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## DESCRIPTION OF A NEW WOLF SPIDER SPECIES (ARACHNIDA: ARANEAE: LYCOSIDAE: *Draposa*) FROM WESTERN GHATS, INDIA

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### Abstract

*Draposa* is a relatively newly described wolf spider genus numbering 11 species, out of which eight have been reported from India. A new *Draposa* species from Kerala, Western Ghats, India, is described, photographed and illustrated. The male palp of the new species is similar to that of *D. lyrivulva* distributed in Pakistan, India and Sri Lanka, but it differs by having the following combination of characters: shorter tegular apophysis with a narrow and linear tip, prominent sub-apical protrusion, and embolus parallel to tegular apophysis.

**Keywords:** Arachnida, distribution, Kerala, *Pardosa*, South Asia, taxonomy

### Introduction

The taxonomy of Indian lycosid spider needs a thorough revision since several species lack a clear description, photographs or illustrations of genitalia and there is inadequate information of the type materials. *Draposa* Kronestedt, 2010 is a small recently described wolf spider genus with only 11 species distributed in India, China, Pakistan, Sri Lanka, Bhutan, Maldives, Indonesia, East Malaysia, Myanmar, Iran, Bhutan, Bangladesh and United Arab Emirates, out of which eight have been reported from India (WSC 2022). Indian *Draposa* species already described were initially attributed to *Pardosa* Koch, 1847 and later transferred to *Draposa* by Kronestedt (2010) and Dhali *et al.* (2012). Subfamily level revisions of lycosids

were suggested by Kronestedt (2010) and Murphy *et al.* (2006). Therefore, Piacentini and Ramirez (2019) placed the genus *Draposa* along with the genera *Pardosa* and *Wadicosa* Zyuzin, 1985 in the sub-family Pardosinae.

### Material and Methods

All specimens were collected by hand and preserved in 70% ethanol. The holotype and other voucher specimens of the new species are deposited at the Centre for Animal Taxonomy & Ecology (CATE), Department of Zoology, Christ College, Irinjalakuda, Kerala, India. Specimens were studied, photographed and measured using a Leica M205C stereomicroscope, a Leica DFC450 Camera, and LAS software (Ver.4.13). Epigynes were dissected

and cleared in 10% potassium hydroxide (KOH) solution. Male palps were dissected before being photographed. The right palp is illustrated and described despite common taxonomic usage of left palp, for the comparison with descriptions of most *Draposa* species by Kronestedt (2010). Ocular measurements were taken after placing the specimen dorsally. Leg measurements are shown as: total length (femur, patella, tibia, metatarsus, tarsus). All measurements are given in millimetres (mm). Part of the terms used in the description follows Sierwald (2000) and Kronestedt (2010) for e.g. epigynal cavity, bottom of epigynal cavity, sub-apical protrusion and sub-paleal sclerite.

Abbreviations: ALE, anterior lateral eye; AME, anterior median eye; ap, anterior process of sub-paleal sclerite; CD, copulatory duct; CO, copulatory opening; FD, fertilization duct; TA, tegular apophysis; MOQ, median ocular quadrangle; P, palea; PA, paleal apophysis; PLE, postero-lateral eye; E, embolus, PME, postero-median eye; pp, posterior process of sub-paleal sclerite; Se, septum; SAP, sub-apical protrusion; SS, septal stem; TA, tegular apophysis; Te, tegulum. All the measurements are in mm.

## Results

### *Draposa* Kronestedt, 2010

The males of the new species were identified as *Draposa* by the following combination of characters of palp: sub-paleal sclerite with two processes, transverse tegular apophysis with two projections, distal part with sub-apical protrusion and paleal apophysis. The females of the new species were identified as *Draposa* by the presence of a tongue-like septum (Se) in front of epigynal cavity.

### *Draposa sebastiani* sp. nov.

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(Figs.1–3)

**Holotype.** A male, CATE583911a, collected from Wayanad (11°47'52.8"N, 75°59'27.6"E; alt. 1,036 m a.s.l), Kerala, India, by R.S. Abhijith on 25 April 2021.

**Paratypes (n=13).** 5 males (CATE583911b–f) and 8 females (CATE583911g–n). Other collection details same as for the holotype.

