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A new species of *Uniclypea* Bouček, 1976 (Hymenoptera: Pteromalidae) parasitic on *Apoderus tranquebaricus* Fabricius (Coleoptera: Attelabidae) from India with notes on biology

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Abstract One new species of parasitic wasp, *Uniclypea similis* n. sp. (Hymenoptera: Pteromalidae), reared from the leaf knots constructed by *Apoderus tranquebaricus* Fabricius (Coleoptera: Attelabidae) on the host plant *Grewia abutilifolia* Vent. ex Juss. is described and illustrated. The characteristic features of the new species are: post-marginal vein $2.3\times$ stigmal vein, metasoma length $4.3\times$ its width and costal cell $1.47\times$ marginal vein. To my knowledge, the male of a species of *Uniclypea* is described and illustrated for the first time.

Introduction

The genus *Uniclypea* Bouček, 1976 was erected in 1976 with the type-species *U. conica* Bouček, 1976. The Oriental species of *Uniclypea* were reared from *Deporaus* (Arodepus) *notatus* Voss on leaves of

Hopoea odorata Roxb. and *Apoderus javanicus* Jekel on the gambir, *Uncaria gambir* (W. Hunter) Roxb. (see Bouček, 1988). This genus is hitherto known to comprise four species across the world: *Uniclypea conica* Bouček, 1976 (from South Africa), *U. deporai* Bouček, 1988 (from Vietnam), *U. kumarani* Sureshan & Narendran, 1995 (from India), and *U. elongata* Sureshan & Narendran, 1997 (from India) (Noyes, 2017). The members of this genus are known to parasitise beetles of the family Attelabidae Billberg.

Apoderus tranquebaricus Fabricius (Coleoptera: Attelabidae), a minor pest, is distributed in India. Being polyphagous, many host plants have been reported: *Terminalia catappa* L., *Terminalia tomentosa* Wight & Arn., *T. arjuna* (Roxb. ex DC.) Wight & Arn., *Syzygium cumini* (L.), *Aporosa lindliana* (Wight) Baill., *Dimocarpus longan* Lour., *Lagerstroemia* sp., *Grewia* sp., *Mammea suriga* (Buch.-Ham. ex Roxb.) Kosterm., *Mangifera indica* L., and *Ancardium occidentale* L. (see Mamlayya et al., 2011).

Materials and methods

In this study leaf rolls of *Grewia abutilifolia* were field-collected from Karnataka, India. Unparasitised hosts were reared to adulthood for host confirmation. The leaf rolls were kept in the laboratory at $25 \pm 2^\circ\text{C}$ and $50 \pm 10\%$ relative humidity for observation. Identification was undertaken consulting Bouček

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(1976, 1988), Sureshan & Narendran (1995, 1997) and Sureshan (2003). Most of the images of the hosts were taken with Nikon D7000 with Nikkor 105 mm macro lens. The wasp images were taken using Leica M 205 A stereozoom microscope with Leica DC 420 inbuilt camera using automontage software (version 3.8). All specimens of the present study are housed in the Indian Council of Agricultural Research - National Bureau of Agricultural Insect Resources (ICAR-NBAIR), Bangalore, India. The terminology and abbreviations used for wasps are as follows: OOL, ocular-ocellar line; POL, post-ocellar line; OD, median ocellus diameter; F1-F5, funicular segments 1–5; T1-T4, metasomal/abdominal tergites; fore wing veins: CC, costal cell, SMV, submarginal vein, MV, marginal vein, STV, stigmal vein; PMV, post marginal vein. All measurements are taken uniformly in millimetres.

Order Hymenoptera Linnaeus, 1758
Family Pteromalidae Dalman, 1820
Genus *Uniclypea* Bouček, 1976

***Uniclypea similis* n. sp.**

Type-host: Leaf rolls of *Apoderus tranquebaricus* Fabricius (Coleoptera: Attelabidae) on the host plant *Grewia abutilifolia* Vent. ex Juss.

Type-locality: Karnataka, Nandi hills (13.38°N, 77.70°E), India.

Type-material: Holotype, one female on card, 28.ix.2015, coll. NBAIR. Deposited in the ICAR-NBAIR, Bangalore under accession number NBAIR/Ptero/Uni/28916-H. Paratypes, four males on card, with same data as for the holotype (NBAIR/Ptero/Uni/28916-P).

