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FIRST HOST RECORD OF THE EULOPHID WASP *TETRASTICHUS BILGIRICUS* NARENDRAN (HYMENOPTERA: CHALCIDOIDEA) ALONG WITH THE FIRST DESCRIPTION OF A MALE FROM INDIA

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OPEN ACCESS

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Abstract: *Euthalia aconthea meridionalis* Fruhstorfer (Lepidoptera: Nymphalidae) is documented as the first host record for the eulophid wasp *Tetrastichus bilgircus* Narendran (Hymenoptera: Chalcidoidea) from Karnataka, India. The male of this species is recorded for the first time and described. Illustrations of both the female and male, and host details are given.

Keywords: Eulophid wasp, host record, Hymenoptera, Tetrastichinae, *Tetrastichus bilgircus*.

Abbreviations used: OOL - Ocellular distance; POL - Postocellar distance.

The genus *Tetrastichus* Haliday (Hymenoptera: Eulophidae: Tetrastichinae) is highly speciose containing 518 species worldwide (Noyes 2014). The species of this genus are often found associated with Lepidoptera, Diptera, Coleoptera and Hymenoptera. The main diagnostic characters of the genus *Tetrastichus* include a submarginal vein with one seta (rarely 2–4); a propodeum with a characteristic paraspiracular carina in the shape of an inverted 'Y' and a hind coxa with strong reticulations.

Tetrastichus bilgircus Narendran (2007) was described from females collected in Bilgiri Rangaswamy Temple Wildlife Sanctuary (Karnataka). It is recorded here for the first time from the pupae of *Euthalia aconthea*



DATA DEFICIENT	LEAST CONCERN	NEAR THREATENED	VULNERABLE	ENDANGERED	CRITICALLY ENDANGERED	EXTINCT IN THE WILD	EXTINCT
DD	LC	NT	VU	EN	CR	EW	EX

Tetrastichus bilgircus



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meridionalis Fruhstorfer (Lepidoptera: Nymphalidae). However, whether the present host association is a result of primary parasitism or secondary parasitism is still not clear. We provide here the first description of the male and a brief redescription of the female of *T. bilgircus* along with illustrations and host details.

MATERIAL AND METHODS

The wasps were collected from Bengaluru, Karanataka from parasitized pupae of *E. aconthea meridionalis* attached to a leaf of *Mangifera indica* L. (Image 10). Narendran (2007) was consulted for identification. A

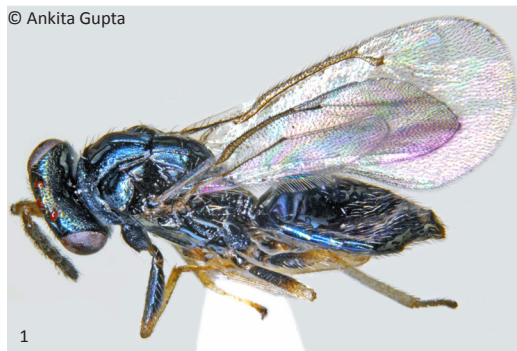
LEICA M 205A stereozoom microscope with a LEICA DC 420 inbuilt camera using automontage software (version 3.8) was used for imaging. All measurements are given in millimeters. The voucher specimens are deposited in the National Bureau of Agriculturally Important Insects, Bengaluru (NBAIL).

Tetrastichus bilgircus Narendran

(Images 1–9, 11–19)

