

## A new species of the genus *Epistaurus* (Orthoptera: Acrididae) from Central India

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### Abstract

*Epistaurus tinsensis* sp. n. is described from Chhattisgarh, India. A key to the species of the genus from India is also provided.

**Keywords:** *Coptacridinae, short-horned grasshopper, taxonomy, new species, Chhattisgarh.*

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### Introduction

The subfamily Coptacridinae includes small to medium sized short-horned grasshoppers, characterized by subconical head; angular occiput with vertex separated by a ridge; the pronotum without lateral carinae; conical prosternal process; open interspace of mesosternum; fully developed or reduced elytra and wings; presence of tympanum; short lower basal lobe of hind femur than upper; absence of external apical spine of hind tibia; presence of furcula at last abdominal tergite of male (in most cases); supra-anal plate mostly with attenuate apex and subgenital plate with transverse fold. Male cercus widened in basal and compressed in apical half with a ventral curvature and complicated shaped apex. They generally occur in high grasslands and open patches, open woodland, grazing fields, agricultural land and on shrubs. About 20 genera are globally known under the subfamily Coptacridinae (Eades *et al.*, 2016). Shishodia *et al.* (2010) reported 285 species under 135 genera of Acrididae from India, wherein 9 species under 4 genera of Coptacridinae subfamily are included.

Bolivar (1889) erected the genus *Epistaurus* on two species from Angola and Caconda (Anchieta) *Ep. crucigerus*, *Ep. signatus*. Later Johnston (1956) transferred *Ep. signatus* to *Eucoptacra signatus*. Presently 7 species of the genus i.e. *Ep. aberrans*, *Ep.*

*bolivar*, *Ep. crucigerus*, *Ep. diopi*, *Ep. meridionalis*, *Ep. sinetyi* and *Ep. succineus* have been reported globally and only one species *Ep. sinetyi* Bolivar (1902) had been described from Tamil Nadu (Trichinopoly), India.

### Material and Methods

**Study area:** The specimens were collected from Barnawapara Wildlife Sanctuary, Chhattisgarh, which lies between latitudes 21°18'45" to 21°30'N and longitudes 88°22'30" to 82°37'30"E, with an area of about 244.66 sq. km. The name of the wildlife sanctuary is derived from the twin hamlets villages of Bar and Nawapara, located at the heart of the forest. The vegetation of the sanctuary area was mainly tropical dry deciduous forest. The forest chiefly comprises of the straight stemmed grand teak *Tectona grandis* Linn. (Verbenaceae), sal *Shorea robusta* Roth. (Dipterocarpaceae), saja *Terminalia tomentosa* Roth. (Combretaceae), bija *Pterocarpus marsupium* Roxb. (Fabaceae), aonla *Emblica officinalis* Gaertn. (Euphorbiaceae) and palas *Butea monosperma* (Lamk.) (Fabaceae).

The specimens were dry preserved. Images of specimen were captured using Sony Digital Camera DSC-HX9V. The detailed morphological characters and measurements

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were studied under Leica stereozoom Microscope (Leica M205 A) using the software Leica Application Suite (LAS V3.8).

### Result

#### Taxonomical part

Order **Orthoptera** Olivier, 1789  
Suborder **Caelifera** Ander, 1939  
Infraorder **Acrididea** Macleay, 1821  
Superfamily **Acridoidea** Macleay, 1821  
Family **Acrididae** Macleay, 1821  
Subfamily **Coptacrinae** Brunner von Wattenwyl, 1893  
Genus *Epistaurus* Bolivar, 1889

**Genus** *Epistaurus* Bolivar, 1889

**Diagnosis:** Body size small, antennae filiform, frontal ridge narrow, widened between antennae, gradually narrowed at apex; between fastigium of vertex and occiput a deep transverse depression; pronotum strongly tectiform with high, ridge like median carina, which is interrupted by posterior transverse sulcus; male supra anal plate less attenuate and not truncate at apex; circus gradually conical apically with acute or subacute and curved ventral apex.

*Epistaurus tinsensis* Gupta and Chandra sp.n.

