

TWO NEW SPECIES OF TORYMIDAE (HYMENOPTERA: CHALCIDOIDEA) FROM INDIA

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Abstract

Two new species of Torymidae namely *Torymus sharmai* and *Torymoides periyarensis* are described from India.

Keywords

Hymenoptera, Torymidae, Torymus sharmai sp. nov., Torymoides periyarensis sp. nov., new species

Abbreviations

BMNH - The Natural History Museum, London, U.K.

MV - Marginal vein

OD - Ocellar diameter

POL - Postocellar distance

STV - Stigmal vein

ZSIC - Zoological Survey of India, Calicut (Kozhikode)

F1-F6 - Funicular segments 1 to 6

OOL - Ocellocular distance

PMV - Postmarginal vein

SMV - Submarginal vein

T1 - First gastral tergite

Introduction

In continuation of the studies on Torymidae of Indian subcontinent by Narendran (1994), two new species are described under the family from India, one each under the genus *Torymus* Dalman and *Torymoides* Walker. Graham and Gijswijt (1998) revised the European species of *Torymus* and synonymised *Diomorus* Walker with *Torymus*. In the Oriental Region, *Torymus* is represented by nine species, viz., *T. cupreus* (Spinola) (= *Diomorus cupreus* (Spinola)), *T. indicus* (Ahmad) (= *Diomorus orientalis* Masi), *T. calcaratus* (Nees) (= *Diomorus calcaratus* (Nees)), *T. aiolomorphi* (Kamijo) (= *Diomorus aiolomorphi* Kamijo), *T. orissaensis* (Mani), *T. chaubattiensis* Bhatnagar, *T. nepalensis* Narendran, and *T. ceylonicus* (Motschulsky) (Grissell, 1995; Graham & Gijswijt, 1998). Here, one new species is described under *Torymus* from India.

Torymoides Walker is represented by seven species in the Oriental Region, viz., *T. anamalaianus* (Mani & Kaul), *T. kiesenwetteri* (Mayr), *T. amabilis* Walker, *T. keralensis* Narendran, *T. sureshani* Narendran, *T. affinis* (Masi) and *T. ashmeadi* (Crawford) (Grissell, 1995). One new species is

described here under the genus from India. Morphological terminology used in this paper follows that of Graham & Gijswijt (1998).

Torymus sharmai sp. nov.

(Figs. 1-6)

Material examined

Holotype: Female, 20.iii.1995, Eravikulam National Park, Kerala, India, coll. R.M. Sharma (ZSIC).