**Diagnosis and comparison.** The male palp of *D. sebastiani* sp. nov. is similar to that of *D. lyrivulva* (Bösenberg & Strand, 1906) known from Pakistan, India and Sri Lanka, but differs by having the following set of characters: shorter

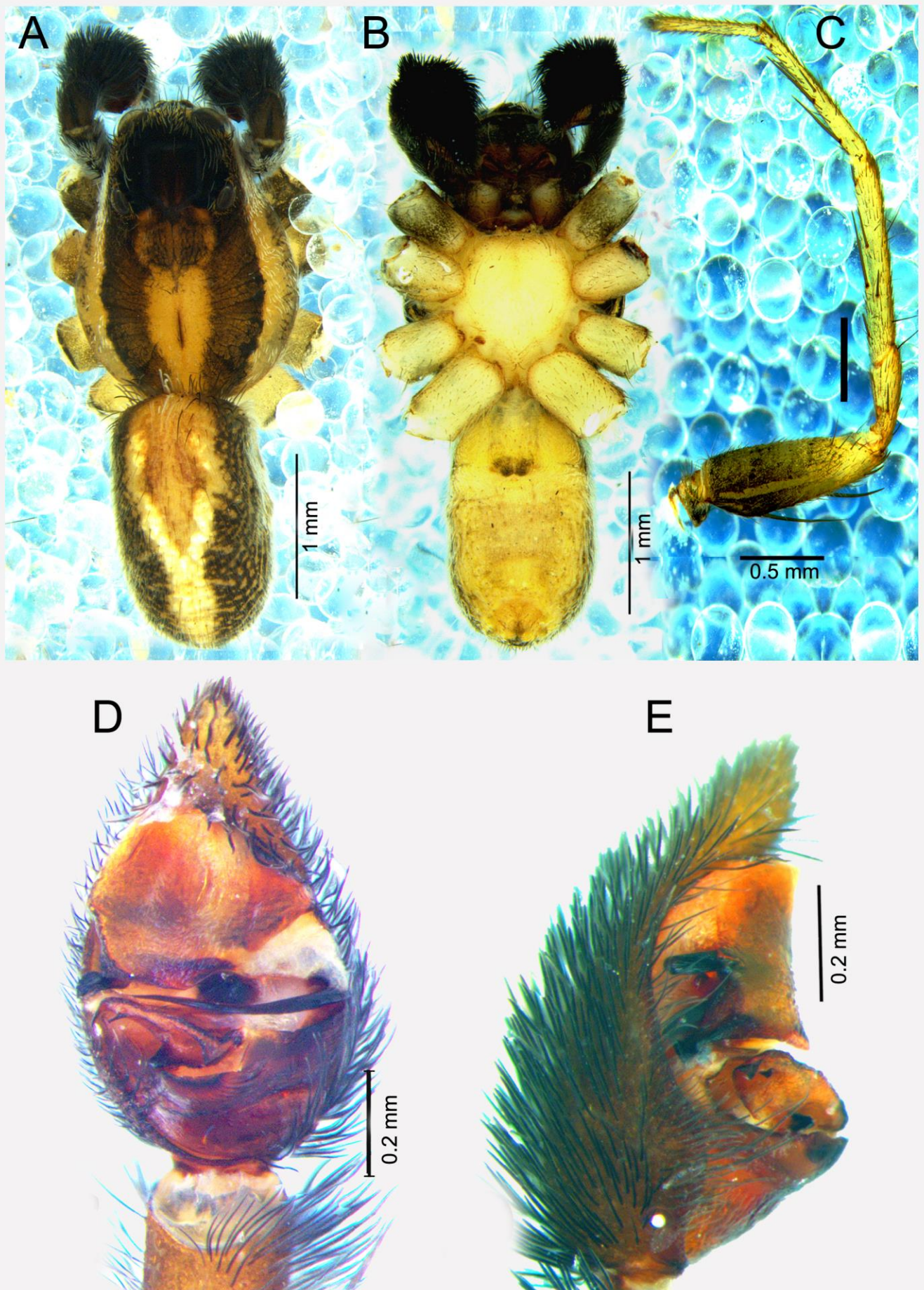
tegular apophysis (vs. comparatively longer); prominent sub-apical protrusion (vs. minute); narrow and linear tegular apophysis tip (vs. curved and hook-like); embolus parallel to tegular apophysis (vs. forming an upward angle). The male copulatory organs of the new species are comparable with those of *D. atropalpis* (Gravely, 1924) and *D. oakleyi* (Gravely, 1924), but differ by having a prominent sub-apical protrusion and a gap between tegular apophysis tip and paleal apophysis (vs. sub-apical protrusion is non-prominent and paleal apophysis is partially covered by tegular apophysis; see figures 8, 10, 33 in Kronestedt 2010).