ZooBank registration: To comply with the regulations set out in article 8.5 of the amended 2012 version of the *International Code of Zoological Nomenclature* (ICZN, 2012), details of the new species have been submitted to ZooBank. The Life Science Identifier (LSID) for *Uniclypea similis* n. sp. is urn:lsid:zoobank.org:act:17A3C603-4F14-4763-8F91-3FF1E0898F71.

Etymology: The specific name '*similis*' is given based on its deceptive similarity with an Indian species *U. elongata* in general appearance.

Description (Fig. 2A–H)

Female [Measurements based on the holotype.] Body length 4.61 mm (Fig. 1A). Colour (Fig. 1A–G). Head and mesosoma black, ocelli brown. Antenna with scape yellowish; pedicel, anelli and flagellum yellowish-brown; clava dark brown laterally and at apex. Gaster black except T2 and T3, apex of T4 and base of T6 with metallic green shine; coxa concolourous with mesosoma except pale apex (more conspicuous in the hind coxa) remainder of legs yellowish with tips of tarsi brown. Tegulae yellowish. Wings hyaline with veins and pilosity light brown.

Head (Fig. 2A) reticulate; ocellar triangle reticulate, without distinct median carina in frontal view but with longitudinal median depression to rest antenna. Vertex with occipital carina. Antenna inserted slightly below middle of face. Scrobal area reticulate. Torulus placed above level of ventral margin of eye. Head in lateral view with malar space about $0.21 \times$ eye height;

