



## Description of a new species of *Tiphia* Fabricius, 1775 (Hymenoptera: Tiphidae: Tiphinae) from Andhra Pradesh, India

**Raveendran K.P. Hanima**

Western Ghat Regional Centre, Zoological Survey of India, Eranhpalam, Kozhikode, Kerala, India [1]; University of Calicut, Thenhipalam, Malappuram, Kerala, 673635, India [2].

✉ [hanimaraveendrankp@gmail.com](mailto:hanimaraveendrankp@gmail.com)

<https://orcid.org/0000-0002-0927-5399>

**Puthuvayi Girish Kumar**

Western Ghat Regional Centre, Zoological Survey of India, Eranhpalam, Kozhikode, Kerala, India.

✉ [kpgiris@gmail.com](mailto:kpgiris@gmail.com)

<https://orcid.org/0000-0003-2121-0165>

**Vishwanath D. Hegde**

Western Ghat Regional Centre, Zoological Survey of India, Eranhpalam, Kozhikode, Kerala, India.

✉ [vdhegde67@gmail.com](mailto:vdhegde67@gmail.com)

<https://orcid.org/0000-0001-9506-5170>

**ABSTRACT.** A new species of tiphid wasp, namely, *Tiphia* (*Tiphia*) *andhraensis* Hanima & Girish Kumar sp. nov. is described from Andhra Pradesh in the southern coastal region of India based on the female holotype. The new species is described, illustrated and compared with congeneric species. The diagnostic character of the new species is the presence of a strong, median longitudinal carina on posterior side of propodeum. The new species described here was collected from the Mudasarlova reservoir area of the Visakhapatnam district of Andhra Pradesh. The previous key to the species of *Tiphia* from the Indian subcontinent is modified to accommodate the new species. This new species is the first tiphid wasp described from Andhra Pradesh.

**Key words:** Aculeata, ectoparasite, key, new species, taxonomy, Tiphid wasp

**Received:**

13 December, 2023

**Accepted:**

23 February, 2024

**Published:**

10 March, 2024

**Subject Editor:**

Majid Fallahzadeh

**Citation:** Hanima, R.K.P., Girish Kumar, P. & Hegde, V.D. (2024) Description of a new species of *Tiphia* Fabricius, 1775 (Hymenoptera: Tiphidae: Tiphinae) from Andhra Pradesh, India. *Journal of Insect Biodiversity and Systematics*, 10 (2), 321–326.

### INTRODUCTION

*Tiphia* Fabricius, 1775 is the largest genus among the subfamily Tiphinae of the family Tiphidae. This genus contains more than 500 described species worldwide and more than 190 from the Oriental Region (Allen, 1975; Krombein, 1982; Hanima et al., 2019, 2022). Of these, 96 species are reported from the Indian subcontinent, of which 70 are from India (Hanima et al., 2022). Wasps of this genus are the predominant parasitic insects that attack the larva of Scarabaeoidea beetles in the soil (Rogers & Potter, 2002). In the present study, we describe a new species of *Tiphia* from Andhra Pradesh and discuss the affinities of the new species with its nearest relative. This is the first report of a species of Tiphidae from Andhra Pradesh state. To accommodate the new species, the key to the *Tiphia* species of the Indian subcontinent (Hanima et al., 2022) is partly modified.

### MATERIAL AND METHODS

The specimen was collected from the Mudasarlova reservoir area of the Visakhapatnam district of Andhra Pradesh using a sweep net. The specimen was then pinned and photographed using a Leica

**Corresponding author:** Hanima, R.K.P., ✉ [hanimaraveendrankp@gmail.com](mailto:hanimaraveendrankp@gmail.com)

**Copyright** © 2024, Hanima et al. This is an open access article distributed under the terms of the Creative Commons NonCommercial Attribution License (CC BY NC 4.0), which permits Share - copy and redistribute the material in any medium or format, and Adapt - remix, transform, and build upon the material, under the Attribution-NonCommercial terms.

Stereo microscope model LEICA® M 205A equipped with a LEICA® DFC 450 Camera. The holotype is deposited in the Western Ghats Regional Centre, Zoological Survey of India, Kozhikode (ZSIK). The literature used for the comparison of the new species with its relative species is the monograph by Hanima et al. (2022). The following abbreviations are used in the description: IOD = Interocular distance; LOL = Lateral ocellar length; OOL = Ocellocular length; POL = Posterior ocellar length.

