



## A NEW SPECIES OF *TORYMUS* DALMAN (HYMENOPTERA: TORYMIDAE) FROM INDIA WITH A CHECK LIST OF *TORYMUS* SPECIES OF INDIA AND ADJACENT COUNTRIES

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The genus *Torymus* Dalman is represented by 10 species in the Indian subcontinent which include India, Sri Lanka, Nepal, Bhutan, Bangladesh, Myanmar and Pakistan. Mani (1989), Narendran (1994), Sureshan and Narendran (2002) and Narendran *et al.* (2005) contributed to the study of Torymidae of this region. Narendran and Kumar (2005) compared *Torymus indicus* with *Torymus kovaci* Narendran & Girish Kumar from Malaysia. Grissell (1994) included Indian species also in his book on world Torymidae. Graham and Gignavijt (1998) revised the taxonomy of European species of *Torymus*. In this paper we describe another new species of *Torymus* from Kashmir (India). An up-to-date check list of species of India and adjacent countries are also included. The holotype of the new species is deposited in the Western Ghat Regional Station of the Zoological Survey of India, Kozhikode (ZSIK).

### Acronyms of Depositories:

BMNH	= The Natural History Museum, London, U.K.
MNHN	= Muséum national d'histoire naturelle, Paris, France.
NPC	= National Pusa Collection, Division of Entomology, IARI, New Delhi, India.
NZSI	= National Collection of Zoological Survey of India, Kolkatta, India.
ZMMS	= Moxon State University Museum, Moscow, Russia.
ZSIK	= Western Ghat Regional Center, ZSI, Kozhikode, Kerala, India.

*Torymus barsulicus* Narendran & Razak sp.nov.

**Holotype:** Female: Length (excluding ovipositor sheath) 3.6mm, length of ovipositor sheath 3.8mm (Figs.1-5). Colour: Antenna black with metallic green refringence on pedicel and scape, base of scape slightly paler; head, dorsum of mesosoma bright metallic green; sides of mesosoma and gaster dark metallic green; all coxae concolorous with sides of mesosoma; all femora dark metallic green with apex pale yellow; all tibiae pale yellow with a black spot on outer distal half on hind tibia; all tarsi of fore and mid legs and first four tarsi of hind leg pale yellow; fifth tarsal segment of hind leg and all pretarsi dark brown; wings hyaline with veins pale hyaline yellow.

**Head:** in dorsal view 2.42x as broad as long; temples 0.4x length of eye; POL 2.2 to 2.5x OOL; OOL 1.5x OD; vertex with raised reticulation. Frontally seen mouth 2x malar space, the latter 0.4x length of eye; head width in anterior view 1.15x its height; eyes bare; frons and vertex raised reticulate and densely pilose; antennal toruli situated a little above level of ventral margin of eyes, a little nearer to clypeus than to anterior ocellus; pdicellus plus

Flagellum as long as breadth of head; relative L:W of antennal segments: scape = 28:7; pedicel= 9:7; F1= 9:9; F2= 7:10; F3= 8:10; F4= 8:10; F5= 8:10; F6= 8:10; F7= 8:10; clava= 22:10; sesillae numerous.

**Mesosoma:** 1.53x as long as broad (excluding tegulae), a little arched; notauli deep; mesoscutum 1.36x as broad as long, with raised reticulations, moderately pubescent; scutellum as long as broad, with rounded posterior margin; sculpture of scutellum as in mesoscutum; dorsellum not visible from dorsal view (scutellum

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jutting over dorsellum); propodeum reticulate, spiracle separated from metanotum by a distance subequal to diameter of spiracle; hind femur 3.5x as long as broad; hind coxa 1.9x as long as broad, with somewhat coarsed, slightly raised reticulations. Forewing 2.5x as long as broad; speculum open behind; relative length of forewing veins: SMV= 47; MV= 25; PMV= 13; STV= 6.

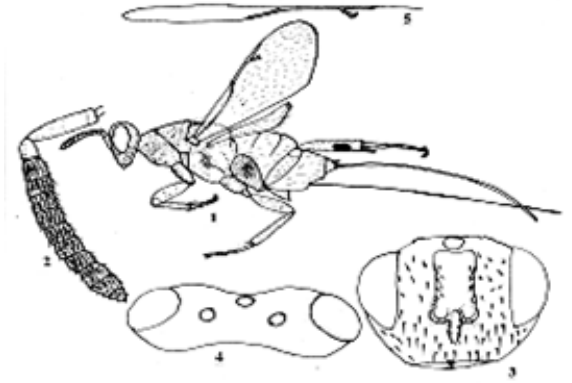
*Gaster*: Gaster not compressed, T1 not extending to middle of coxal level; hypopygium extending middle of gaster; gaster (excluding ovipositor sheath) longer than mesosoma; ovipositor sheath 2.1x as long as gaster, a little longer than head plus mesosoma.

**Male: Unknown.**

*Comments*: This new species comes to *Torymus arundinis* (Walker) in the key to species by Graham and Gijswijt (1998) but differs from it in having: 1) POL 2.2x- 2.5x OOL (in *T. arundinis* POL 1.5-1.6x as long as OOL); 2) hind tibia pale yellow with a dark spot on either side (hind tibia without any spots); 3) forewing lower surface without any row of setae below cubital line; ( forewing lower surface with a double or triple row of setae below the cubital vein in *T. arundinis*); 4) mesosomal notum with raised reticulations (in *T. arundinis* mesosomal notum nearly always with less dense reticulation, most often with distinct pilliferous punctures) and 5) length of longest spur of hind tibia more than one third that of hind basitarsus (in *T. arundinis* longest spur of hind tibia hardly one- third that of basitarsus).