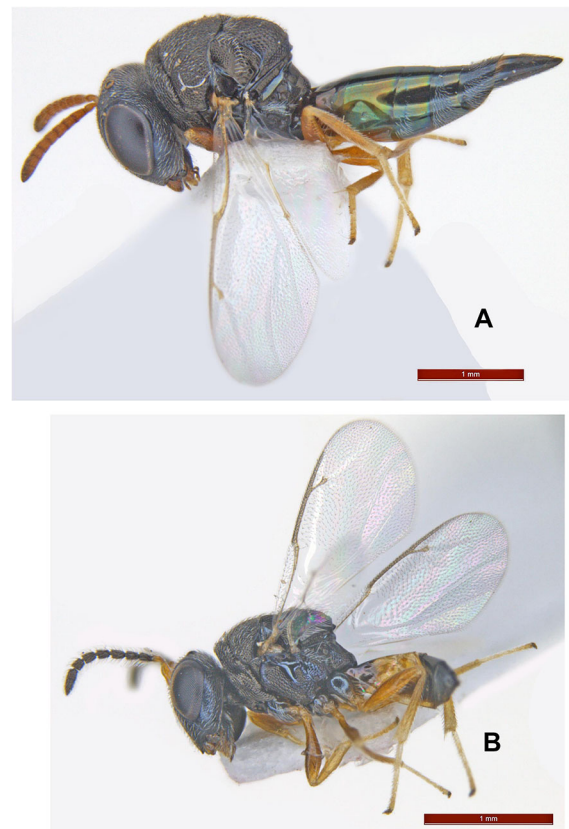


Fig. 1 *Uniclypea similis* n. sp. A, Female in habitus; B, Male in habitus

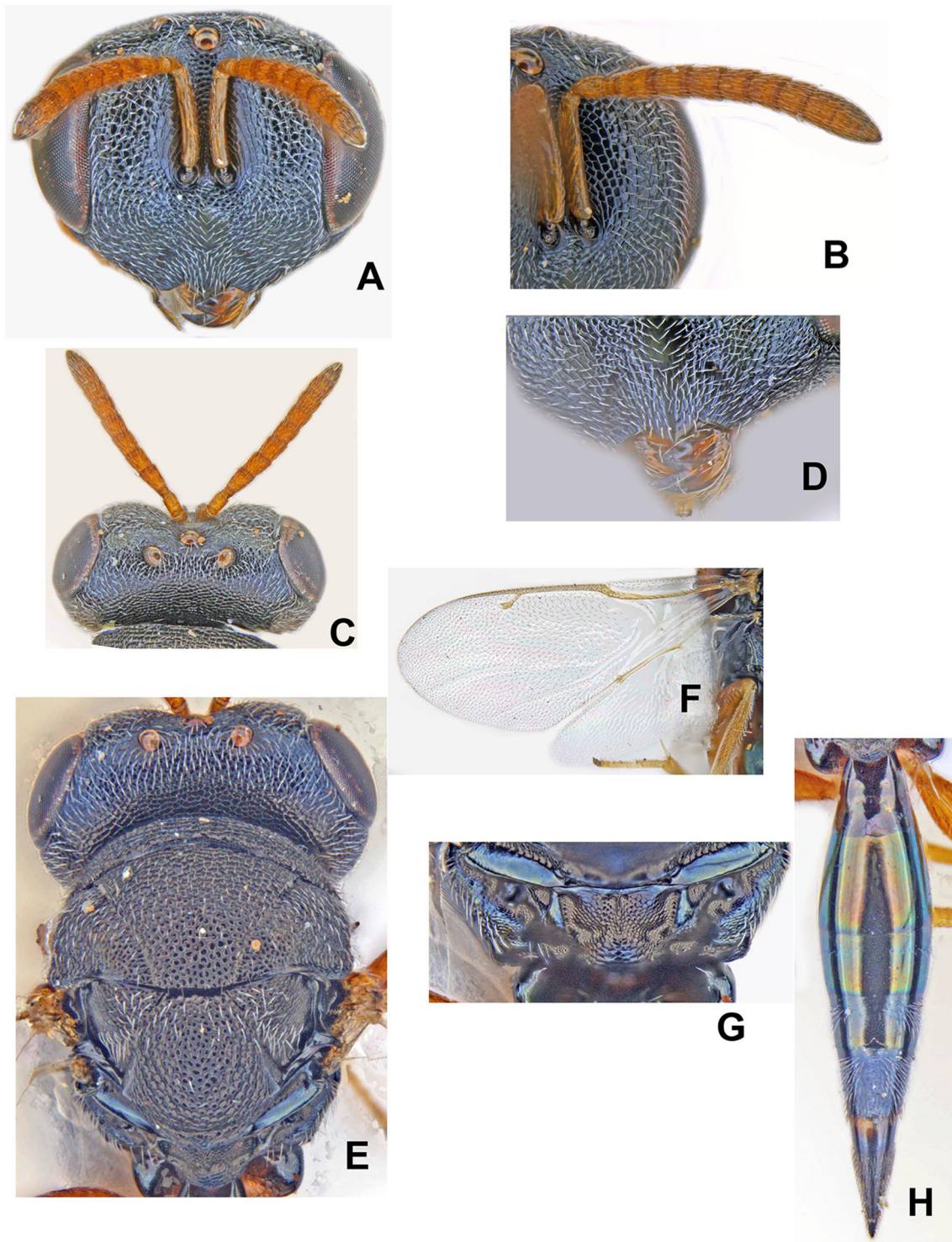


Fig. 2 *Uniclypea similis* n. sp. Female. A, Head in frontal view; B, Antenna; C, Vertex in dorsal view; D, Clypeal tooth; E, Mesosoma; F, Fore wing; G, Propodeum; H, Metasoma