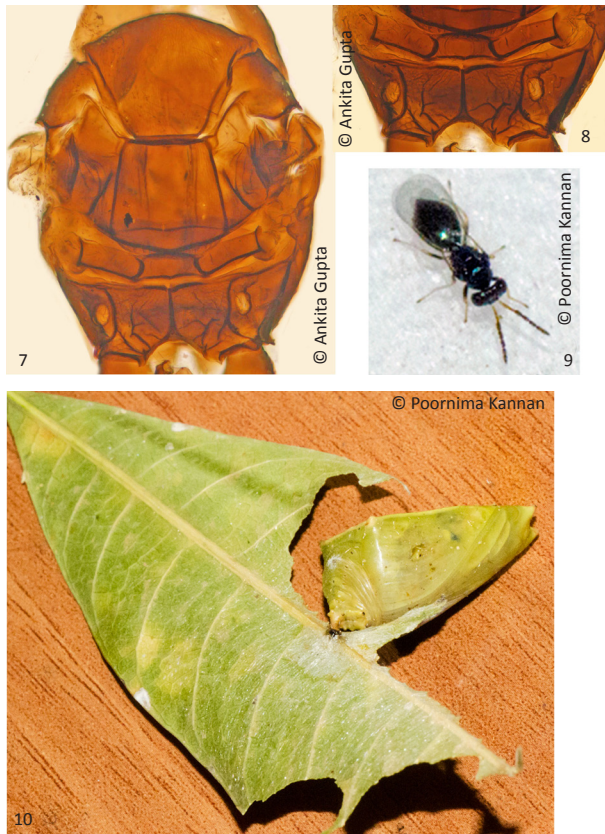
Material examined

NBAIL/Eul/Tetra/bilg/25114, 25.i.2014, 30 females,



Images 1–6. *Tetrastichus bilgircus* female

1 - Female, profile view; 2 - Head in frontal view; 3 - Antenna; 4 - Wings; 5 - Mesosoma; 6 - Propodeum with metasoma



Images 7–10. *Tetrastichus bilgiricus* female
7 - Mesosoma (KOH treated); 8 - Propodeum; 9- Habitus;
10 - Host-parasitised pupa of *Euthalia aconthea meridionalis*.

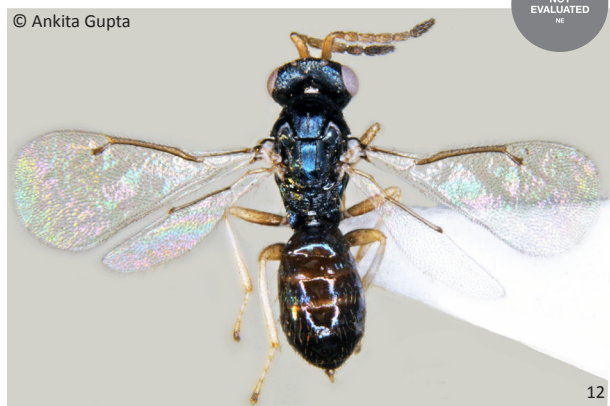
10 males, Bangalore, Karnataka, India; ex. pupa of *Euthalia aconthea meridionalis* Fruhstorfer on *Mangifera indica* L.; coll. Poornima Kannan.

Female

Body length 2.48–2.68 mm. Body black with metallic blue-green reflection (Image 1). Eyes brown. Ocelli red brown. Antenna dark brown with scape and pedicel paler (Image 3). Tegula dark brown. Wings hyaline, veins brown. Femora black with metallic shine, apices pale yellow; fore tibia and tarsi pale yellow, mid and hind tibiae and tarsi off white; pretarsi brown.

Head (Image 2): Head finely reticulate, 1.37× as wide as long in frontal view; POL 1.6× OOL; eyes sparsely setose, 1.90× as long as wide in frontal view, 1.74× as long as malar suture; malar suture straight. Antennal formula 11142, scape reaching level of vertex. Measurements- scape: pedicel: clava (length) = 0.26: 0.11: 0.20. Length: width funicular segments 1–4: F1 (0.16: 0.08); F2 (0.17: 0.08); F3 (0.16: 0.08); F4 (0.12: 0.07); clava (0.20: 0.07).