The female copulatory organs of *D. sebastiani* sp. nov. are similar to those of *D. amkhasensis* (Tikader & Malhotra, 1976), but differ by having the following set of characters: shorter tongue-like median septum (vs. septum longer and close to the base of epigynal cavity), epigynal cavity wider medially (vs. cavity narrow and completely covered by septum), copulatory duct and spermatheca closer to epigynal cavity (vs. positioned further away), stalk and head of spermatheca wider (vs. narrower); epigyne of the new species is compared to *D. atropalpis* and *D. oakleyi*, but different with the spermatheca arrangement, shape of median septum and epigynal cavity (see figures 9, 11 in Kronestedt 2010 and figures 176, 178 in Tikader & Malhotra 1980).

**Description of holotype.** Total length 4.10. Carapace 2.16 long, 1.64 wide. Abdomen 1.94 long, 1.33 wide. Carapace greenish brown with yellow median band originating above fovea, wider anteriorly, narrowing approaching pedicel. A dark extension of median band posterior to ocular area. Fovea longitudinal, prominent. Marginal dark stripes, represented as broken line. Lateral bands yellow, wide, clothed with recumbent white pubescence. Clypeus yellow, flanked steep without any projections. Sternum light yellow with sparse dark hairs. Ocular area with dark pubescence. A few erect white hairs present. Eyes and inter-distances. AME 0.13, ALE 0.09, PME 0.26, PLE 0.23. AME-AME 0.05, AME-ALE 0.03, PME-PME 0.31, PME-PL 0.29. Median ocular quadrangle narrower anteriorly. Chelicerae light brown dorsally, yellow ventrally; 3 retromarginal and 3 promarginal teeth, distal most promarginal tooth non-prominent; fangs light brown, sturdy. Labium wider than long, darker base. Legs yellow, without annulation. Femur I slightly