## RESULTS

### *Taxonomic hierarchy*

**Class Insecta Linnaeus, 1758**

**Order Hymenoptera Linnaeus, 1758**

**Superfamily Vespoidea Latreille, 1802**

**Family Tiphidae Leach, 1815**

**Subfamily Tiphinae Leach, 1815**

**Genus *Tiphia* Fabricius, 1775**

**Type species:** *Tiphia femorata* Fabricius, 1775

***Tiphia (Tiphia) andhraensis* Hanima & Girish Kumar sp. nov. (Fig. 1A–J)**

<https://zoobank.org/urn:lsid:zoobank.org:act:F72C5E35-B028-48B3-83CC-C17EC4234E17>

**Material examined. Holotype** ♀, India: Andhra Pradesh, Visakhapatnam district, Mudasarlova Reservoir area (17°46'2.1828"N, 83°17'42.6012"E, 72 m a.s.l.), 21.vii.2022, Coll. Deepa J. & Party, ZSIK Regd. No. ZSI/WGRC/IR/INV.25396.

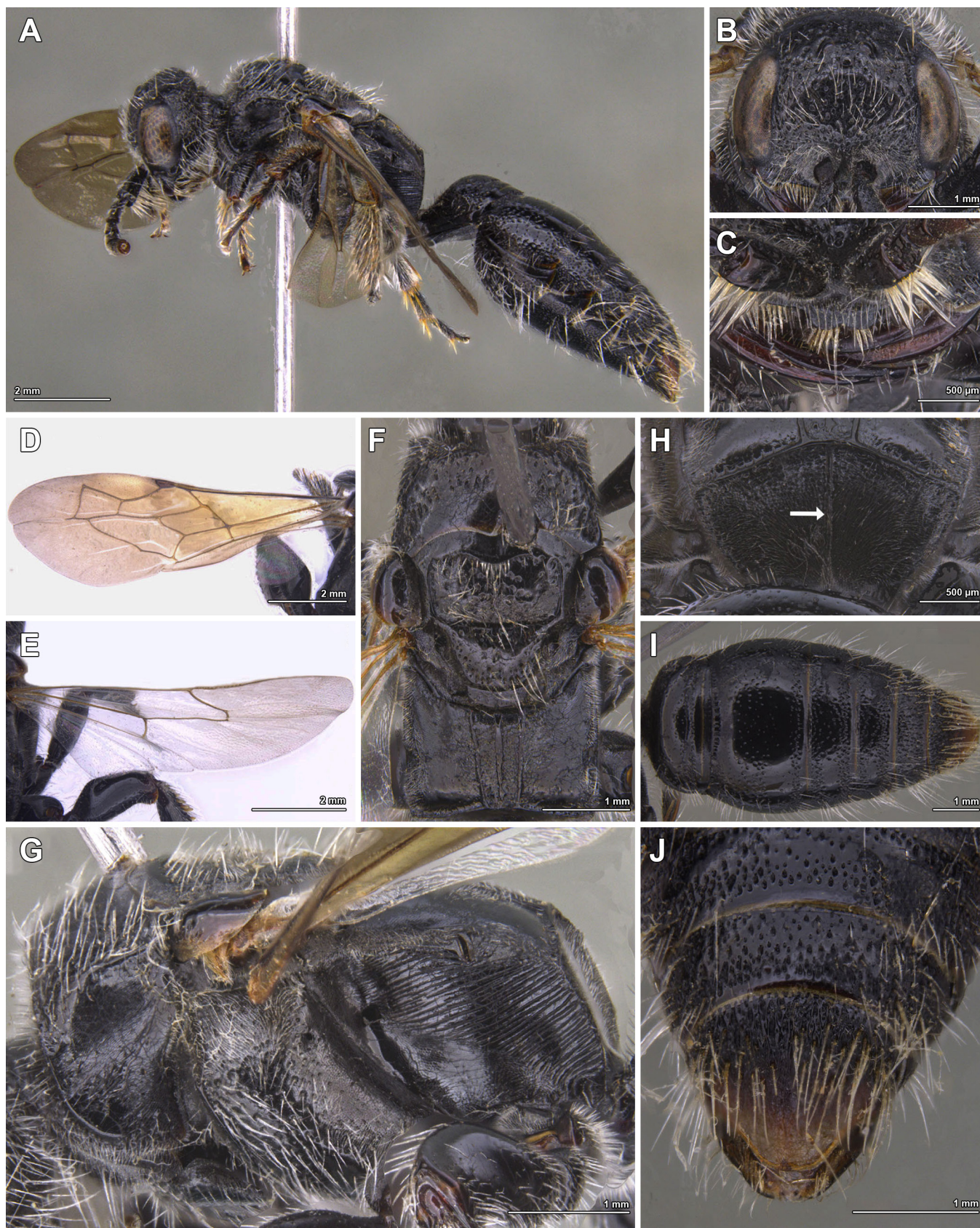
**Etymology.** The species name is derived from 'Andhra Pradesh', where the holotype is collected.

