

## Description of a new species of the genus *Otostigmus* (Chilopoda: Scolopendromorpha: Scolopendridae) from India

### Описание нового вида рода *Otostigmus* (Chilopoda: Scolopendromorpha: Scolopendridae) из Индии

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КЛЮЧЕВЫЕ СЛОВА: многоножки, таксономия, видовое разнообразие, Карнатака, Индия.

**ABSTRACT.** A new species of genus *Otostigmus* is recorded from India: *Otostigmus* (s.str.) *coorgensis* sp.n. A detailed description, diagnostic features and photographs are given. A table comparing the taxonomic characters of *Otostigmus* species reported so far from India is also provided.

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**РЕЗЮМЕ.** В Индии отмечен новый вид рода *Otostigmus*: *Otostigmus* (s.str.) *coorgensis* sp.n. Даны его детальное описание, диагностические признаки и фотографии. Также приведена сравнительная таблица таксономических признаков видов *Otostigmus*, до сих пор отмеченных в Индии.

### Introduction

*Otostigmus* Porat, 1876, the largest genus of centipedes within the subfamily Otostigminae (Scolopendromorpha: Scolopendridae), enjoys a widespread distribution across tropical parts of almost all continents [Bonato *et al.*, 2009]. Within the genus *Otostigmus*, there are three subgenera (*Otostigmus* (*Otostigmus*), *Otostigmus* (*Parotostigmus*) and *Otostigmus* (*Dactylotergitius*)) with *O.* (*Otostigmus*), being the sole subgenus found in Asia [Schileyko *et al.*, 2020]. As of current knowledge, there are 62 known species worldwide under the subgenus *Otostigmus* [Chen *et al.*, 2023]. Lewis [2010] categorized the subgenus *Otostigmus* into nine species groups, which greatly assists in organizing and studying the substantial diversity found within this subgenus. Recent studies focusing on the centipede fauna of Asian countries, such as China and Vietnam, have led to the discovery of many new species belonging to genus *Otostigmus* [Schileyko,

2007; Niu *et al.*, 2021; Vu *et al.*, 2022; Chen *et al.*, 2023]. These discoveries contribute to our understanding of centipede biodiversity in these regions and highlight the importance of ongoing research efforts in exploring and documenting diverse centipede fauna. The Indian subcontinent is home to approximately 12 species of the genus *Otostigmus*: *O. amballae* Chamberlin, 1913, *O. burnmurdochi* Gravely, 1912, *O. graveleyi* (Jangi et Dass, 1984), *O. kashmiranus* Lewis, 1992, *O. nudus* Pocock, 1890, *O. oatesi* Kraepelin, 1903, *O. orientalis* Porat, 1876, *O. ruficeps* Pocock, 1890, *O. rugulosus* Porat, 1876, *O. scaber* Porat, 1876, *O. sumatranus* Haase, 1887 and *O. spinosus* Porat, 1876 [Porat, 1876; Pocock, 1890; Gravely, 1912; Chamberlin, 1913; Attems, 1930; Jangi, Dass, 1984; Lewis, 1992; Khanna, 1994; Khanna, 2001; Joshi, Edgecombe, 2013]. Gravely [1912] originally documented *O. burnmurdochi* in the Indian state of Himachal Pradesh, but there have been no further recordings of this species from any location in India or elsewhere in the world. In the context of Lewis's [2010] classification of the subgenus *O.* (*Otostigmus*), the presence or absence of keels on tergites, number of total antennomeres and glabrous ones, sternite tuberculation, the number of tarsal spurs on legs and characteristics of ultimate prefemur and coxopleura serves as the distinguishing characteristics used to group species within the subgenus [Chen *et al.*, 2023]. It's not uncommon for specimens collected from specific geographic regions like hotspots to exhibit characteristics that may not neatly fit into existing classification schemes. In the case of the three *Otostigmus*' specimens presently collected from different parts of Karnataka in the Western Ghats biogeographic zone, it appears that their characteristics did not align with the groups established by Lewis [2010]. This suggests the presence of new, unrecognized species and the need for further refinement of existing classification criteria to better accommodate the diversity within this region.

