A NEW SPECIES *PHANEROTOMA TIBIOGLOBULI*, SP. NOV., PARASITIC HYMENOPTERA (FAMILY BRACONIDAE) FROM BOTA, AHMEDNAGAR, MAHARASHTRA, INDIA

A. A. Shaikh and Ranjeeta Chatterjee*
Department of Zoology, Prof. Ramkrishna More Arts, Commerce and Science College, Akurdi, Pune – 411044.

Abstract: A new species *Phanerotoma tibioglobuli* of family Braconidae is described and illustrated in the present work. *Phanerotoma tibioglobuli* sp. nov is recorded for the first time in Bota, Ahmednagar, Maharashtra, India. The new species, *Phanerotoma tibioglobuli* resembles superficially with *Phanerotoma australiensis* Ashmead in body colour, shape and colour of eyes, ocelli, fore wings, radius, distinct perpectal carina and antenna segmentation. It differs from the same in frons strigose, body strigose, first intercubitus as long as second abscissa of radius, second intercubitus interstitial, propodeum reticulately rugose, propleurum with posterior flange, first abdominal tergite with two longitudinal carinae, with V shaped transverse carinae and a small outgrowth present at the first abscissa of radius, slightly above the second abscissa. Mesothoracic legs tibia with globular structure to its mid outer surface.

Key words: *Phanerotoma tibioglobuli, Phanerotoma australiensis*, sp. nov., Braconid, Taxonomy, Bota, Ahmednagar.

I. INTRODUCTION

The braconid wasp *Phanerotoma* is a moderately diverse doryctine genus with 194 described and a large number of undescribed species (Marsh, 2002; Yu *et al*., 2005; Martínez *et al*., 2008, 2011; Penteado-Dias and Carvalho, 2008; Chavarria *et al.*, 2009; Centrella and Shaw, 2010; Shaikh and Chatterjee, 2020). Members of this group are mainly distributed in the Neotropical region, though 3 species were described from North America and a fourth one, *P. arabica*, was described from Saudi arabia. The genus is characterized by glabrous eyes, 23 segmented antennae, clypeus with three teeth, absence of vein 2-R1 of forewing, vein Culb of forewing which is more or less developed giving rise to a closed first subdiscoidal cell, distinct carapace with transverse sutures and third metasomal tergite without side teeth (van Achterberg, 1993).

Phanerotoma is a cosmopolitan genus containing parasitoid brachonids of Lepidoptera with 194 known species from almost all the zoogeographic regions (Zettel, 1990; Van Achterberg, 1990; Tobias, 2000; Yu *et al*., 2007; Shaikh 2019). The members of genus *Phanerotoma* Wesmael are solitary endoparasitic koinobionts that attack Lepidoptera and are primarily host of the family Pyralidae (van Achterberg, 1990). No specimens of *Phanerotoma tibioglobuli* have been identified earlier at Ahmednagar. All available information for this region only consists of scattered records of unidentified specimens assigned to *Phanerotoma tibioglobuli* from different talukas has been noted. Collection of the insects was conducted in the fields of taluka Bota village of Ahmednagar District allowed us to obtain a number of specimens of *Phanerotoma tibioglobuli*, all of which belong to non-described species.

II. MATERIAL AND METHODS

2.1. Study Area

Bota is a Village in Sangamner Taluka in Ahmednagar District of Maharashtra State, India. It belongs to Khandesh and Northern Maharashtra region. It belongs to Nashik Division. It is located 74 KM towards west from District headquarters Ahmednagar. 37 KM from Sangamner. 161 KM from State capital Mumbai Bota is surrounded by Sangamner Taluka towards North, Parner Taluka towards East, Akole Taluka towards North, Ambegaon Taluka towards west.

2.2. The Specimen

The specimens of braconid *Phanerotoma tibioglobuli* were collected from fields of Ahmednagar Bota, Maharashtra, India using light trap. The collected specimens were then preserved. The specimens were first pinned and placed in the insect box. They were then labelled and the slides were observed under binocular microscope. The characteristic features were then noted down and compared with previously identified insects of same genus. The collected specimens were hand drawn using Camera Lucida.

2.3. Morphological Study

The morphological studies were done to find out the similarities and differences between the most similar species of the same genus. The study was done from the collected specimens. The insects were first segregated family wise and then genus wise. The morphological features were noted and identification was done using taxonomic keys. Then mounting of body parts like antenna, wings, legs and ovipositor were done and the differences were noted.

III. RESULT AND DISCUSSION

The morphological study revealed the following features:

3.1. Female: Size 4.4 mm. Body is yellowish-brown; antenna yellowish-brown; mesoscutum, third abdominal tergite, basal region of hind tibia, tarsus, claws, tip of the mandible dark brown. Body divisions are head, thorax and abdomen (Fig. a).

3.1.1. Head: Head is cuboidal, 1.3 x as long as broad; vertex strigose, punctate, pubescent; interocellar distance 4.6 x as long as the ocellocular distance; ocellus 1.3 x as long as the interocellur distance; frons concave, obliquely striate, with a median carina; with two laterally rugoso reticulate and with marginal carinae; face 0.6 times as long as wide, medially elevated, transeversely strigose, punctate, pubescent; clypeus 2.2 x as broad as long, tridentate, one median and two lateral, punctate, pubescent; eye 1.4 x as long as wide; malar space 2 x the basal width of mandible striagose, pubescent; mandible gradually tapering towards the apex, bidentate, pubescent; temple 0.4 times the height of the eye, reticulately strigose, punctate, pubescent; occipital carina entire; antenna 2 + 21 segmented; scape 1.8 x as long as wide; pedicel 0.8 times as long as wide; first penultimate segment 4 x as long as wide; size of the flagellar segments goes on decreasing towards apex; terminal segment 2 x as long as wide (Fig. b).