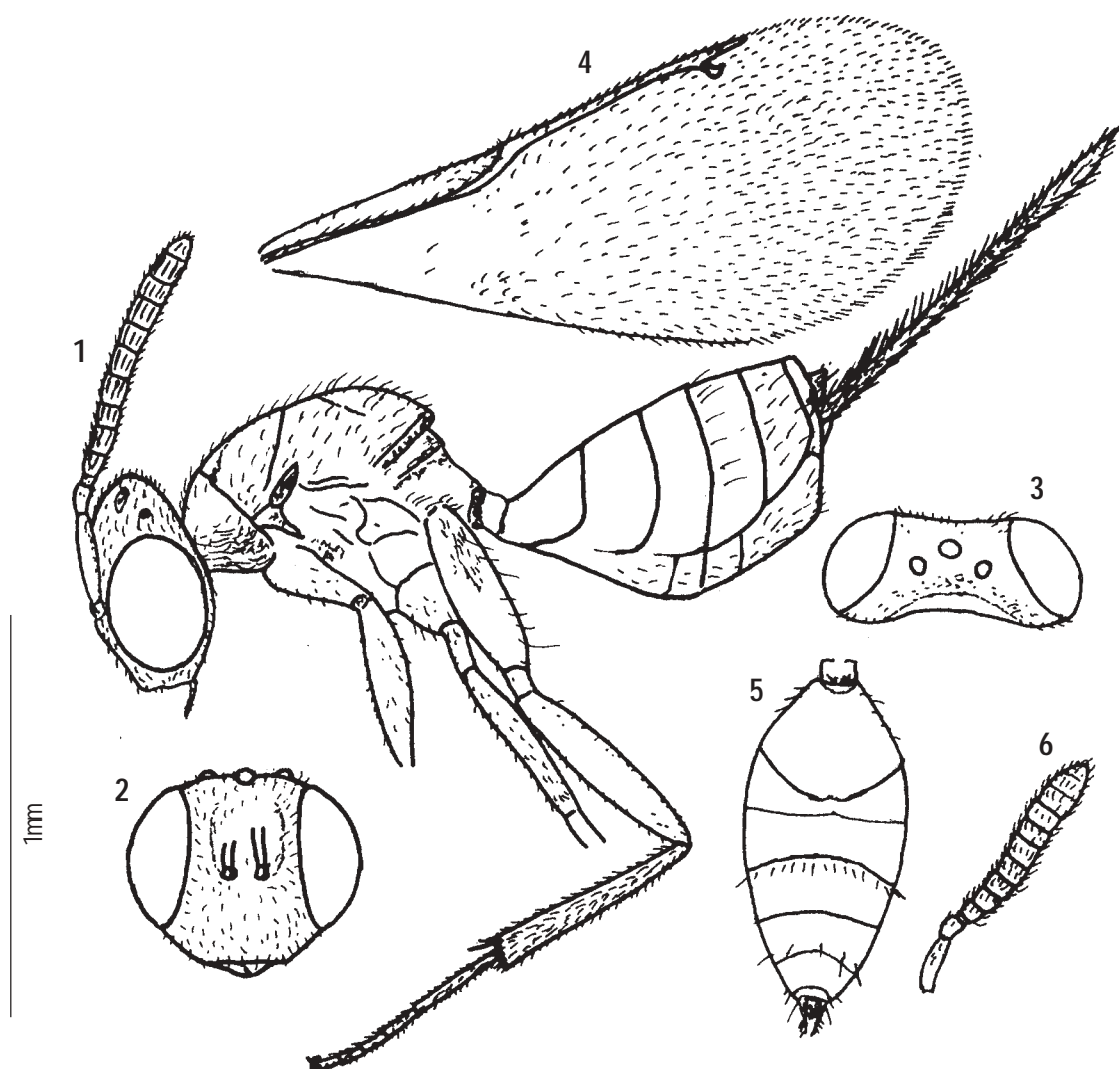
Paratype: One male 20.iii.1995, Eravikulam National Park, Kerala, India, coll. R.M. Sharma (ZSIC).

Etymology

Named in honour of Dr. R.M. Sharma who reared the specimen.

Diagnostic features

Female: Length 1.8mm (ovipositor 1mm). Head and mesosoma metallic-green with bronzy reflection, bluish on dorsal part of mesosoma; gaster dorsally dark metallic-blue, with brown



Figures 1 - 6. *Torymus sharmai* sp. nov. (female)

1 - body in profile; 2 - head in front view; 3 - head (dorsal view); 4 - forewing; 5 - gaster (dorsal view); 6 - male antenna

medially and at tip, laterally yellowish-brown in lower half and dark brown in upper half; ovipositor sheaths dark brown. Antenna with scape pedicel and anelli testaceous, remainder brown. Legs uniformly reddish-brown with tips of tarsi brown. Tegulae testaceous; wings hyaline, veins pale brown.

Head: (Figs. 1,2,3). In dorsal view width 2.1x length; temple length 0.22x eye length; POL 2.5x OOL; OOL = OD; lateral ocellus separated by its major diameter from eye. In front view head width 1.2x height; inner orbits almost parallel; genae straight; malar space 0.3x eye length; malar grooves distinct; eye length 1.4x width (in profile). In lower face and genae head feebly rugulose reticulate; upper face and vertex very closely reticulate; pubescence moderately dense. Antenna (Fig. 1) inserted a little below middle of face; scape just reaching median ocellus, 0.6x

as long as eye; pedicellus plus flagellum length 1.3x head width; pedicellus twice as long as wide; anellus one-third of pedicellus; all funicular segments longer than wide, very slightly widening towards the tip; clava almost as long as three preceding segments combined.