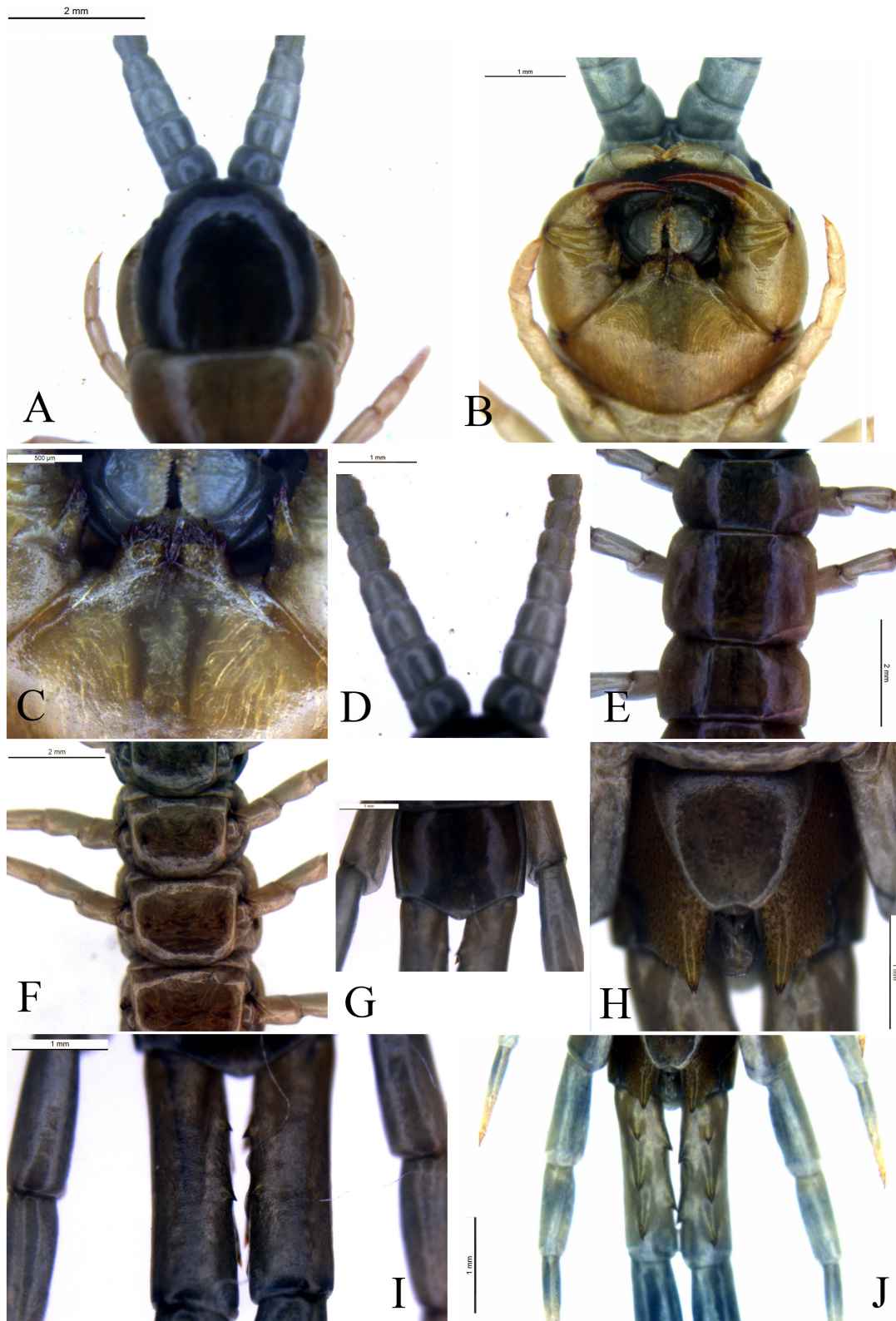


Fig. 1. *Otostigmus coorgensis* sp.n. A — dorsal view of cephalic plate; B — ventral view of forcipular segment; C — enlarged view of coxosternal tooth plate; D — dorsal view of first seven antennomeres; E — dorsal view of tergites 4–6; F — ventral view of sternites 4–6; G — dorsal view of tergite 21; H — ventral view of sternite 21 and coxopleural process; I, J — dorsal and ventral views of ultimate leg prefemur, respectively.

