First report of the genus Tricondylomimus Chopard, 1930 (Mantodea, Gonypetidae) from India with a note on its geographical distribution

Ambayathingal P. Kamila
Western Ghat Regional Centre, Zoological Survey of India, Kozhikode, Kerala, India- 673006.

Pavittu M. Sureshan
Western Ghat Regional Centre, Zoological Survey of India, Kozhikode, Kerala, India- 673006.

ABSTRACT. The genus Tricondylomimus Chopard, 1930 (Mantodea, Gonypetidae) is reported for the first time from India with the species T. coomani Chopard, 1930, based on a female specimen collected from Namdapha National Park, Arunachal Pradesh, India. This species was earlier reported only from Vietnam in the Oriental region. This is the third species of the tribe Iridopterigini (Gonypetidae, Iridopteriginae) that occurred in India. The extension in the distribution of the genus points to the high chances of T. coomani being reported from adjacent countries like Myanmar, Thailand, Laos and Cambodia. The geographical distribution of T. coomani and its resemblance with another group of insects is briefly discussed.

Key words: Iridopterigini, mantid, mimicry, new record, Namdapha

INTRODUCTION

Genus Tricondylomimus was originally described by Chopard (1930) with T. coomani based on male and female specimens collected from Tonkin, Hoa-Binh, Northern Vietnam and suggested to place the genus in the tribe Metallytici Westwood, 1835. Later, it was synonymized with the genus Nemotha Wood-Mason, 1884 by Beier (1935) which was earlier placed in the subfamily Iridopteryginae. Otto and Spearmann (2005) mentioned Tricondylomimus as a synonym of Nemotha Wood-Mason, 1884 by following Beier (1935) and listed the genus under the family Iridopterygidae Giglio-Tos, 1915 in their Mantodea catalogue. Stiewe and Shcherbakov (2017) removed the synonymization of Tricondylomimus with Nemotha and accepted it as a valid genus. Schwarz and Roy (2019) placed the genus in the family Gonypetidae. In the present study, the genus Tricondylomimus and the species T. coomani are reported for the first time from India. The discovery upgraded the number of genera and species of Indian Mantodea to 70 and 170 respectively (Kamila & Sureshan, 2022).

MATERIAL AND METHODS

The specimen was collected from Namdapha National Park, Arunachal Pradesh, India during the Namdapha expedition conducted by Zoological Survey of India in 2009 and deposited in ZSIK. The

Corresponding author: Kamila, A.P., kamiii619@gmail.com
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specimen of a tiger beetle, *Tricondyla* sp. (Coleoptera, Carabidae, Cicindellinae) deposited in the ZSIK was also examined to indicate the convergent similarities. They were studied using Labomed CZM6 stereozoom microscope and the images were taken with Leica® DFC 500 and Canon® M50 camera. The images were post-processed using Adobe Photoshop® CS6 software. The key of the genus *Tricondylomimus* provided by Stiewe and Shcherbakov (2017) is used for the identification of the species. The morphological terminology follows Brannoch et al. (2017).

**Abbreviations.** AvS: Anteroventral spines; DS: Discoidal spines; F: Femur; MZ: Metazone; PvS: Posteroventral spines; PZ: Prozone; T: Tibia; ZSIK: National Zoological Collections, Zoological Survey of India, Western Ghat Regional Centre, Kozhikode.

**RESULTS**

**Taxonomic hierarchy**

Family Gonypetidae Westwood, 1889  
Subfamily Iridopteryginae Giglio-Tos, 1915  
Tribe Iridopterygini Giglio-Tos, 1915  
Subtribe Tricondylomimina Schwarz & Roy, 2019  
Genus *Tricondylomimus* Chopard, 1930  
*Tricondylomimus coomani* Chopard, 1930 (Figs 1–6, 7)


**Brief description.** Head (Figs 1–2). Pentagonal. Lower frons transverse, upper edge arched in the middle, disc with a pair of small notches in middle. Ocelli very small, round. Vertex bulging, extending beyond eye level. Juxta-ocular bulges prominent, round. Pronotum (Fig. 2). Laterally wavy. Metazone more than two times as long as prozone. Lateral edges denticulated more in metazone than prozone. Supra-coxal dilation distinct. Prozone semicircular, strongly bulging in middle. Metazone strongly bulging anteriorly; laterally constricted in the middle; posterior end with two middle tubercles. Foreleg (Figs 3–5). Coxa a little longer than metazone and a little widened just after base; upper edge with a row of small tubercles each with a long seta; coxal lobes divergent, anterior lobe extended to dorsal side. Trochanter distinctly curved. Femur with four posteroventral, four discoidal, 14 anteroventral (lililiiliili) and a genicular spine on each side. First anteroventral spine highly enlarged, almost as long as first posteroventral spine. Tibia with six long, sharp posteroventral and 11 anteroventral spines, first one small, gradually increase in length towards apex. Tarsus completely ciliate, basitarsus a little longer than other tarsomeres together. Spination formula of foreleg: F = 4DS/14AvS/4PvS; T = 11AvS/6PvS. Wings (Fig. 6) Shorter than abdomen. Smoky, sub-opaque with irregular cells. Costal area of forewings darker, widest near base, nearly reaching apex; anal area with a small oval pale transparent patch near base; stigma like a large, oval, transparent patch.