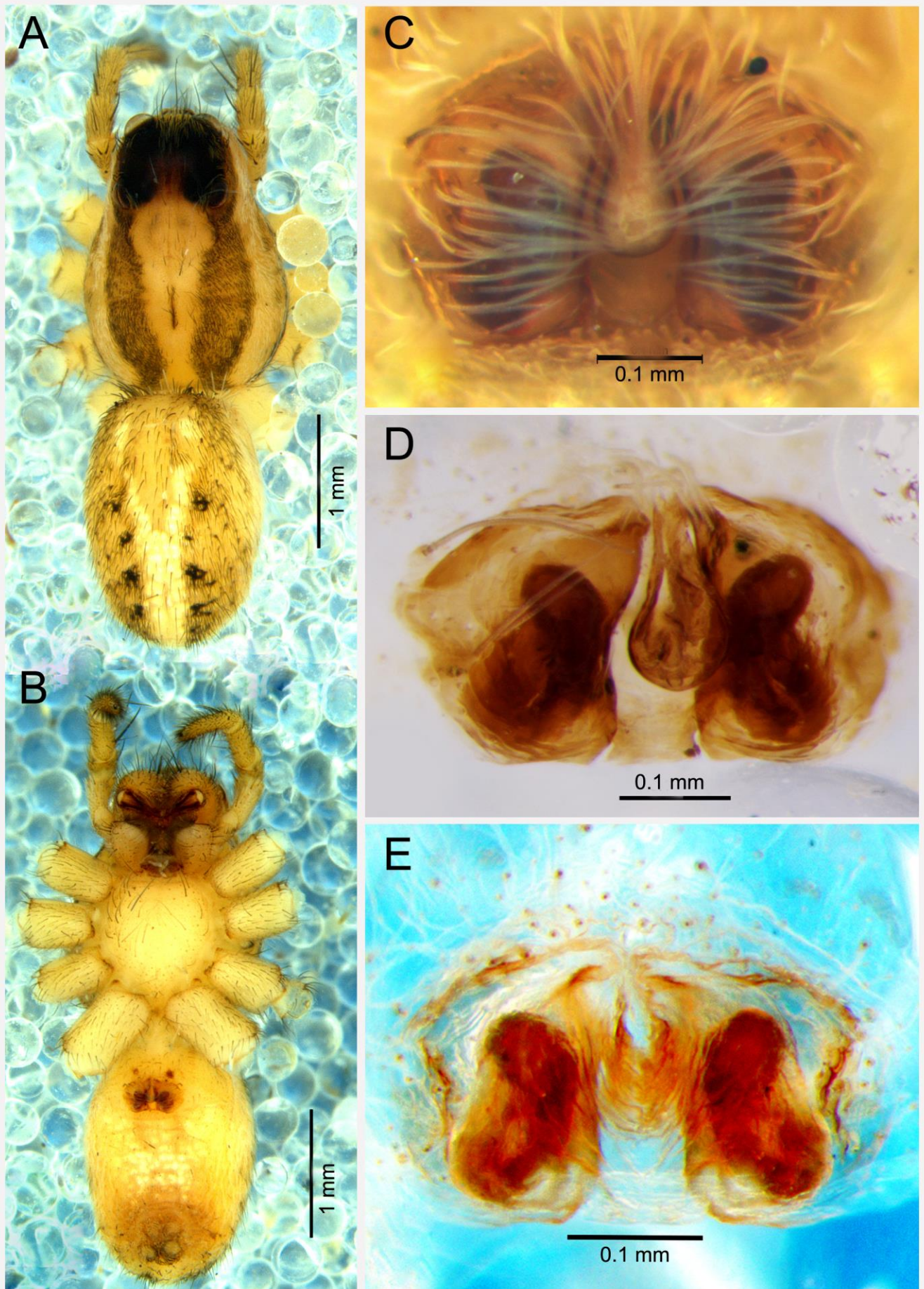
# Plate 1



**Figure 1.** *Draposa sebastiani* sp. nov. holotype (male; CATE583911a): (A) dorsal and (B) ventral view of habitus, (C) leg, and (D) ventral and (E) retrolateral views of the palp