Mesosoma (Image 5): 1.15× as long as wide, 0.92× as long as metasoma, five adnotaular setae on each side



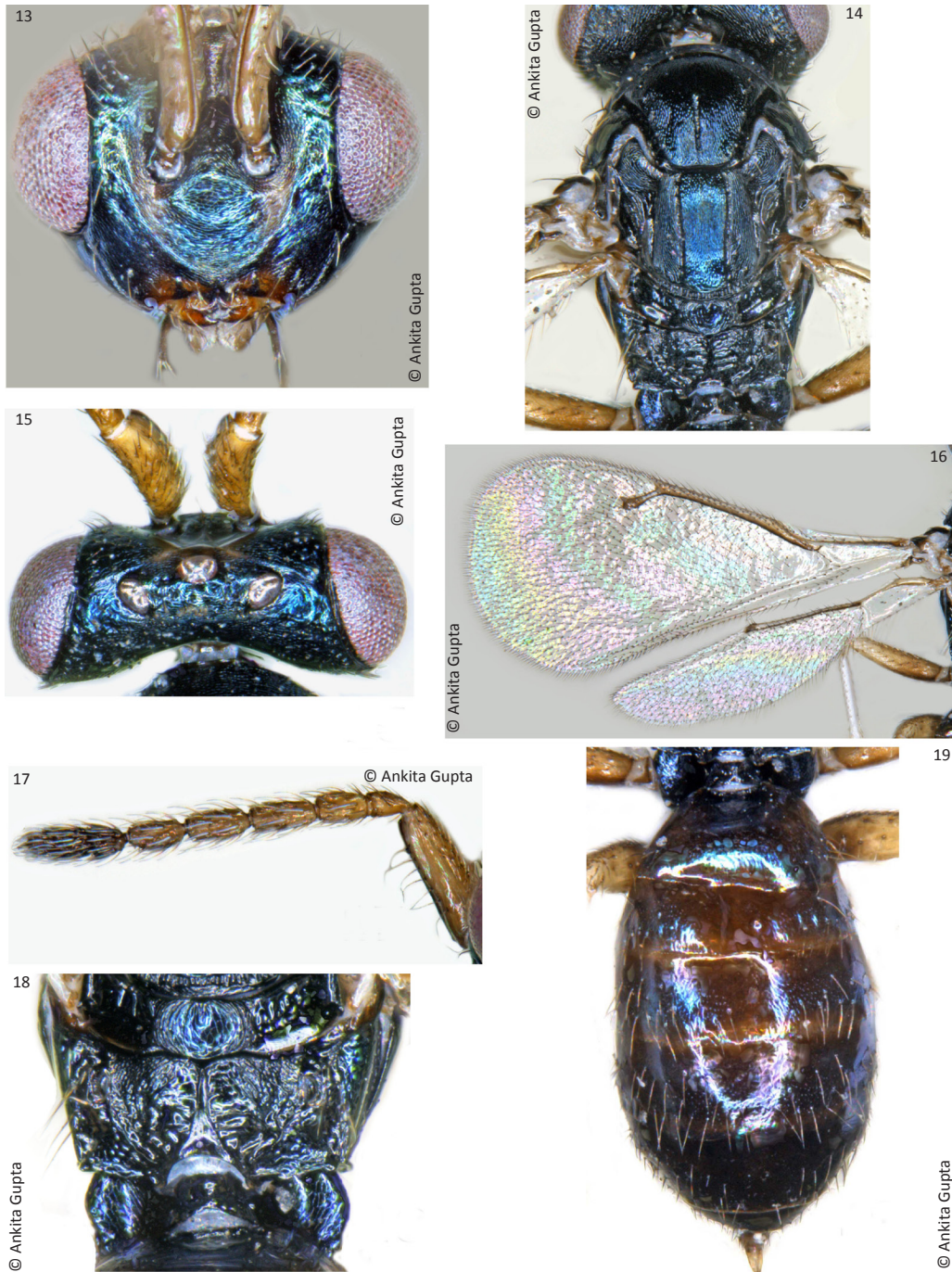
Images 11–12. *Tetrastichus bilgiricus* male
11 - profile view; 12 - dorsal view

of mesoscutum, medial line on mesoscutum indistinct anteriorly; scutellum 1.05× as wide as long, submedian grooves nearer to sublateral groove than to each other. Fore wing 2.12× as long as wide (Image 4); marginal vein 1.1× as long as costal cell, 3.71× as long as stigmal vein, speculum closed, line of setae extending from speculum above posterior edge of fore wing; submarginal vein with four setae; marginal fringe 0.27× as long as stigmal vein. Measurements- Mesosoma: metasoma (median length) = 1.11: 1.24; fore wing (length: width) = 2.18: 1.03; costal cell: marginal vein: stigmal vein = 0.55: 0.61: 0.17.