Рис. 1. *Otostigmus coorgensis* sp.n. А — головная пластинка сверху; В — ногочелюстной сегмент, снизу; С — увеличенная кокостеральная зубная пластинка; D — первые семь члеников антенны, сверху; E — тергиты 4–6, сверху; F — стерниты 4–6, снизу; G — тергит 21, сверху; H — стернит 21 и коксоплевральный отросток, снизу; I, J — последнее предбедро, соответственно сверху и снизу.

## Material and Methods

The specimens were collected by handpicking method and preserved in 70% ethanol. Identification was carried out using a Leica M205A stereomicroscope, while photographs were taken with Leica DFC450 digital color microscope camera attached to it. Measurements were recorded in millimeters using Leica Automontage Software, LAS V 4.13.0. Morphological terminology is in line with Bonato *et al.* (2010). The specimens studied have been deposited in the National Zoological Collection of Western Ghats Regional Centre, Zoological Survey of India.

Abbreviations: VL — ventrolateral, VM — ventromedial, M — medial, DM — dorsomedial, CS — corner spine, T — tergite, TT — tergites, SS — sternites, col. — collector, LBS — leg bearing segment(s), AP — apical spine, SAP — subapical spine, LS — lateral spine, DS — dorsal spine.

## Taxonomy

Order Scolopendromorpha Pocock, 1895  
 Family Scolopendridae Leach, 1814  
 Subfamily Otostigminae Kraepelin, 1903  
 Genus *Otostigmus* Porat, 1876  
 Subgenus *Otostigmus* Porat, 1876  
*Otostigmus (Otostigmus) coorgensis* sp.n.  
 Fig. 1.

**MATERIAL. Holotype:** ZSI/WGRC/I.R-INV 26209, Mandalpatti, Coorg, Karnataka, India (12.5463° N, 75.7000° E, 1227 m a.s.l.), col. P.M. Sureshan, 4 November 2013.

**Paratypes:** ZSI/WGRC/I.R-INV 26210, Balehonur tea estate, Chikkamagaluru, Karnataka, India (13.3490° N, 75.4651° E, 775 m a.s.l.), col. V.D. Hegde, 21 November 2023. ZSI/WGRC/I.R-INV 26211, Kodachadri, Shimoga, Karnataka, India (13.8623° N, 74.8752° E, 1,343 m a.s.l.), col. V.D. Hegde, 3 September 2023.

**ETYMOLOGY.** The specific name is a noun that corresponds to the name of the locality from where the holotype was collected.

**DIAGNOSIS.** Body length up to 35 mm. 17 antennomeres with basal four ones glabrous dorsally and three ones ventrally. Forcipular tooth plate with 4 teeth. TT 5–20 with complete para-

median sutures. Lateral margination well-developed at TT15–21 (rarely TT9–21). Sternite of ultimate LBS narrows towards the slightly concave and rounded posterior margin. Legs 1–3 with two tarsal spurs. Coxopleural process broad and conical with two apical spines and a very small subapical spine. Ultimate prefemur with 6–7 spines, lacking corner spine.

**HOLOTYPE DESCRIPTION.** Body length 35 mm. Antennae with bluish grey coloration. Cephalic plate, T2 and T3 with dark bright shade of blue. T1, T20 and T21 dull yellowish brown. Rest of the tergites dark greyish brown. Legs 1–20 pale yellow. Ultimate legs deep bluish grey.

