

**FIRST REPORT OF *BRACHYMERIA CARBONARIA*
(ZEHNTNER), *MEGACHALCIS TIMORENSIS* BOUCEK AND
TROPIMERIS EXCAVATA STEFFAN (HYMENOPTERA:
CHALCIDOIDEA) FROM INDIA**

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ABSTRACT: Three chalcidid pupal parasitoids, *Brachymeria carbonaria* (Zehntner), *Megachalcis timorensis* Boucek and *Tropimeris excavata* Steffan are recorded for the first time from India and a new host record for *Brachymeria albicrus* (Klug) is also reported.

KEY WORDS: Chalcidinae, Haltichellinae, first report, India

Brachymeria Westwood and *Megachalcis* Cameron belong to the subfamily Chalcidinae that includes four tribes. The genus *Brachymeria* belongs to the tribe Brachymerini and is highly diversified with 310 species known globally, 118 in Oriental region and 74 in India. *Megachalcis* belongs to the tribe Cratocentrini and was erected by Cameron with *M. fumipennis* as the type species (Cameron, 1903). This genus is represented by seven species globally and all of them are known from Oriental region also. However, only two (*M. fumipennis* Cameron and *M. malabarica* Narendran) are known from India. There is no further report of this genus from India after Narendran (1989), where he described *M. malabarica*. *Tropimeris* belongs to the subfamily Haltichellinae, tribe Tropimeridini and was erected with *T. excavata* as the type species (Steffan, 1948). Globally it is represented by three species and two are known from India (Noyes, 2016). The genus *Brachymeria* is highly speciose among the members of Chalcididae and also has a wider host range, attacking the pupae of most Lepidoptera, Diptera and Coleoptera and rarely as hyperparasitoids of Hymenoptera (Boucek, 1952; Masi, 1951; Ruschka, 1922). *Tropimeris* was reported from *Exelastis atomosa* Walsh, *Spilosoma obliqua* Walker (Hussain & Agarwal, 1981) and *Sphenarches caffer* Zell. (Steffan, 1948). The host of *Megachalcis* is unknown.

MATERIALS AND METHODS

Parasitoids were collected from Karnataka, Mizoram and Tamil Nadu states using yellow pan, malaise trap and host rearing. Collected specimens were processed, dried using hexamethyldisilazane as described by Brown (1993) and card/ slide mounted using the standard procedure adopted by Noyes (1982). Left antenna of *T. monodon* Boucek and *T. excavata* Steffan were slide mounted. Images were captured using Leica stereo zoom microscope M205C and DMC 2900 camera whereas for slide mounted antenna, the same was done using Leica

DM750 phase contrast microscope and DFC 295 camera. Finally the images were stacked using montage and pyramided using Combined ZP software. The acquired images were then processed using Adobe Photoshop 7.0. Voucher specimens are deposited with EDAU, Parasitoid Taxonomy and Biocontrol laboratory.

Abbreviations: ATREE- Ashoka Trust for Research in Ecology and the Environment, Bengaluru; EDAU – Entomology Department, Annamalai University, Chidambaram; GKVK- Gandhi Krishi Vigyan Kendra; UAS – University of Agricultural Sciences, Bengaluru; ICAR- Indian Council of Agricultural Research; NBAIR- National Bureau of Agricultural Insect Resources, Bengaluru; T1- First gastral tergite.

***Brachymeria carbonaria* (Zehntner, 1906)** (Fig. 1a)

Brief diagnosis: This species can be diagnosed with the following characters: T1 smooth and shiny (Fig.1 b), hind femora black with a very narrow yellow apical spot, hind tibia black from base to beyond middle, the apical part yellow (Joseph et al., 1973) (Fig. 1c).

Specimens examined: One female, India, Mizoram, ICAR, Kolasib, 23.50°N, 92.30°E, 16.v.2016, NBAIR Team; one male, Tamil Nadu, MGR thittu, Pichavaram, 11.25°N, 79.46° E, 12.ix.2010, malaise trap, S. Manickavasagam; one female, Tamil Nadu, Kanyakumari, 8.08°N, 77.54°E, 1.ix.2005, ATREE team.

Distribution: Indonesia (Deventer, 1906), India (new record).

Variation: Tegula color varies from yellow with brown base (2 of 3) to dark brown (1 of 3).