Mesosoma: (Fig. 1). Rather strongly convex; dorsum moderately shiny, rather densely hairy but pilosity short except on scutellum larger; piliferous punctures very small, surface finely but rather irregularly engraved reticulate. Pronotal collar rounded anteriorly. Mesoscutum width 1.6x length. Scutellum length 1.3x width, no frenal groove, frenal area almost shiny, apex of scutellum rather protruding due to propodeum sloping at almost 60° angle; hind margin of scutellum carinate and separated by a narrow groove. Dorsellum shiny. Propodeum shiny with a row

of short fine rugae in anterior margin, which is interrupted in the middle; no median carina and plicae; callus with a few scattered hairs. Prepectus and mesepisternum feebly reticulate; mesepimeron large, shiny. Hind coxae stout, length 2.5x width, almost shiny, dorsally in its distal two-thirds with a few scattered hairs; hind femora slender; hind tibia with two spurs, length of long spur 1.1x width of tibial apex. Forewing (Fig. 4) length 2.6x width; costal cell hairy only at distal end; basal cell almost bare except for one or two hairs on the basal hair line; speculum open below. Relative lengths of SMV, MV, PMV, and STV as 26.5, 21, 6.5 and 2.5.

Gaster: (Figs. 1, 5). With a very short petiole; gaster little longer than mesosoma (1.2x); exerted part of ovipositor 1.13x as long as gaster, ovipositor index 1.7; hypopygium reaching beyond $\frac{3}{4}$ of gaster; pilosity on ovipositor sheath moderately long.

Male: Length 1.3mm. Differs from female in colour which is dark bluish-green, almost black on head and mesosoma and dark

