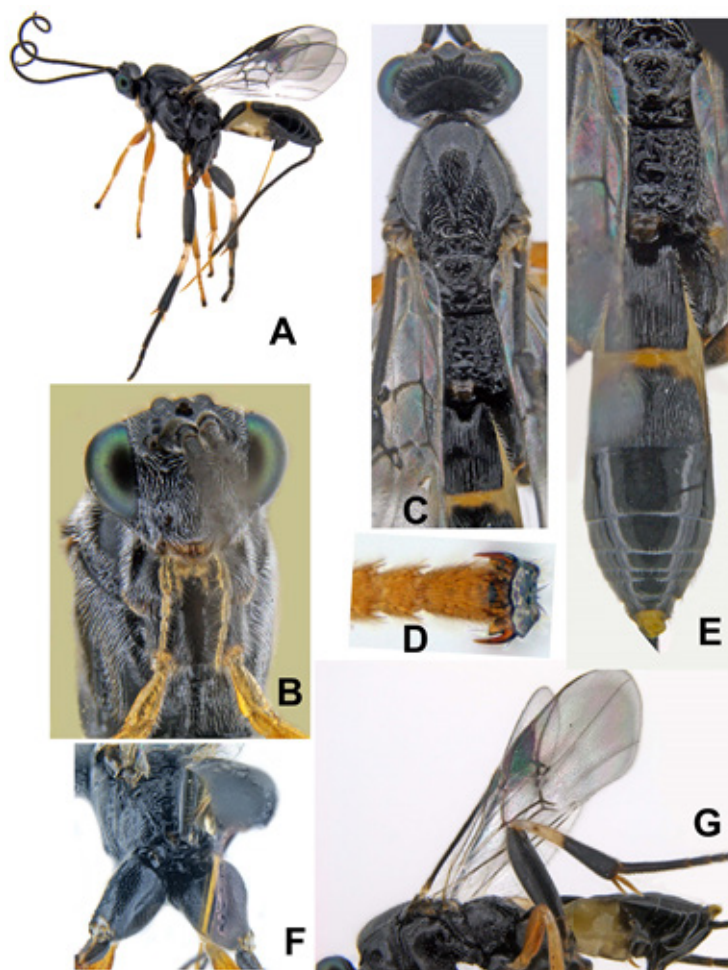


Fig. 1. *Therophilus festivus*– A, female habitus; B, head in frontal view; C, mesosoma and base of metasoma; D, fore tarsal claw; E, mesosoma (except anteriorly) and metasoma; F, transverse metasternal sulcus; G, wings.

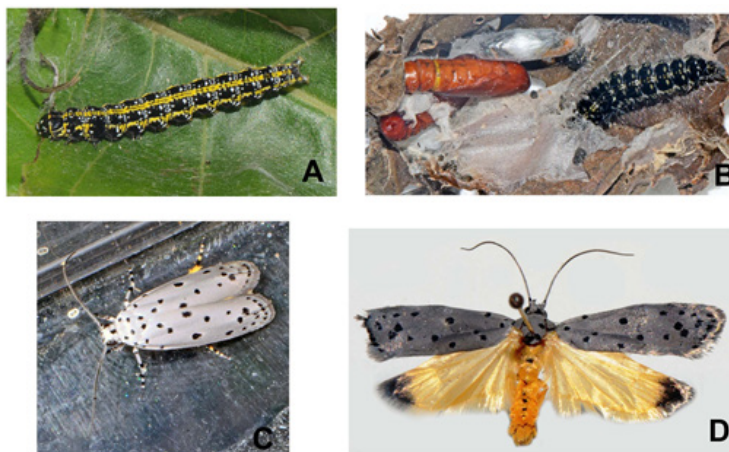


Fig. 2. *Ethmia nigroapicella* Saalmüller– A. healthy caterpillar; B. healthy pupa, solitary cocoon of *Therophilus festivus* and parasitized caterpillar; C & D, adult host.

REMARKS

A rather variable species, not surprising considering its biological amplitude. For the Indian specimens, first tergite (T1) is narrower, about 1.2 times as long as its apical width, when compared to the Vietnam specimens provided in van Achterberg and Long (2010) [first tergite about 1.8–1.9 times as long as its apical width].

ACKNOWLEDGMENTS

The senior author is thankful to the Director ICAR-NBAIR for the research encouragement. She is extremely grateful to Dr. C. van Achterberg, Naturalis Biodiversity Center, Leiden, for all the prompt clarifications and guidance. This work is carried out under the ICAR funded “Network Project on Insect Biosystematics”.

REFERENCES

- Bhat S, Gupta VK. 1977. The subfamily Agathidinae (Hymenoptera, Braconidae). *Ichneumonologia Orientalis* 6. *Oriental Insects Monograph* 6: 1–353.
- Muesebeck CFW. 1953. Three new reared Braconidae (Hymenoptera). *Proc Entomol Soc Washington* 55: 149–151.
- van Achterberg C, Long KD. 2010. Revision of the Agathidinae (Hymenoptera, Braconidae) of Vietnam, with the description of forty-two new species and three new genera. *ZooKeys* 54: 1–184.
- Yu DSK, van Achterberg C, Horstmann K. 2012. Taxapad 2012, Ichneumonoidea 2011. Database on flashdrive. www.taxapad.com, Ottawa, Ontario, Canada.