***Megachalcis timorensis* Boucek, 1988** (Fig. 2a)

Brief diagnosis: This species can be diagnosed by the presence of subinfumate wings, with more infumation just at veins; propodeum with an angulate transverse costula, raised in middle in a reversed V shape (Fig. 2b), first tergite with denser punctures at the postero-lateral corners and epipygium in lateral view acuminate.

Specimens examined: one female, India, Karnataka, Bengaluru, GKVK campus, UAS, from *Syzygium cumini* ecosystem, 13.03° N, 77.57° E, 30.xii.2009, Yeshwanth; one female, Tamil Nadu, Sivapuri, 11.38°N, 79.71° E, 12.iii.2013, yellow pan trap, S. Manickavasagam.

Distribution: Indonesia (Boucek, 1988), India (new record).

Variation: Both the specimens match each other except color variation in the first gastral tergite (T1 rufous with apex black in Karnataka specimen whereas it is completely rufous in Tamil Nadu specimen) and wing infuscation (Figs. 2c & 2d).

***Tropimeris excavata* Steffan, 1948** (Fig. 3a)

Brief diagnosis: Hind femur with two sharp teeth (Fig. 3b) and the funicle of female slightly transverse. This is closer to *T. monodon* but can be differentiated by the presence of single sharp teeth in hind femur (Fig. 3d).

Specimen examined: one female, India, Tamil Nadu, Annamalaiagar, orchard ecosystem, 11.23° N, 79.43° E, 2.ix.2015, yellow pan trap, R. Jayanthi.

Distribution: Senegal (Steffan, 1948), India (new record).

Comments: In the original generic diagnosis (Steffan, 1948, in French), he mentioned as two segmented clava. Husain and Agarwal (1981) while describing *T. indicus*, also mentioned as clava 2-segmented. However, later Boucek (1988) and Narendran (1989) reported clava as 3-segmented. To confirm this, the

antenna was dissected and slide mounted and it is confirmed that the clava is two segmented (Fig.3c) in both *T. excavata* and *T. monodon*. However, variation exists in the general body color from reddish brown to black.

New host record for *Brachymeria albicrus* (Klug, 1834)

Specimen examined: One female, India, Karnataka, Kanakapura, 12.54° N, 77.41° E, 22.vi.2016, ex. *Colotis amata* (Fabricius), NBAIR team.

Host: *Earias* sp., *Anaphaeis aurata* Fabricius (Narendran, 1989), *Colotis amata* (Fabricius) (Pieridae: Lepidoptera) (new record).

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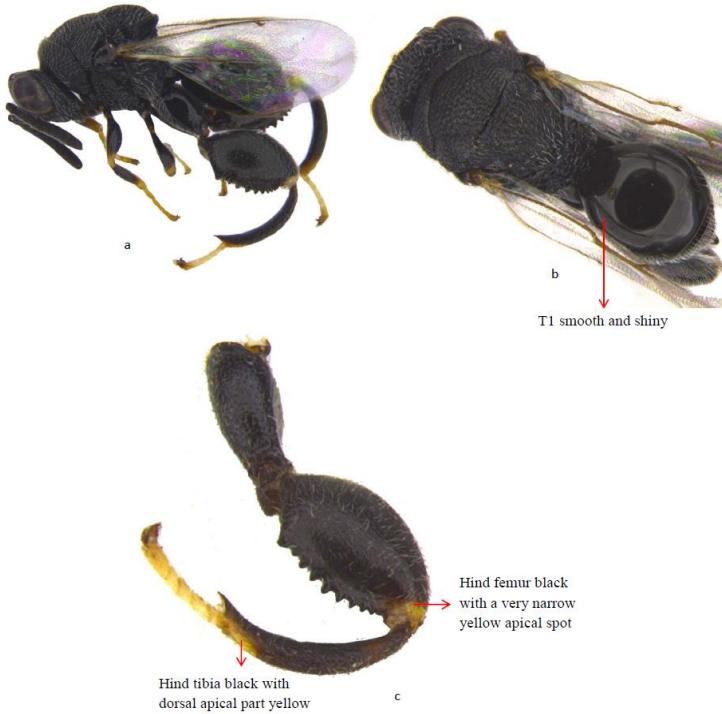


Figure 1. *Brachymeria carbonaria*. a & b - habitus—lateral & dorsal; c- hind leg.