**Distribution** (Fig. 9). India: Arunachal Pradesh (New record); Elsewhere: Vietnam; Lào Cai, Hòa Bình, Vin Phuc, Kon Tum (Stiewe & Shcherbakov, 2017).

**Measurements** (in mm). Body length 28.24; Pronotum 7.72 (PZ 2.41, MZ 5.2); Foreleg – coxa 5.82; femur 6.70; tibia 4.22; Basitarsus 4.27; Other segments together 3.87; Midleg – coxa 2.76; femur 8.79; tibia 7.21; basitarsus 2.93; Other segments together 4.14; Hindleg – coxa 2.04; femur 10.88; tibia 10.94; basitarsus 4.18; Other segments together 5.09.

Figure 9. The distribution map of *Tricondylominus coomani* Chopard, 1930, in the Oriental region.
Remarks. Morphologically, this species resembles tiger beetles of the genus *Tricondyla* Latreille, 1822 (Coleoptera, Carabidae, Cicindellinae) (Fig. 8), commonly known as arboreal tiger beetles found in South and Southeast Asia, which gave *Tricondylomimus* its name. The beetle species *T. macrodera* Chaudoir, 1860 and *T. tuberculata* Chaudoir, 1860 were reported from Northeastern India (Pearson et al., 2020). Chopard (1930) and Stiewe and Shcherbakov (2017) also pointed out the similarity between them.

**DISCUSSION**

The genera *Amantis* Giglio-Tos, 1915 and *Hapalopeza* Stal, 1877 of the subfamily Iridopteryginae were earlier reported from India with nine and two species respectively. *Tricondylomimus coomani* was originally described and only reported from Vietnam (Chopard, 1930), which is a part of the Indo-Malayan (Oriental) biogeographic realm and Indo-Burma biodiversity hotspot (Myers et al., 2000; Holt et al., 2013). Biogeographically, Namdapha National Park is under the Eastern Himalayan biogeographic province and is roughly at the intersecting junction of Himalaya and Indo-Burma biodiversity hotspots and also that of Indo-Malayan (Oriental) and Palaeartic biogeographic realms (Das et al., 2020). The extension of distribution of the genus points to the high chances of *T. coomani* being reported from adjacent countries like Myanmar, Thailand, Laos and Cambodia.

**AUTHOR’S CONTRIBUTION**

The authors confirm their contribution to the paper as follows: A.P. Kamila: Identification of the specimen, photography, preparing the distribution map, drafting and revising the manuscript, and funding acquisition; P.M. Sureshan: Supervisor, technical review of the manuscript. The authors read and approved the final version of the manuscript.

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**AVAILABILITY OF DATA AND MATERIAL**

The specimen examined in this study are deposited in the National Zoological Collections, Zoological Survey of India, Western Ghat Regional Centre, Kozhikode, Kerala, India, and are accessible 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.

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اوالین گزارش از جنس Tricondylomimus Chopard, 1930 بر پراکنش چگرافیایی آن
آ. پ. کامیلا و پ. م. سورشان

مرکز منطقه‌ای گهات غربی، بخش مطالعات جانورشناسی هند، کرالا-673006، هند
kamii619@gmail.com

پست الکترونیک تویسنده مسئول مکاتبه:

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چکیده: جنس Tricondylomimus Chopard, 1930 گزارش شد. این گزارش بر اساس تکلم‌م‌های ماه‌ه گبونه T. coomani Chopard, 1930 جمع‌آوری شده از پارک میلی نامدی، ارونیال پرادش، هند انجام شد. این گونه در منطقه اورینتال، فقط از گزارش ویتنام گزارش شده بود. این است که در کشور هند انتشار دارد. (Gonypetidae, Iridopteriginae) Iridopterigini حضور یافته گونه، نشاندهند احتمال افزایش در انتشار جنس Tricondylomimus در کشورهای مجاور دارد. توزیع جغرافیایی گونه T. coomani یا گروه دیگری از حشرات Iridopterigini، تایلند، لائوس و کامبوج می‌باشد. توزیع جغرافیایی گونه T. coomani و شیان آن با گروه دیگری از حشرات

واژگان کلیدی: گونه، آنشور، گزارش جدید، نامدی، Tricondylomimus, Iridopterigini, T. coomani, بلوز، پراکنش، نویسندگان.