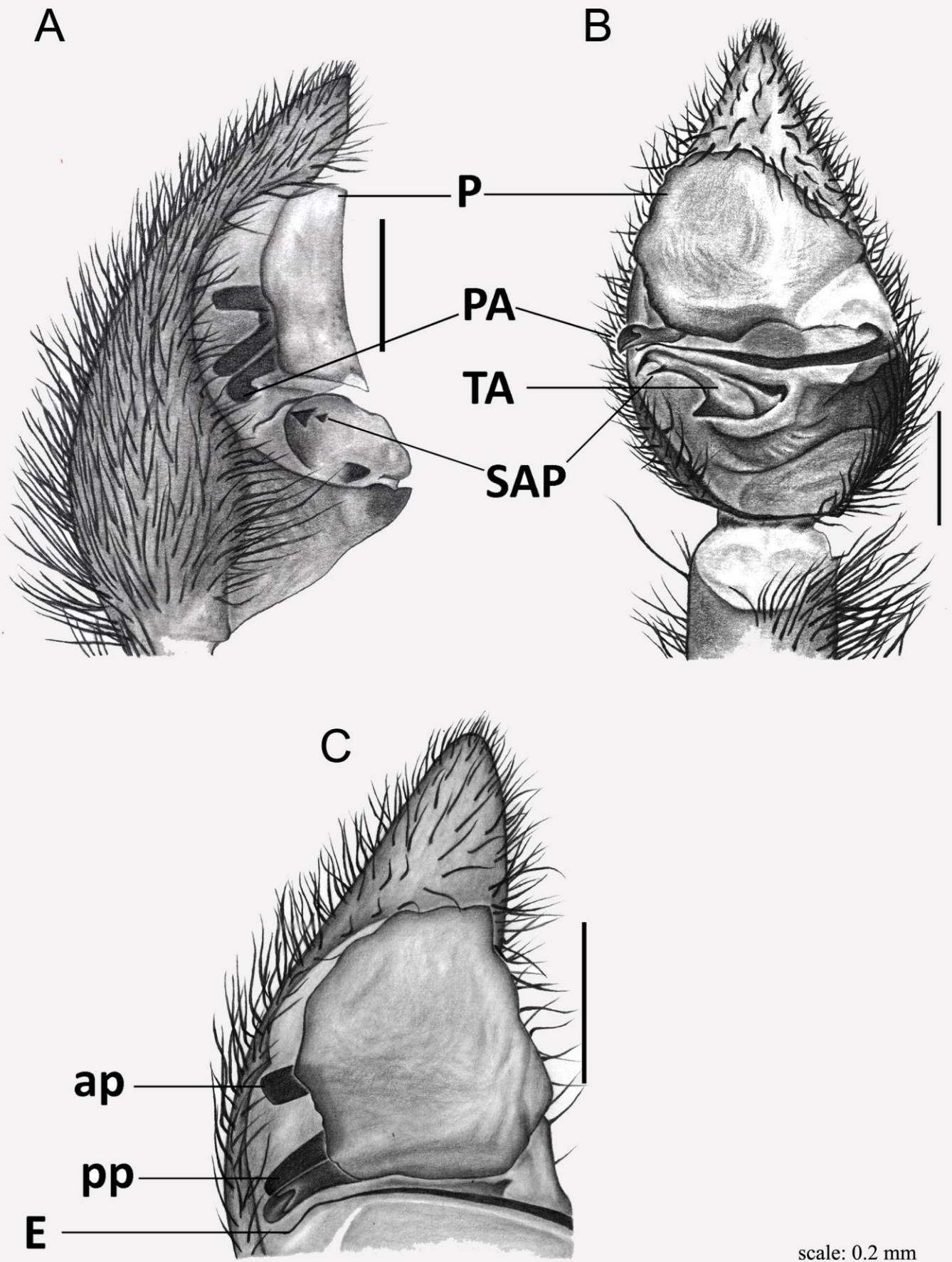
## Plate 2



**Figure 2.** *Draposa sebastiani* sp. nov. paratype (female; CATE583911g): (A) dorsal and (B) ventral views of habitus; and (C) in-situ, (D) ventral, and (E) dorsal views of epigyne



# Plate 3



**Figure 3.** *Draposa sebastiani* sp. nov. holotype (male; CATE583911a): (A) retrolateral and (B) ventral views of the copulatory organ and (C) paleal division showing anterior and posterior process of sub-paleal sclerite

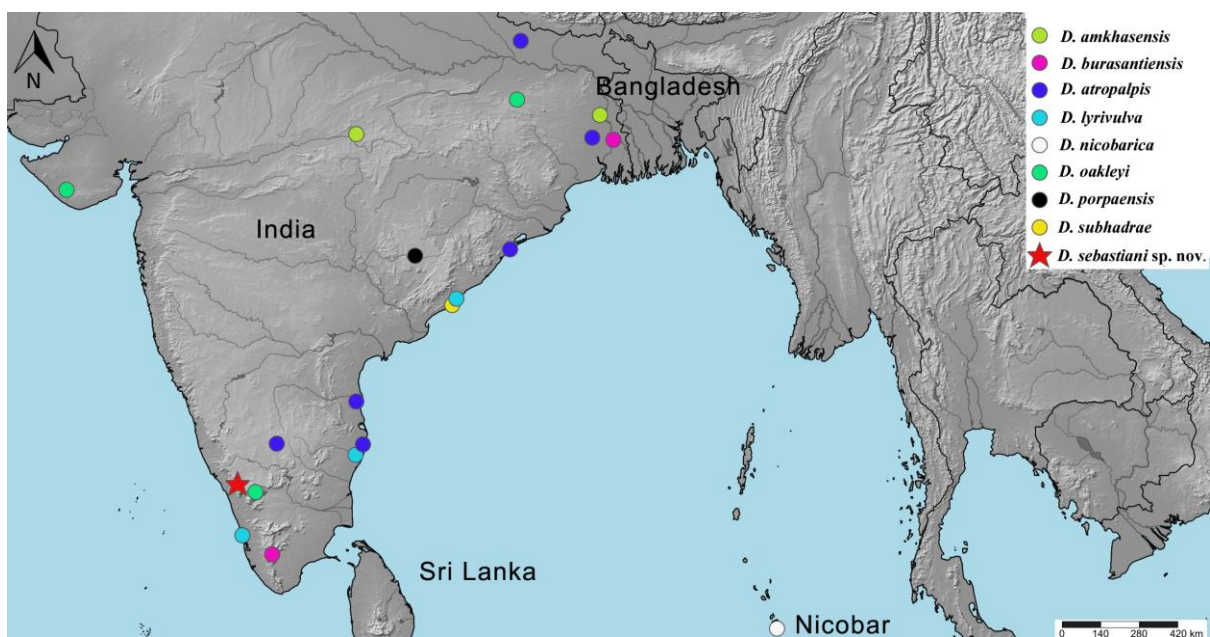
darker. Length of leg segments: I 5.16 (1.48, 0.57, 1.29, 0.97, 0.85); II 4.51 (1.56, 0.55, 0.67, 1.10, 0.63); III 4.04 (1.39, 0.41, 0.58, 1.07, 0.59); IV 7.61 (2.14, 0.70, 1.63, 2.23, 0.91). Leg formula 4123. Opisthosoma with dorsum greenish brown, distinct lanceolate spot in anterior half. Shining white guanine spots present postero-medially, recumbent and erect hairs present; ventrum light yellow. Palp. Tibia with oblique black setae patch prolaterally. Cymbium wide medially, dark with thick black hairs dorsally. Palea prominent, cone-shaped in retrolateral view. Subtegulum slightly wide positioned prolaterally. Tegular apophysis comparatively short with two well separated, downward projections medially, prominent sub-apical protrusions and tapering end. Sub-paleal sclerite with short anterior and long posterior processes. Paleal apophysis close to embolus apex. Starting of embolus wide apex filiform.