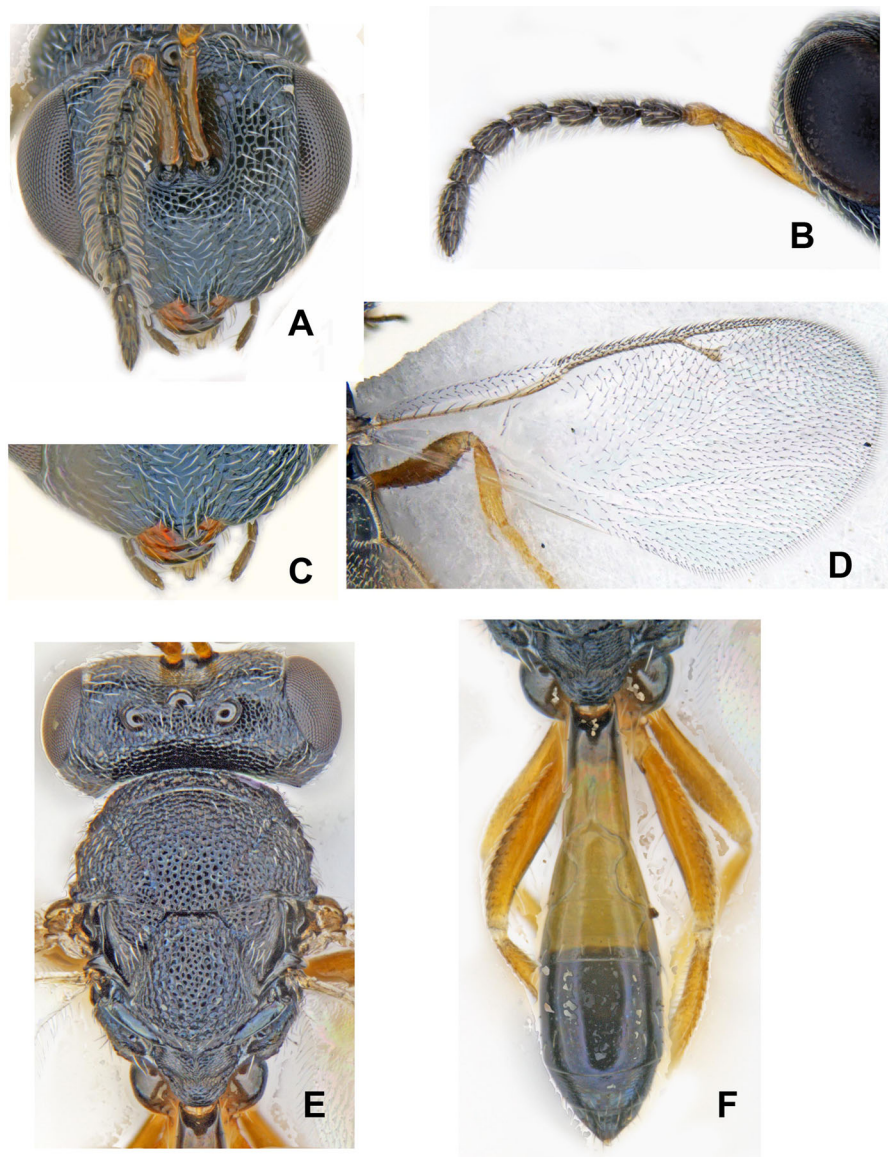


Fig. 3 *Uniclepea similis* n. sp. Male. A, Head in frontal view; B, Antenna; C, Clypeal tooth; D, Fore wing; E, Mesosoma; F, Metasoma

malar sulcus present. Clypeal longitudinally striated, median tooth strong and broad. Mandibles with 2 prominent sharp teeth and one truncation. Antenna (Fig. 2A–C) with 6 funicular segments and 2 anelli.

Relative measurements. Head $2.16\times$ wider than high ($1.49:0.69$); eye height $4.64\times$ malar space ($0.79:0.17$). In dorsal view, eye height $2.36\times$ temple length ($0.52:0.22$). In lateral view, malar space $0.22\times$ eye height. Antenna short, $0.36\times$ head width ($0.54:1.50$); inserted well above lower margin of eye. F1–F3 slightly longer than wide. Scape not reaching front

ocellus. Pedicel $1.68\times$ longer than wide. Scape length $0.56\times$ eye height ($0.43:0.76$). Pedicel $0.94\times$ F1; clava $2.07\times$ longer than wide. Clava $0.84\times$ as long as three preceding segments combined ($0.27:0.32$). POL:OO-L:OD ($0.29:0.24:0.10$); POL $1.21\times$ OOL. Measurements (ratio of length/width of each funicular segment): F1, 1.45; F2, 1.09; F3, 1.03; F4, 0.95; F5, 0.93; F6, 0.78; clava, 2.07.

Mesosoma (Fig. 2E) convex, with complete notauli, raised reticulate (except propodeum finely reticulate). Pronotum collar not carinate. Axilla

reticulate in apical half and basal half with striations; frenum present. Propodeum finely reticulate with median carina in basal one third and prominent plica. Median area raised. Spiracles elongate and near the hind margin of metanotum. Mesosoma $1.22\times$ as long as wide and $0.67\times$ as long as metasoma. Mesoscutum width $2.1\times$ length. Scutellum length equal to width. Propodeum width $4.3\times$ length. Fore wing (Fig. 2F) length $2.54\times$ width; hyaline, upper half of costal cell (CC) with setae, basal cell bare, basal line with 4 hairs; speculum open below. Marginal vein $1.6\times$ post marginal vein; post marginal vein $2.3\times$ stigmal vein; costal cell $1.47\times$ marginal vein.