[urn:lsid:zoobank.org:act:F3F329C8-AE6E-4E06-B4C0-0F3E8132C06F](http://urn:lsid:zoobank.org:act:F3F329C8-AE6E-4E06-B4C0-0F3E8132C06F)

**Diagnosis:** Body size small, pilose and pubescent. Antennae filiform. Pronotum punctuate, median carina of pronotum straight, lateral carina absent; tegmina and wings surpassing hind knee.

**Type material: Holotype:** ♀, 27.vii.2011, coll. S. K. Gupta & party, Reg. No 18702/H5 deposited in Zoological Survey of India, M-Block, New Alipore, Kolkata, India.

**Type locality:** INDIA: Chhattisgarh: Raipur District; Barnawapara Wildlife Sanctuary, Tinsa Pathar ( 21°27'50'' N, 82°27'36'' E), 524 m.

**Paratype:** 2 male and 1 female same data as holotype Reg. No. 18703-05/H5.

**Description of female:** Size small, body pilose, head very small, less than half length of pronotum, occiput very small, fastigium

Fig. 1



A



B

**Figure 1.** *Epistaurus tinsensis* sp. n. female: A. Dorsal view; B. lateral view.

longitudinally tricarinate with truncate apex, median carina continued behind over occiput and pronotal carina. Frontal ridge widest between antennae and narrowest beyond fastigial end. Antennae filiform, 20 segmented, subequal or slightly longer than head and pronotum together, mid segments 1.8 times longer than its width. Pronotum rugose, tectiform, with raised median carina, three transverse sulci present, interrupted by only posterior transverse sulci; lateral carina absent; prozona shorter than metazona. Prosternal spine short, conical; apex subacute. Mesosternal lobe wider than long; mesosternal interspace wider than long. Tegmina and wings developed. Tegmina exceeding hind knee of hind femora, opaque. Wings as long as tegmen. Abdomen carinated medially, tympanum developed, aperture large and oval. Hind femora slender, 3.5 times longer than its width, with large white hairs, lower carina of hind femur with two large