**Description of paratype.** Female (CATE583911g). Total length 4.47. Carapace 2.15 long, 1.54 wide. Abdomen 2.23 long, 1.52 wide. Carapace dorsum greenish brown with yellow median band widening anteriorly, behind dark ocular area. A dark extension of median band posterior to ocular area. Longitudinal fovea, shorter than in male. Marginal dark stripes non-prominent represented by discontinuous light spots. Lateral bands yellow, wider than in male. Sternum light yellow, comparatively blacker erect hairs than in males. Ocular area dark with sparse white pubescence. Eyes and inter-distances. AME 0.15, ALE 0.08,

PME 0.31, PLE 0.27. AME-AME 0.04, AME-ALE 0.03, PME-PME 0.37, PME-PLE 0.31. Fangs brown. Length of leg segments: I 5.38 (1.53, 0.60, 1.35, 1.01, 0.89); II 4.61 (1.58, 0.56, 0.71, 1.11, 0.65); III 4.35 (1.48, 0.47, 0.68, 1.09, 0.63); IV 8.02 (2.25, 0.77, 1.68, 2.32, 1.00). Leg formula 4123. Opisthosoma wider, dorsum greenish brown, lighter than in male, narrower lanceolate pattern anteriorly, shining white guanine spots present. Guano pattern margined by paired dark spots. Erect dark hairs present anteriorly; ventrum light yellow, numerous white guanine spots visible posterior to epigynal plate. Posterior spinnerets larger than anterior ones. Epigyne with deep central cavity, wider medially, in front a globular ‘uvula’ shaped septum with short stalk extended up to middle of cavity. In ventral in-situ view spermatheca and copulatory duct appear bean-shaped. Internally spermatheca broader and positioned closer to central cavity. Bottom of epigynal central cavity extended laterally, covering entire spermatheca and copulatory duct. Copulatory duct originated near copulatory opening, turned inwards and connected to spermatheca. Fertilization duct tubular and swollen.

**Etymology.** The specific epithet is a noun in the singular genitive case, honouring one of the Indian arachnologists, Late Dr. Pothalil Antony Sebastian at Sacred Heart College, Kochi, India for his inestimable contributions to Indian spider taxonomy.

**Distribution:** Known only from the type locality (Fig. 4).



**Figure 4.** The current known distribution pattern of species of the genus *Draposa* in India

**Habitat and natural history:** The mating pairs of spiders were found in grassland with a few coconut trees and patchy vegetable gardens. The grassland was adjacent to a busy road with forest on the other side. The habitat seemed to be a semi-disturbed one because of the presence of traffic and cattle grazing. The collection was done on a normal tropical summer day towards dusk.

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