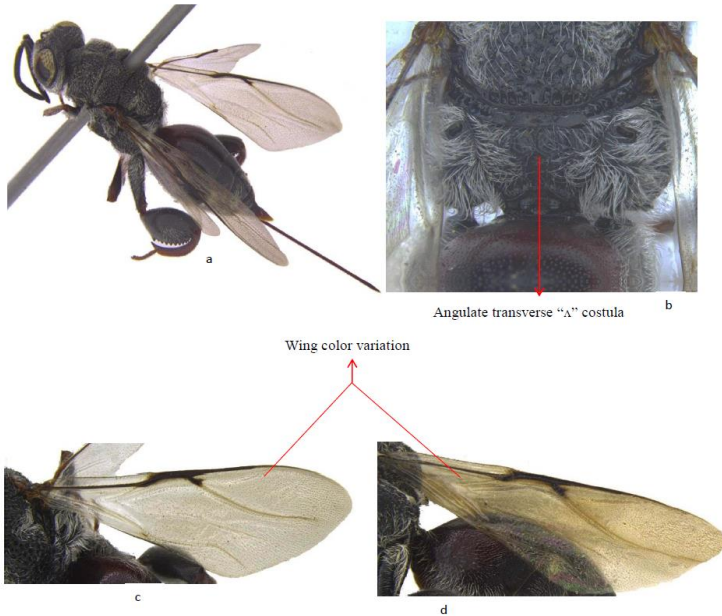


Figure 2. *Megachalcis timorensis*. a-habitus; b-propodeum; c & d-fore wing color variation of specimens from Karnataka (c); Tamil Nadu (d).

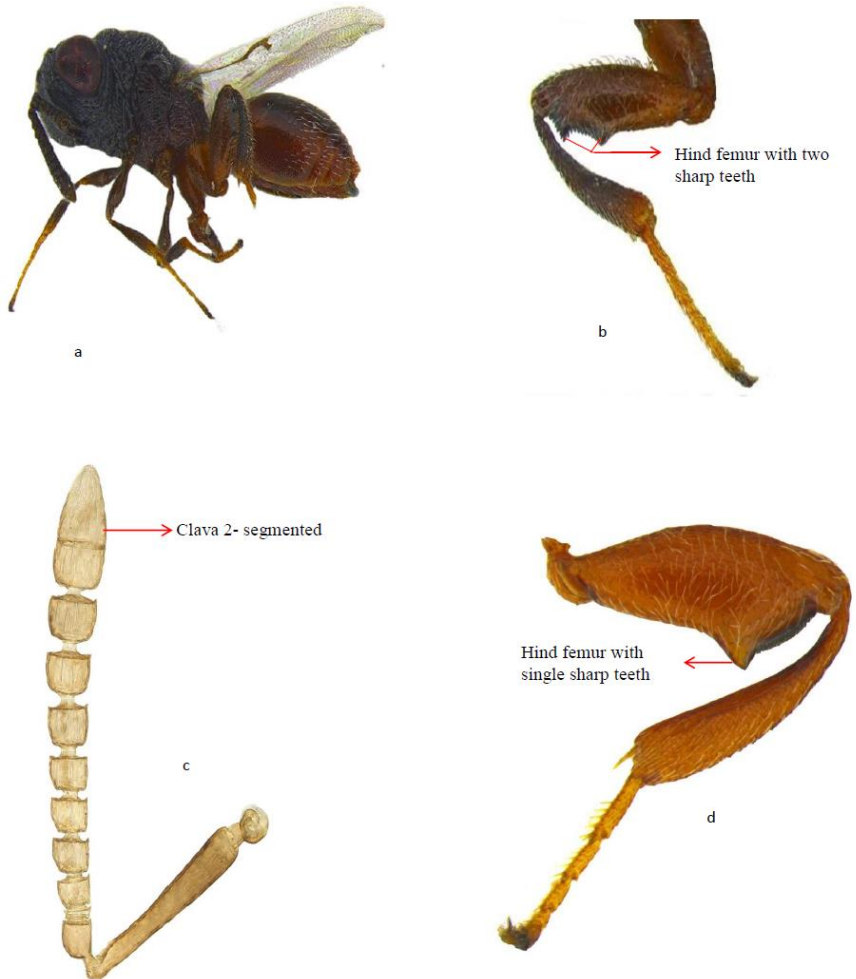


Figure 3. *Tropimeris excavata*. a-habitus; b-hind leg; c. *Tropimeris monodon* left antenna; d-hind leg.