Fig. 2

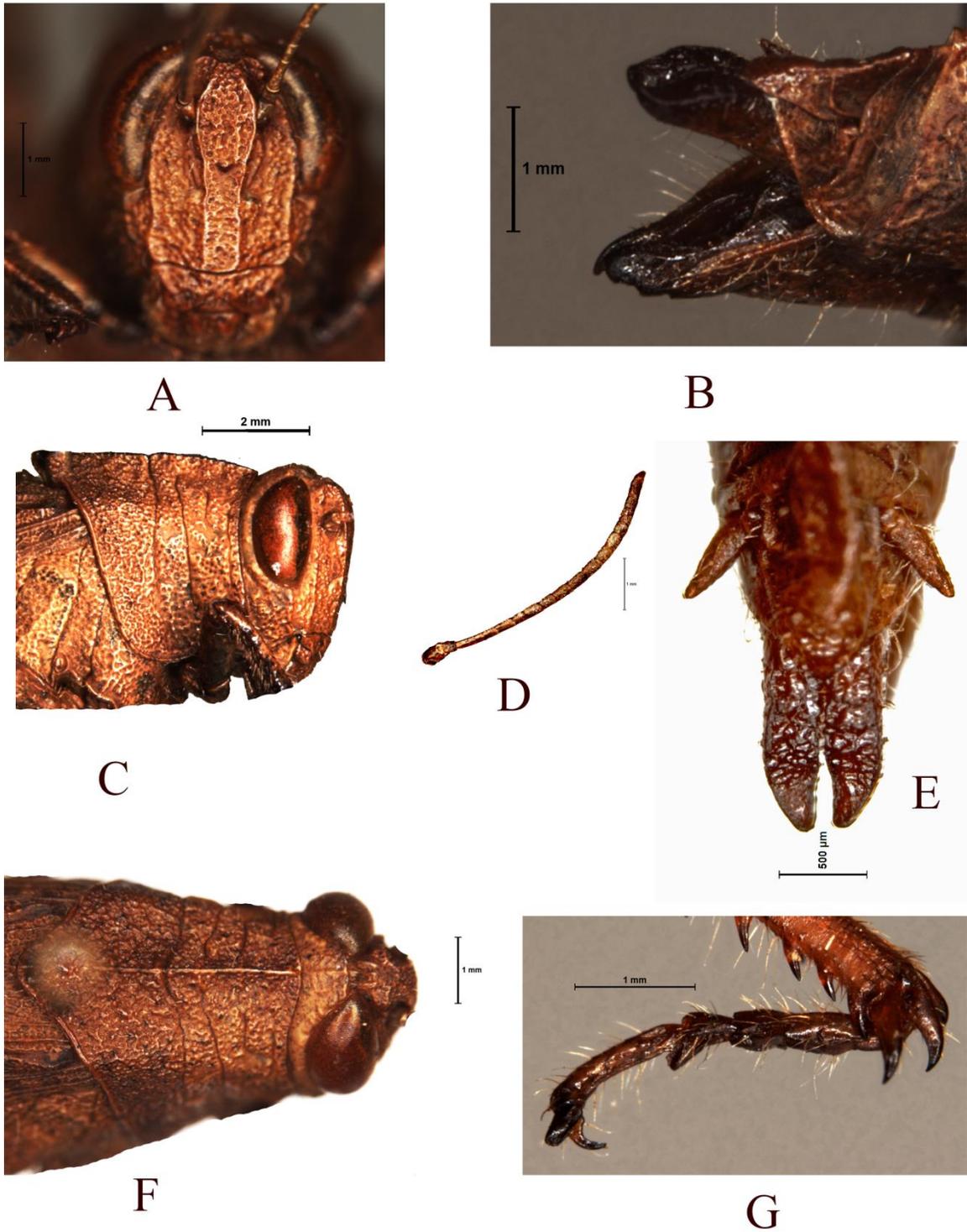


Figure 2. *Epistaurus tinsensis* sp. n. female: A. Frontal ridge; B. Ovipositor lateral view; C. Pronotum lateral view; D. Female antenna; E. Cerci and ovipositor dorsum view; F. Pronotum dorsum view; G. Pronotum hind tarsal segments.

A new species of the genus *Epistaurus* (Orthoptera: Acrididae) from Central India

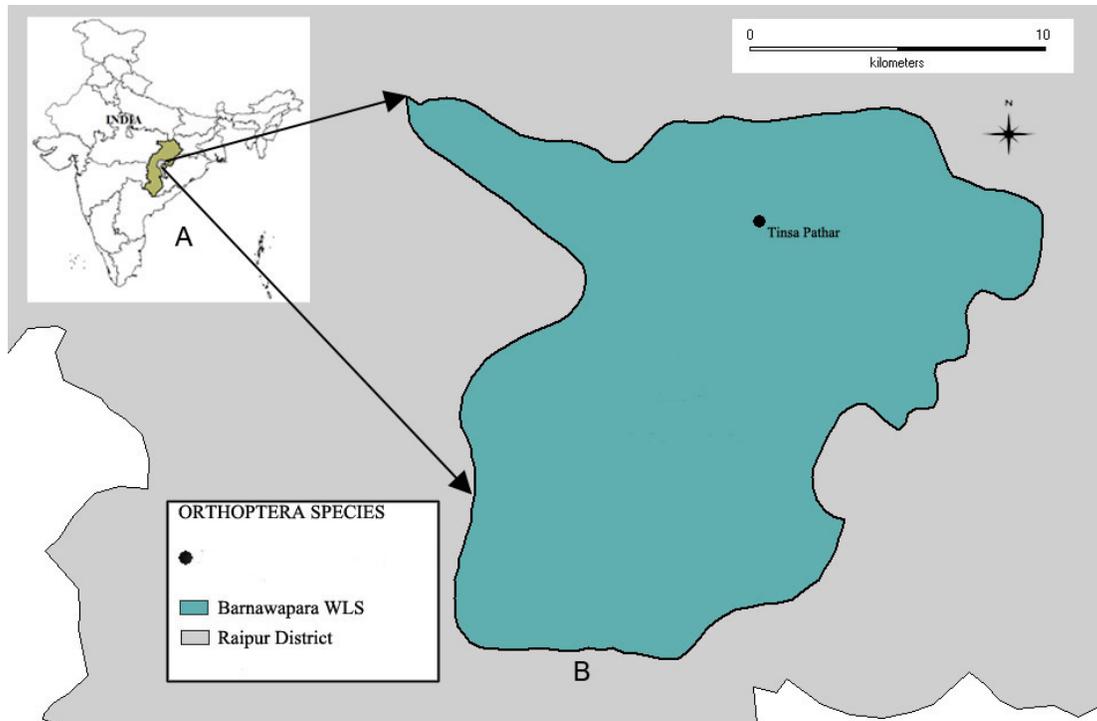


Figure 3. Collection locality of *Epistaurus tinsensis* sp. n. in Chhattisgarh, India.