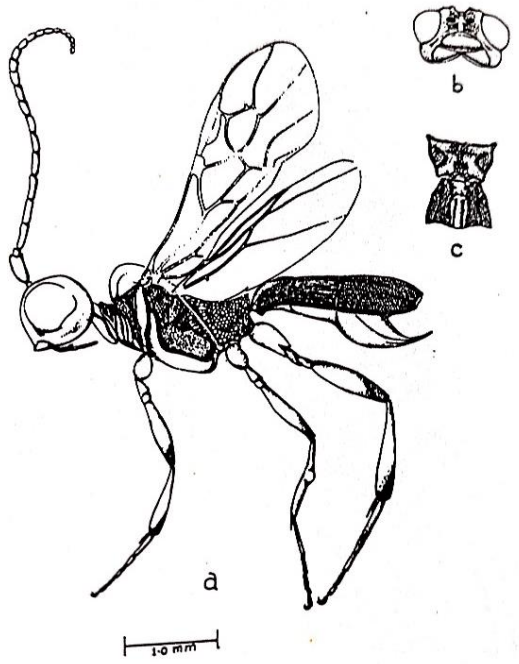

Fig.1: Showing female specimen

3.1.2. Thorax: Thorax is 1.6 x as long as wide; pronotum reticulately rugose, punctate, pubescent; notauli absent; scutellum finely strigose; punctate, pubescent lateral area crenulated; metanotum laterally carinated; propodeum (Fig. c) reticulately rugose, without areola; propodeal tubercles absent, densely punctate, pubescent; propleurum with posterior flange, shiny, reticulately rugose, pubescent; mesopleurum reticulately rugose, punctate, pubescent; prepectal carina distinct; mesopleural furrow weakly developed; mesopleural suture distinct, crenulated; metapleurum reticulately rugose, punctate, pubescent; juxtacoxal carina distinct.

3.1.2a. Fore Wing: Fore wing is 3.2 x as long as wide; stigma 3.5 x as long as wide; parastigma as long as wide; metacarpus 1.7 x as long as stigma; first abscissa of radius 0.5 times as long as width of stigma, 0.3 times as long as second abscissa; third abscissa 2.3 x as long as second abscissa; radial cell 2.7 x as long as wide; first intercubitus curved, as long as second abscissa of radius; second interstitial; medius 2 x as long as basal; submedius 2.1 x as long as medius; basal as long as first intercubitus; brachial cell rectangular, 4 x as long as wide; nervulus 0.5 times the width of stigma, reclivous, basad; radial cell 2.8 x as long as wide; a small outgrowth (nodule) at first abscissa of radius at 0.25 x.

3.1.2b. Hind Wing: Hind wing is 3.3 x as long as wide; subcostella 1.2 x as long as mediella; basella 0.7 times as long as mediella; radiella 1.4 x as long as mediella, medially slightly curved, upwardly interstitial; submediella 0.5 times as long as mediella; nervellus 0.2 times as long as basella, inclivious, distad.

3.1.2c. Hind Coxa: Hind coxa is 2.2 x as long as wide; trochanter 2 x as long as wide; trochantellus 1.6 x as long as wide; femur 4 x as long as wide, spindle shaped; tibia 1.2 x as long as femur, 3 x as wide apically as basally; tibial spur 0.4 times as long as basitarsus; basitarsus 6 x as long as wide; tarsus five segmented; claws simple; mid leg tibia 8.7 x as long as wide, medially globular.

3.1.3. Abdomen: Abdomen is 4 x as long as wide; abdominal tergite fused together to form carapace; two sutures distinct; first abdominal tergite 0.7 times as long as wide, with two longitudinal carinae; area between two carinae rugoso – reticulate, connected by inverted 'V' shaped transverse carina; lateral area strigosely rugose, punctate, pubescent; second tergite 0.5 times as long as wide, strigosely rugose medially, laterally rugoso-reticulate, punctate, pubescent; third tergite 0.9 times as long as wide, strongly rugoso-reticulate, strigose, apically punctate, pubescent; ovipositor as long as ovipositor sheath, pointed.

3.2. Male: Unknown.

3.3. Holotype: ♀: India: Western Maharashtra: Ahmednagar: Bota; 1. VIII. 2000, Light trap; A. A. Shaikh Coll. Antenna, wings and legs mounted on slides and labelled as above.

3.4. Paratypes: 10 ♀♀, data same as above.

The morphological studies revealed various marked characteristic features, which distinctly differentiated them from other species of the same genus. This study resulted in the discovery of a new species of braconid parasitoid, *Phanerotoma (Phanerotoma) tibioglobuli*.

The new species, *Phanerotoma tibioglobuli* superficially resembles with the nearctic species *Phanerotoma australiensis* Ashmead in the following characters: i) Body uniformly brownish-yellow, ii) eyes broadly oval, black, iii) ocelli black, iv) fore wings hyaline, submedius vein yellowish, v) first abscissa of radius short, vi) perpectal carina distinct and vii) antenna 2 + 21 segmented. However, it differs from the same having: i) frons strigose, with median carina, ii) body finely, reticulately strigose, iii) first intercubitus as long as second abscissa of radius, iv) second intercubitus interstitial, v) propodeum reticulately rugose, vi) propleurum with posterior flange, vii) first abdominal tergite with two longitudinal carinae, with V shaped transverse carinae and viii) a small outgrowth present at the first abscissa of radius, slightly above the second abscissa of radius at 0.25x. ix) Mesothoracic legs tibia with globular structure to its mid outer surface.

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