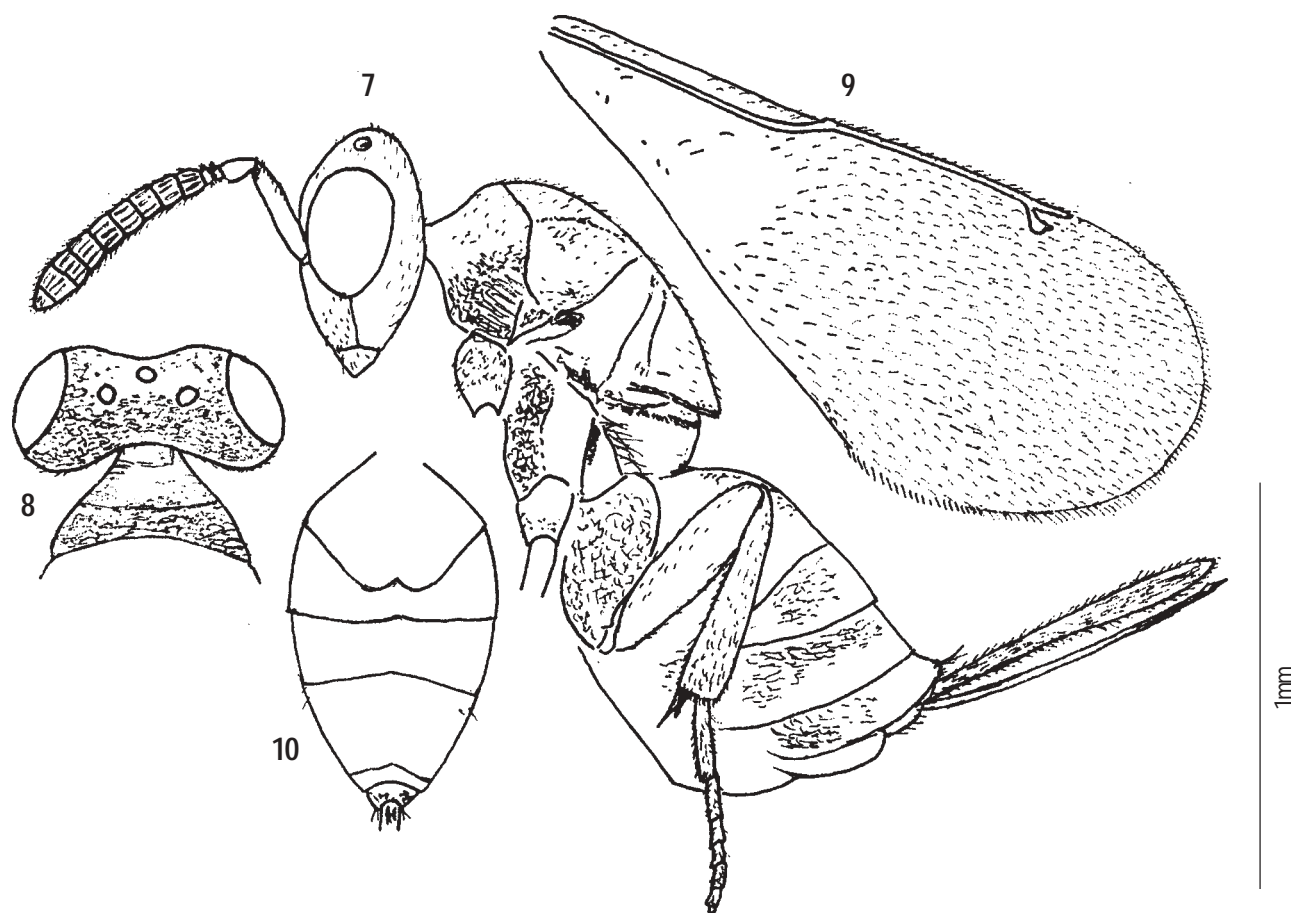
brown on gaster, with only slight metallic reflection. Antenna (Fig. 6) blackish-brown; legs dark brown; scape not reaching median ocellus; anelli short; all funicular segments transverse with curved black hairs and gaster shorter and compressed.

Biology

Reared from galls of *Strobilanthus sessilis* (Nees) (Acanthaceae) caused by an unnamed Cecidomyiid (Diptera), probably parasitic on it.

Remarks

In having an elongate metacoxa, scutellar frenum not delimited by an impressed line and devoid of setae, this species resembles the palaearctic *T. azureus* Boheman but differs from it in having moderately sharp occipital carina, narrow head in dorsal view (width 2.1x length), narrow temple, metacoxa being 2.8x as long as wide, and fore femur being 4.9x as long as wide (in *azureus* occipital carina weak, head thicker in dorsal view (width 1.8x length), temple wider, metacoxa longer (length 3.7x width) and



Figures 7 - 10. *Torymoides periyarensis* sp. nov. (female)
7 - body in profile; 8 - head and pronotum (dorsal view); 9 - forewing; 10 - gaster (dorsal view)

fore femur 3.1-3.9x as long as wide). It also resembles the Palaearctic species *T. argei* Boucek, in general morphology, but differs in having a longer gaster and differences in antenna, different colour of legs and its smaller size.

***Torymoides periyarensis* sp. nov.**

(Figs. 7-10)

Material examined

Holotype: Female, 7.xi.1996, Periyar Tiger Reserve (Thannikudy), Kerala, India, coll. P.M. Sureshan (ZSIC).

Paratype: One female, 7.xi.1996, Periyar Tiger Reserve (Thannikudy), Kerala, India, coll. P.M. Sureshan (ZSIC).

Etymology

Named after the type locality.