dark blackish-brown patches, upper marginal areas with denticles. Hind tibiae with 9 to 10 external spines and 10 to 11 internal spines. Cercus long, slender with subacute apex, not completely reaching upto apex of supra-anal plate. Supra-anal plate tongue shaped. Subgenital plate subconical, with attenuate apex. Valves of ovipositor with short, robust, slightly curved apex.

**Male:** similar as female.

**Colouration:** Body yellowish brown with dense long silvery pubescence. Antennae brownish with apical segments darkened. Tegmina dark brownish with light brown spots. Wings yellowish hyaline. Pronotum posterior margin with a black spot. Hind femora with two reddish brown maculation in upper surface, lower carina of hind femur with two large blackish-brown patches; tibiae reddish brown with black tipped spines.

**Etymology.** This species is named after the collection locality of Tinsa Pathar, Chhattisgarh, India.

**Key to the *Epistaurus* species from India**

1. Tegmina and wings not exceeding hind knee of hind femora, median carina of pronotum strongly arcuate, with crest like, frontal ridge extended up to fastigium of vertex.....*E. sinetyi* Bolivar
- Tegmina and wings exceeding hind knee of hind femora, median carina of pronotum straight, frontal ridge not extended upto fastigium of vertex..... *E. tinsensis* sp. n.

**Measurements** (in mm): *Female:* Body length 17.69; head length 1.446; vertex length 0.621, interocular space 1.47, antennal length 5.70, Scape or basal antennal segment length 0.203, Pedicel length 0.256, length of I segment of flagellum 0.398; length of mid segment of antenna 0.375, width 0.199. Pronotum length 4.065; prozona length 1.95, metazona length 2.154, width 3.61. Tegmina length 12.974; abdomen length 7.512, width 1.945. Fore leg: femur length 1.264, width 0.565; tibial length 1.490, width 0.346; length of tarsus I- 0.408, II- 0.149; III- 0.793; length of claws I- 0.384, claws II- 0.27. Mid leg: femur length 2.301, width 0.691; tibial length 2.739, width 0.332; length of

tarsus I- 0.485, II- 0.269, III- 0.887. Hind leg: femur length 8.33, width 2.36; tibial length 7.96, width 0.40; length of tarsus I- 1.26, II- 0.428, III- 1.151; length of hind tibial outer spurs I 0.619, cerci length, 0.338.

*Male:* Body length 11.08; head length 0.994; vertex length 0.382, compound eye length 1.669, width 0.86; interocular space 0.195; episternum length, 0.650, width 0.34; Pronotum length 2.99; height, 2.670; prozona length 1.43, metazona length 1.254, mesosternal lobe length 0.564, width 0.751; tegmina length 9.421; Abdomen length 7.512, width 1.954. Fore leg: femur length 1.05; tibial length 1.599, length of tarsus I- 0.386, II- 0.366, III- 0.363; length of claws I- 0.238. Mid leg: femur length 2.369; tibial length 2.179, length of tarsus I- 0.325, II- 0.317, III- 0.645. Hind leg: femur length 5.769, width 2.103; tibial length 5.90, width 0.334; length of tarsus I- 0.903, II- 0.400, III- 0.922; claw length 0.329, length of outer spur I- 0.344, II 0.324.

**Discussion:** *Ep. tinsensis* **sp. n.** has resemblance with the other species of the genus, *Ep. sinetyi* Bolivar, 1902. The new described species is the second discovered species of the genus after *Ep. sinetyi* from India. *Ep. tinsensis* **sp. n.** differs from the *Ep. sinetyi* by the triangular vs. truncate fastigium of vertex and straight vs. arcuate median carina of pronotum.

**Conclusion:** After discussing the differential morphological characters it can be concluded that the presently described species collected from Central Indian forest during the rainy season is a novel species to the genus. *Ep.*

*tinsensis* **sp. n.** has light brownish colour in both sexes, live near to the dry leaves at hilly areas and is the seventh valid species of the genus *Epistaurus*.

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