Metasoma (Fig. 2H) sessile, smooth and shiny; $1.17\times$ longer than head and mesosoma combined; acute apically. T3 largest. Metasoma length $4.3\times$ its width. Ovipositor not protruding.

Male [Measurements based on 4 paratypes.] Body 2.44–1.58 mm long (Fig. 1B), black except scape and pedicel, a little more than apical half of T1 and T2 (except apical ring) yellow, remaining metasoma black with metallic shine. Antenna with 6 funicle segments, scape with distinct protrusion at sub-apical region on one side, other lateral side straight. Scape $0.65\times$ eye height, not touching median ocellus (just reaching below the median ocellus). Clypeal longitudinally striated, median tooth strong and broad. Head width $0.68\times$ antenna length (Fig. 3A); $0.48\times$ shorter than body. Occipital carina distinct. POL $1.51\times$ OOL. Metasoma $0.88\text{--}0.91\times$ mesosoma in lateral view. Marginal vein $1.4\times$ post marginal vein; post marginal vein $2.0\times$ stigmal vein and costal cell $1.47\times$ marginal vein.

Biology. Reared from the leaf knots on the host plant *Grewia abutilifolia* Vent. ex Juss. (Fig. 4A) constructed by *Apoderus tranquebaricus* Fabricius (Coleoptera: Attelabidae) (Fig. 4B).

Remarks

The original descriptions of *U. conica* Bouček, 1976, *U. deporai* Bouček, 1988, *U. kumarani* Sureshan & Narendran, 1995 and *U. elongata* Sureshan & Narendran, 1997 were consulted for species comparisons. *Uniclypea similis* n. sp. closely resembles the Indian

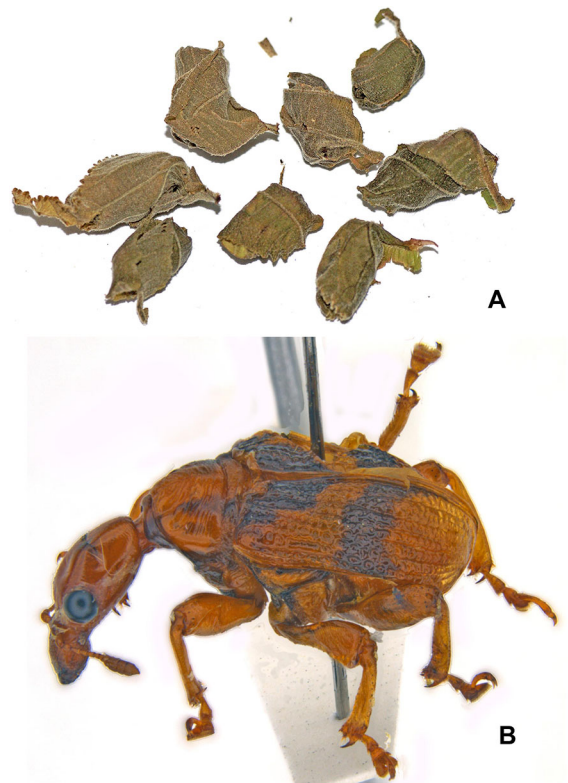


Fig. 4 Host insect damage symptoms and habitus view. A, Leaf knots on the host plant *Grewia abutilifolia* Vent. ex Juss.; B, *Apoderus tranquebaricus* Fabricius (Coleoptera: Attelabidae)

species *U. elongata* but differs in (i) larger body size 4.61 mm (vs 3.5 mm); (ii) propodeum width $4.3\times$ length; median carina not distinct in basal one third and median area raised (vs width $3.3\times$ length; median carina distinct throughout and median area depressed).

Uniclypea similis n. sp. is unique and different from the remaining species of the genus (based on comparison with original descriptions) in the following combination of characters: (i) gaster black with metallic green shine (vs bicoloured, with yellow transverse regions alternating with brown/black in *U. conica*); (ii) post-marginal vein $2.3\times$ stigmal vein (vs $1.9\times$ in *U. conica*); (iii) metasoma length $4.3\times$ its width (vs $2.8\times$ width in *U. kumarani*); (iv) costal cell $1.47\times$ marginal vein (vs $1.9\times$ in *U. deporai*).

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Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

Ethical approval All applicable institutional, national and international guidelines for the care and use of animals were followed.

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