**Diagnosis.** The female is characterised by apical margin of median lobe of clypeus emarginated (Fig. 1C); lateral side of pronotum with groove in the middle of disk (Fig. 1G); mesoscutum with anteromedian groove and notauli not connected (Fig. 1F); propodeal areola tricarinate, propodeum with submarginal carina (Fig. 1F); posterior side of propodeum with strong, median longitudinal carina (Fig. 1H); metanotum with minute punctures (Fig. 1F); fore wing apically hyaline with basal part moderately infumated (Fig. 1D); hind wing hyaline (Fig. 1E).

**Description.** — **Holotype** (female). Length 12.40 mm. Body black except middle part of mandible reddish brown (Fig. 1C), most apical part of pronotal margin and tegula yellowish orange (Fig. 1F); pygidium apically brownish orange (Fig. 1J); fore wing apically hyaline with basal part moderately infumated with stigma dark brown and veins yellowish orange (Fig. 1D); hind wing hyaline (Fig. 1E); setae silvery white (Figs 1F, 1G).

**Head.** Irregular reticulations in between the medium-sized setigerous punctures (Fig. 1B); Head width in frontal view 1.66× IOD (Fig. 1B); eye without setae (Fig. 1B); POL 2.4× LOL and 0.4× OOL (Fig. 1B); lower front above antennal toruli without longitudinal carina (Fig. 1B); gena with scattered long, white setae, wider than antennal fossa (Fig. 1A); median lobe of clypeus deeply emarginate, apical part of median lobe smooth, with minute punctures, basal part with large punctures (Fig. 1C); mandible without preapical denticle (Fig. 1C).

**Mesosoma.** Uneven and with scattered punctures in dorsal part except for propodeum (Fig. 1F); dorsal side of pronotum without anterior transverse carina, anterior part with coarse punctures, posterior part without punctures except laterally (Fig. 1F); lateral side of pronotum with a broad groove, above and below the groove with weak ridges (Fig. 1G); mesoscutum coarsely punctured; scutellum except middle part with coarse, medium-sized punctures (Fig. 1F); metanotum with scattered, minute punctures (Fig. 1F); mesopleuron entirely punctured with large and small ones and covered with setae (Fig. 1G); tegula shining, inner part with punctures, 1.3× as long as its median width (Fig. 1F); dorsal side of propodeum with small reticulations and in between with punctures, areola tricarinate, middle carina broader than



**Figure 1.** *Tiphia (Tiphia) andhraensis* Hanima & Girish Kumar sp. nov., Holotype, female. **A.** Body profile, lateral view; **B.** Head, frontal view; **C.** Clypeus; **D.** Fore wing; **E.** Hind wing; **F.** Mesosoma, dorsal view; **G.** Mesosoma, lateral view; **H.** Propodeum, posterior view (Arrow mark indicates median carina); **I.** Metasoma, dorsal view; **J.** Pygidium.

lateral carina and bifurcate at base, submarginal carina present (Fig. 1F); median length of areola 2.4× its apical width and 1.5× its basal width; posterior side of propodeum with median longitudinal carina (Fig. 1H), lateral side of propodeum on upper part with moderately well-spaced rugae and lower part with faint shagreen sculpture (Fig. 1F); second cubital cell of fore wing with one spur (Fig. 1D); hind basitarsus with groove on inner surface.

**Metasoma.** Smooth with setigerous punctures and density of punctures apically more than basal area (Fig. 1I); first tergum without anterior transverse carina (Fig. 1I); pygidium rugose with coarse punctures on basal half and micro sculptured and coriaceous apically (Fig. 1J); metasoma 1.3× as long as mesosoma.