Antennae with 17 articles, 4 glabrous dorsally, 3 glabrous ventrally. Antennae reach anterior margin of T3 when reflexed. Forcipular coxosternite slightly wider than long with diverging oblique sutures at its base. Tooth-plates wider than long, each plate with 4 teeth: inner two and outer two teeth grouped together, the outermost tooth smaller than other three. Trochanteroprefemoral process tridentate.

Tergites are lacking ridges or keels. T2 as long as half of T1. TT1–4 without sutures, complete paramedian sutures on TT5–20. Lateral margination complete on TT15–21. SS3–14 with paramedian sutures occupying anterior 20–30% of sternites. SS3–16 with a shallow median depression posteriorly. Ultimate sternite longer than wide, narrowed towards slightly concave and rounded posterior margin.

Legs 1–3 with two and legs 6–19 with one tarsal spur. Leg 20 without tarsal spur. Leg 1 with one femoral and one tibial spur.

Coxopleuron 1.5 times longer than ultimate sternite. Pore field extends up to the upper edge of coxopleuron. Coxopleural process broad and conical, with two apical spines and a very small subapical spine. Slender ultimate leg *ca* 9.9 mm long (prefemur — 2.9 mm, femur — 2.7 mm, tibia — 2.1 mm, tarsus 1 — 1.5 mm, tarsus 2 — 0.7 mm). Both right and left ultimate prefemur with three ventrolateral spines, two ventromedial spines and two dorsomedial spines.

**VARIATION IN PARATYPES** (Table 1). Body length 31–35 mm. In the paratype II paramedian sutures complete from T4. Margination complete from T9 in paratype I. Only one dorsomedial spine present in paratype II. Legs 1–2 with 2 tarsal spurs in paratypes (legs 1–3 in holotype). Leg length proportion same as in the holotype.

Table 1. Comparison of taxonomic characters of type specimens of *O. coorgensis* sp.n.  
 Табл. 1. Сравнение таксономических признаков типовой серии *O. coorgensis* sp.n.

Characters	Holotype	Paratype I	Paratype II
Body Length (mm)	35	30	31
Tergites with complete paramedian sutures	TT5–20	TT5–20	TT4–20
Tergites with complete lateral margination	TT15–21	TT9–21	TT15–21
Legs with two tarsal spurs	Leg 1 to 3	Leg 1 to 2	Leg 1 to 2
Legs with one tarsal spurs	Leg 4 to 19	Leg 3 to 19	Leg 3 to 19
Length of ultimate leg (mm)			
Prefemur	2.9	2.8	2.4
Femur	2.7	2.3	2.1
Tibia	2.1	1.8	1.1
Tarsus 1	1.5	1.4	1.3
Tarsus 2	0.7	0.8	1.0

**DISTRIBUTION.** The species inhabits the central regions of the Western Ghats, particularly reported from Coorg, Kodachadri and Chikkamagaluru of Karnataka State. These areas are characterized by extensive evergreen forests, renowned for its rich species diversity.

**TAXONOMIC REMARKS.** This species can be distinguished from its congener by four dorsally glabrous basal antennomeres. Within *Otostigmus* only *O. taeniatus* Pocock, 1896 has four antennomeres glabrous dorsally, but the new species definitely differs from the former by the presence of tarsal spurs of legs. Traces of keel and lateral corrugations found in *O. taeniatus* are also absent in new species, which did not fit exactly into any *Otostigmus* species groups proposed by Lewis [2010]. *O. coorgensis* sp.n. demonstrates all the characteristics of the *politus* group except for the number of glabrous basal antennomeres. The new species is close to *O. politus politus* Karsch, 1881 differing from the latter by the number of dorsally glabrous antennomeres (4 vs 3 in *O. politus*), incomplete sternal paramedian sutures and absence of medial spine of the ultimate prefemur.

Comparison of taxonomic characters of existing Indian *Otostigmus* species and new one is provided in Suppl. Table 1.

**Supplementary data.** The following material is available online.

Supplementary Table 1. Comparison of taxonomic characters of the Indian *Otostigmus* species.

**Disclosure statements.** Authors declare that there is no conflict of interest.

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