In the key to species of *Torymus* of Indian subcontinent by Narendran *et al.* (2005) this new species come to *Torymus nepalensis* Narendran but differs from that species in having: 1) frenum reticulate and not delimited (in *T. nepalensis*) frenum delimited and smooth); 2) propodeum reticulate (in *T. nepalensis* propodeum smooth and shiny); 3) MV about 2x as long as PMV (in *T. nepalensis*) MV about 4x as long as PMV).

Material examined: Holotype, Female:INDIA, Kashmir, Barzulla, June 2008. Coll. Razak (ZSIK).



**Figs. 1.** *Torymus barsulicus* Narendran & Razak sp. nov. Female: 1) Body Profile; 2) Antenna; 3) Head anterior view; 4) Head dorsal view; 5) Forewing veins.

*Torymus absonus* Narendran & Girish Kumar

*Torymus absonus* Narendran & Girish Kumar in Narendran Girish Kumar, Sudheer, Sureshan & Chakrabarti, 2005. B 117. Holotype Female, India (ZSIK).

Host: Finger galls on leaf of Oak trees.

Distribution: India (Himachal Pradesh, Shogi).

*Torymus barsulicus* Narendran & Razak sp. nov.

*Torymus barsulicus* Narendran & Razak, 2010 :1;. Holotype Female, India (ZSIK).

Host: Unknown.

Distribution: India (Kashmir, Barsula).

*Torymus calcaratus* Nees

*Torymus calcaratus* Nees, 1834: 69, Male (According to Graham & Gijswijt, 1998, type presumed to be lost).

*Torymus igniventris* Costa, 1858: 27 (According to Graham & Gijswijt, 1998, type material not traced) (synonymized by Hoffmeyer, 1930).

*Diomorus violaceus* Kieffer, 1898: 123. Female, Italy (Depository unknown) (synonymy suggested by Masi 1919, synonymized by Hoffmeyer 1930).

*Diomorus fertoni*, Kieffer, 1898: 123- 124. Holotype Male, France (MNHN) (synonymized by Masi 1919).

Host: Reared from Sphecidae (Hymenoptera) in Rubus stems in Oak galls (Graham & Gijswijt, 1998).

Distribution: Europe, Central Asia, India (Grissell, 1995; Narendran 1994).

*Torymus chaubattiensis* Bhatnagar

*Torymus chaubattiensis* Bhatnagar, 1951: 155. Holotype Female, India (Type probably lost).

Host: *Aphis helichrysi* Kalf (Hymenoptera: Aphidoidea).

Distribution: India (Uttar Pradesh: Chaubattia).

*Torymus cupreus* (Spinola)

*Diplolepis cuprea* Spiola, 1808: 212- 213. Female, Italy (Depository unknown).

*Torymus cupreus* Nees, 1834: 67, 69. Original material lost (Graham and Gijswijt, 1998).

*Diomorus kollari* Foerster, 1859: 102. Female, Austria (Depository unknown) (synonymized by Steffan, 1952).

Host: Parasite of Sphecidae and Apidae (Hymenoptera) (Graham & Gijswijt, 1998).

Distribution: Europe, Central Asia, Mianmar (= Burma) (Grissell, 1994, Mani & Kaul, 1972).

*Torymus himachalicus* Narendran & Sureshan

*Torymus himachalicus* Narendran & Sureshan in Narendran, Kumar, Sudheer, Sureshan & Chakrabarti 30: 111- 121. India(Himachal Pradesh (ZSIK).

Host: Round gall on leaf of Oak trees.

Distribution: India (Himachal Pradesh).

*Torymus indicus* Ahmad

*Diomorus indicus* Ahmad 1946: 6- 7. Holotype Female, India (Bihar) (NPC).

*Torymus indicus* Ahmad: Narendran & Girish Kumar, 2004.

Host: Larva in *Poinciana pulcherima* Stom Fabaceae.

Distribution: India (Bihar).

*Torymus neepalensis* Narendran

*Torymus neepalensis* Narendran: 1994: 21- 22. Nepal (BMNH).

Host: Unknown.

Distribution: Nepal.

*Torymus orissaensis* (Mani)

*Lioterphus orissaensis* Mani, 1936: 126. Holotype Female, India (Puri [Orissa] NZSI).

*Torymus orissaensis* (Mani): Narendran. 1994 transferred to *Torymus*.

Host: Unknown.

Distribution: India (Orissa).

*Torymus sharmai* Sureshan & Narendran

*Torymus sharmai* Sureshan & Narendran, 2002: 867- 868. Holotype Female, India (ZSIK).

Host: Reared from galls of *Strobilanthus sessilis* (Nees) (Acanthaceae) caused by an unnamed Cecidomyiid (Diptera) probably parasitic on it. (Sureshan & Narendran, 2002).

Distribution: India (Kerala).

*Torymus stom* Narendran & Sudheer

*Torymus stom* Narendran & Sudheer in Narendran, Kumar, Sudheer, Sureshan & Chakrabarti 2005: 115- 117. Female, India (ZSIK).

Host: Round gall on leaf of Oak trees.

Distribution: India (Himachal Pradesh).

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