Metasoma (Image 6): Sessile, 1.29× as long as wide.

Male

Body length 2.39–2.49 mm. Body in profile and in dorsal view (Images 11, 12). Body black with metallic blue-green reflection; clypeal region with symmetrical patch of brown colour on either side; mandibles brown with apical margin; dark margin. Antenna (scape, anellus and funicular segments) pale yellow except dark brown clava (Image 17). Femora pale yellow except margins of



Images 13–19. *Tetrastichus bilgircicus* male

13 - Head in frontal view; 14 - Mesosoma; 15 - Vertex; 16 - Wings; 17 - Antenna; 18 - Propodeum; 19 - Metasoma

basal half and extreme base dark brown; fore tibia and tarsi pale yellow, mid and hind tibiae and tarsi white, pretarsi brown; tegula dark brown; coxae concolorous with mesosoma.

Head (Fig. 13): Head reticulate, 1.36× as wide as long in frontal view; POL 2.0× OOL; eyes sparsely setose, 2.08× as long as wide in frontal view, 1.76× as long as malar

suture. Antennal formula 11142, scape reaching vertex; scape with a row of seven setae above ventral edge, dorsally with scattered setae (Fig. 17). Measurements (length: width)—scape (0.31: 0.09); pedicel (0.10: 0.05); anellus (0.01: 0.03); F1 (0.09: 0.06); F2 (0.13: 0.06); F3 (0.13: 0.06); F4 (0.11: 0.06) and clava (0.23: 0.07).

Mesosoma (Fig. 14): 1.17× as long as wide, five

adnotaular setae on each side, medial line indistinct anteriorly; scutellum 1.04× as wide as long, submedian groove nearer to sublateral groove than to each other. Fore wing 2.04× as long as wide (Image 16); marginal vein 1.02× as long as costal cell, 3.2× as long as stigmal vein; speculum closed, with a line of setae extending from speculum above posterior edge of fore wing; submarginal vein with 3–4 setae; marginal fringe 0.33× as long as stigmal vein. Mid tibial spur 0.97× as long as midmetatarsus. Measurements-Mesosoma: metasoma (median length) = 1.10: 0.91; costal cell: marginal vein: stigmal vein = 0.47: 0.48: 0.15.

Metasoma (Fig. 19): Sessile, dark brown with metallic reflection more pronounced in the posterior half, 1.21× as long as mesosoma and 1.88× as long as wide.

Host

The only parasitic wasp reported so far from *Euthalia phemius* Doubleday is *Brachymeria lasus* Walker (Noyes 2014). The present discovery is thus the first record of

the parasitic wasp, *T. bilgircicus*, from *Euthalia aconthea meridionalis*.

DISCUSSION

This species differs from other Oriental species in having the submarginal vein with four setae; antenna with one anellus; pedicel shorter than F1; costal cell a little shorter than marginal vein in female and subequal in male; mid lobe of the mesoscutum with incomplete median longitudinal groove; and metasoma shorter than mesosoma or almost subequal (Narendran 2007).

REFERENCES

- Narendran, T.C. (2007). Indian chalcidoid parasitoids of the Tetrastichinae (Hymenoptera: Eulophidae). *Records of the Zoological Survey of India*, Occasional Paper No. 272: vi+1–385, plates I–IV.
- Noyes, J.S. (2014). *Universal Chalcidoidea Database*. World Wide Web electronic publication. <http://www.nhm.ac.uk/chalcidoids>. (accessed, 3rd September 2014).