**Measurements** (mm). Head width in frontal view – 3.12; IOD – 1.88; POL – 0.34; LOL – 0.14; OOL – 0.86; length of areola – 1.05; apical width of areola – 0.44; basal width of areola – 0.72; length of mesosoma – 4.87; length of metasoma – 6.4.

**Male.** Unknown.

**Distribution.** India: Andhra Pradesh.

**Remarks.** The female of this new species comes to *Tiphia (Tiphia) ordinaria* Smith in the identification key by Hanima et al. (2022) but differs distinctly by the following characters: (1) posterior side of propodeum with strong, median longitudinal carina (posterior side of propodeum without median longitudinal carina in *Tiphia (Tiphia) ordinaria*); (2) dorsal side of pronotum without strong, complete transverse carina anteriorly (dorsal side of pronotum with strong, complete transverse carina anteriorly in *Tiphia (Tiphia) ordinaria*); (3) metanotum with sparse punctures (metanotum with coarse punctures in *Tiphia (Tiphia) ordinaria*); (4) mesoscutum with anteromedian groove and notauli not connected (mesoscutum with anteromedian groove and notauli strongly connected in *Tiphia (Tiphia) ordinaria*).

**Modified part of the key to the *Tiphia* species from the Indian subcontinent.** (after Hanima et al., 2022, to accommodate the new species).

- 43 Mesoscutum with anteromedian groove and notauli strongly connected; dorsal side of pronotum with strong, complete transverse carina anteriorly. .... *Tiphia (Tiphia) ordinaria* Smith, 1873
- Mesoscutum with anteromedian groove and notauli not connected (Fig. 1F); dorsal side of pronotum without strong, complete transverse carina anteriorly (Figs 1F & 1G). .... 43a
- 43a Posterior side of propodeum with strong, median longitudinal carina (Fig. 1H); metanotum with sparse punctures (Fig. 1F). .... *Tiphia (Tiphia) andhraensis* sp. nov.
- Posterior side of propodeum without median carina (fig. 424 in Hanima et al. 2022); metanotum laterally with coarse punctures, medially smooth (fig. 424 in Hanima et al. 2022). ....  
.....*Tiphia (Tiphia) novus* Hanima & Girish Kumar, 2022

## DISCUSSION

This study is based on a single specimen collected from the Mudasarlova Reservoir area of Visakhapatnam district of Andhra Pradesh. More than 500 known species of Tiphid wasps are distributed worldwide and more than 180 species occurred in the Oriental region till now (Hanima et al., 2019; Han et al., 2021). Of these, 96 species of the genus *Tiphia* are reported from the Indian subcontinent, of which 70 are from India (Allen, 1975; Krombein, 1982; Bartalucci, 2011; Hanima et al., 2019, 2022). Till now, no tiphid wasp has been reported from Andhra Pradesh state. In the present study, one new species of tiphid wasp in the genus *Tiphia* is described with illustrations. So, the number of species of *Tiphia* reported from India became 71 after this study. The taxonomic study of tiphid species from India is very poor and there are so many unexplored areas to discover the new species.

## AUTHOR'S CONTRIBUTION

The authors confirm their contribution to the paper as follows: Raveendran K.P. Hanima: Identification, digital imaging of specimens and drafting and revising the manuscript; Puthuvayi Girish Kumar: Supervisor, confirmation of the identified species and technical review of the manuscript. Vishwanath D. Hegde: technical review of the manuscript. The authors read and approved the final version of the manuscript.

## FUNDING

This research received no specific grant from any funding agencies.

## AVAILABILITY OF DATA AND MATERIAL

The specimens listed in this study are deposited in the Western Ghats Regional Centre, Zoological Survey of India, Kozhikode (ZSIK) and is available from the curator upon request.

## ETHICS APPROVAL AND CONSENT TO PARTICIPATE

Not applicable.

## CONSENT FOR PUBLICATION

Not applicable.

## CONFLICT OF INTERESTS

The authors declare that there is no conflict of interest regarding the publication of this paper.

## ACKNOWLEDGMENTS

The authors are grateful to Dr. Dhriti Banerjee, Director, Zoological Survey of India, Kolkata, for providing facilities and encouragement. KPHR and PGK are also grateful to the Officer-in-Charge, Western Ghat Regional Centre, Zoological Survey of India, Kozhikode for providing facilities and encouragement. The authors also thank Dr. Deepa Jaiswal, Freshwater Biology Regional Centre, Hyderabad, Telangana, for providing the specimen for our studies. KPHR thankfully acknowledges the authorities of the University of Calicut for the PhD registration and UGC for financial support by means of UGC-SRF.