Diagnostic features

Female: Length 1.5-1.8mm (ovipositor 0.5-0.7mm); (Holotype 1.8mm, ovipositor 0.7mm). Body metallic bluish-green with bronzy reflection; gaster bluish-green, brown partly on dorsal and ventral sides; ovipositor sheaths blackish-brown; ovipositor reddish-brown. Antennae blackish-brown; scape with slight bluish reflection. All coxae and hind femora (except distal tip) concolorous with mesosoma, distal tip of hind femora brown; remainder of legs yellow, except partly brown tips of tarsi and mid femora. Wings hyaline; tegulae and veins brown.

Head: (Figs. 7, 8). Slightly wider than mesosoma, finely rugulose reticulate and striate with small punctures on lower face; occipital carina weak; genae finely reticulate. In dorsal view head width 2x length and in front view head width 1.2x height; POL 1.7x OOL; temple 0.4x eye length; malar space length 0.5x eye length; malar grooves distinct; anterior margin of clypeus slightly produced, straight; eyes separated 1.3x their length; eye length 1.3x width (in profile). Antenna (Fig. 7) inserted below middle of face, just above lower margin of eye; scape not reaching front ocellus, length 0.83x eye length; pedicellus plus flagellum length a little more than head width; pedicellus length twice width; anelli longer, both together 0.8x Fl; F1 and F2 quadrate; F3-F6 transverse; flagellum gradually widening towards tip; clava almost as long as three preceding segments combined.

Mesosoma: (Fig. 7). Weakly rugulose and with scattered punctures; pubescence small. Pronotum 1.8x as broad as long, collar rounded anteriorly. Mesoscutum width 1.5x length; notauli groove-like, shallow. Scutellum length 1.12x width, slightly overlapping metanotum; frenum not separated. Propodeum shiny, with a row of small deep punctures on the anterior margin between spiracles; callus with a few scattered hairs. Prepectus and mesepisternum weakly rugulose. Mesepimeron and metapleuron smooth. Fore and hind coxae finely rugulose laterally; hind femora with a very small sub-apical tooth.

Forewing (Fig. 9) length 2.2x width. Relative lengths of SMV, MV, PMV and STV as 26, 21, 4 and 2.5; costal cell with a row of hairs, incomplete in the middle in addition to a few more at tip; basal cell bare.

Gaster: (Figs. 7, 10). As long as mesosoma; exerted part of ovipositor a little shorter than gaster (28:32); T1 medially produced, hind margin deeply incised; tergites very finely aciculate.

Male: Unknown.

Remarks

This species closely resembles *T. anamalaianus* Mani & Kaul in general morphology but differs from it in having antenna with two longer anelli (length of both together 0.8x Fl); clava almost as long as three preceding segments combined and flagellum more widened towards tip; exerted part of ovipositor little shorter than length of gaster; gaster with T3 distinctly shorter than T4 in dorsal view; mesosoma longer, length 1.6x width and cheeks broad, width of gena 0.4x maximum diameter of eye (in profile). (in *anamalaianus*, antennae slender, flagellum less widening towards tip, anelli short and transverse (length of both together less than half of Fl) and as long as 2.5 preceding segments combined; exerted part of ovipositor as long as gaster, T3 almost equal to T4 in dorsal view; mesosoma shorter, length 1.4x width and cheeks narrow, width of gena 0.2x maximum diameter of eye (in profile)). It also resembles *T. sureshani* Narendran in the nature of antenna and general colour, but in the latter exerted part of ovipositor distinctly longer than gaster (1.38x).

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References

- Graham, M.W.R. de Ve and M.J. Gijswijt (1998). Revision of the European species of *Torymus* Dalman (S. lat) (Hymenoptera: Torymidae). *Zoologische Verhandelingen, Leiden* 317: 1-202.
 Grissell, E.E. (1995). Toryminae (Hymenoptera: Chalcidoidea: Torymidae) A redefinition, generic classification and annotated world catalogue of species. *Memoirs on Entomology International* 2: 470pp.
 Narendran, T.C. (1994). Torymidae and Eurytomidae of Indian subcontinent. Zoological Monograph, University of Calicut, 500pp.