## REFERENCES

- Allen, H.W. (1975) The genus *Tiphia* of the Indian Subcontinent. *Bulletin of the U.S. Department of Agriculture*, 1509, 1-96 p + 6 plates.
- Bartalucci, M.B. (2011) Tiphidae from South East Asia (Hymenoptera). *Onychium*, 8, 101-144.
- Han, Q., Chen, B. & Li, T.J. (2021) Three new species of the subgenus *Jaynesia* Allen, 1969 of the genus *Tiphia* Fabricius, 1775 (Hymenoptera: Tiphidae: Tiphinae) from China, with a key to all known species. *Zootaxa*, 4970 (2), 313-324. <https://doi.org/10.11646/zootaxa.4970.2.5>
- Hanima, R.K.P., Girish Kumar, P., Sureshan, P.M. & Sheikh, A.H. (2019) A taxonomic study of the genus *Tiphia* Fabricius (Hymenoptera: Tiphidae: Tiphinae) from Kashmir, India with the description of one new species. *Linzer Biologische Beiträge*, 51 (1), 63-67. <https://doi.org/10.11646/zootaxa.4970.2.5>
- Hanima, R.K.P., Girish Kumar, P. & Hegde, V.D. (2022) Additions to the knowledge on the genus *Tiphia* Fabricius (Hymenoptera: Tiphidae: Tiphinae) from India with the description of ten new species. *Zootaxa*, 5204 (1), 001-106. <https://doi.org/10.11646/zootaxa.5204.1.1>
- Krombein, K.V. (1982) Biosystematic studies of Ceylonese wasps, IX. A monograph of the Tiphidae (Hymenoptera: Vespoidea). *Smithsonian Contributions to Zoology*, Washington, 374, 1-121.
- Rogers, M.E. & Potter, D.A. (2002) Kairomones from scarabaeid grubs and their frass as cues in below-ground host location by the parasitoids *Tiphia vernalis* and *Tiphia pygidialis*. *Entomologia Experimentalis et Applicata*, 102, 307-314.

## توصیف یک گونه جدید از جنس *Tiphia* Fabricius, 1775 (Hymenoptera: Tiphidae: Tiphinae) در منطقه آندرا پرادش، هند

راوندان هانیم<sup>۱\*</sup>، پوتووایی گیریش کومار<sup>۱</sup> و ویشوانات هگ<sup>۱</sup>

۱ مرکز منطقه‌ای گهات غربی، بخش مطالعات جانورشناسی هند، کرالا، هند

۲ دانشگاه کالیکات، تهنیپالام، مالاپورام، کرالا، هند

\* پست الکترونیک نویسنده مسئول مکاتبه: [hanimaraveendrankp@gmail.com](mailto:hanimaraveendrankp@gmail.com)

تاریخ دریافت: ۲۲ آذر ۱۴۰۲ | تاریخ پذیرش: ۰۴ اسفند ۱۴۰۲ | تاریخ انتشار: ۲۰ اسفند ۱۴۰۲ |

**چکیده:** یک گونه جدید از زنبورهای تیفید، به نام *Tiphia (Tiphia) andhraensis* Hanima & Girish Kumar **sp. nov.** از آندرا پرادش در منطقه ساحلی جنوب هند بر اساس یک نمونه هولوتیپ ماده توصیف شد. خصوصیات مرفولوژیک گونه جدید توصیف، تصویرسازی و با دیگر گونه‌های هم‌سرده مقایسه شد. ویژگی افتراقی گونه جدید شامل وجود یک کارینای میانی، طویل و برجسته در بخش پشتی پروپودئوم است. گونه جدید از زیستگاه موداسارلوا در منطقه ویشاکاپاتنام جمع‌آوری شده است. کلید شناسایی گونه‌های جنس *Tiphia* شبه‌قاره هند به نحوی اصلاح شد تا این گونه جدید را نیز شامل شود. ثبت این گونه، اولین گزارش حضور زنبورهای Tiphidae از آندرا پرادش است.

**واژگان کلیدی:** زنبورهای نیش‌دار، انگل خارجی، کلیدشناسایی، گونه جدید، تاکسونومی، زنبور تیفید