



Report of two species of spiders (Araneae: Linyphiidae: Erigoninae) from Western Ghats, Kerala, India

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ABSTRACT: Two erigonine species *Oedothorax apicatus* Blackwall, 1850 and *Nasoona orissa* Tanasevitch, 2018 were reported from Central Kerala, India; *N. orissa* endemic to India, is reported after its description in 2018 and *O. apicatus* reported for the first time from India. The study contributed addition of two species to spider diversity of Kerala. © 2022 Association for Advancement of Entomology

KEY WORDS: Spider diversity, erigonine species, description, addition

Erigoninae Emerton 1882, is the largest subfamily of Linyphiidae Blackwall 1859, with 411 genera. Only *Oedothorax stylus* Tanasevitch 2015, *O. cunur* Tanasevitch 2015, *O. kodaikanal* Tanasevitch 2015, *O. veloorensis* Domichan & Sunil Jose 2021, *O. cheruthoniensis* Domichan & Sunil Jose 2021, (endemic to India), and *O. retusus* Westring 1851, have been reported from Kerala so far (World spider catalog, 2022).

Linyphiid specimens were collected between 15 September and 28 December 2020 from Ernakulam and Kottayam districts, Kerala and preserved in ethyl alcohol (80%). Microphotographs were obtained with a Flexacam C1 coupled to an LEICA SAPO Automontage Microscope and processed with the Leica Application Suite X (LAS X) software. All dimensions are given in millimetres. Leg measurements are listed in the following order: total (femur, patella, tibia, metatarsus (except palp), tarsus). Female epigyne was cleared by boiling for 5 minutes in 10 per cent KOH (Domichan and Sunil

Jose, 2021). The specimens are deposited in the Arachnology Lab, Deva Matha College, Kuravilangad, Kottayam, Kerala. Identity of specimens was confirmed by referring to Roberts (1987), Heimer and Nentwig (1991) and Tanasevitch (2018).

Abbreviations used in the text: ALE-anterior lateral eye; AME-anterior median eye; PLE-posterior lateral eye; PME-posterior median eye; R-receptacle; MP-median plate; P-paracymbium; PC-paraconvexor; T-tegulum.

Genus: *Oedothorax* Bertkau 1883

Type species: *Oedothorax gibbosus* Blackwall 1841

Diagnosis: Males are characterized by modified carapace and by the shape of palpal tibia. The unmodified distal suprategular apophysis possess a pointed tooth in the middle. Male palp also possess an embolus with a small radix and a curved embolus

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proper, convector with a pointed distal apophysis. The epigynes are simple with: a median plate and spherical or elongated receptacles (Tanasevitch, 2015).

***Oedothorax apicatus* Blackwall 1850**

Material examined: India. 1 ♀; Kerala, Ernakulam, Kalady, Kanjoor; 10°08'39.0"N 76°25'04.4"E; 22 December 2020; leaf litter; coll. A. Domichan; DMCK LIN 032.

Diagnosis: Male carapace raised behind eyes to form a knob like projection. *O. retusus* is similar to *O. apicatus* and the central part of epigyne has a paler anterior and median area (fairly uniform in colour in *O. retusus*) and lacks a darker line anteriorly (anteriorly convex darker line present in *O. retusus*). Some epigynes of *O. apicatus* resemble those of *O. fuscus*, but differs due to relatively smaller seminal receptacles and a clear median light mark on the abdomen (Roberts, 1987).

Description: Female: Total length 2.62. Carapace yellowish with brown shades. Fovea 'U' shaped. Prosoma length 1.23, width 0.92. Ocular area slightly raised. Long, black, forward-directed hairs between eyes (Fig.1A). Enlarged white eyes, placed in black rings. Eye interdistances: AME-AME 0.01, AME-ALE 0.03, PME-PME 0.02, PME-PLE 0.03. Eye diameter: 0.02. Anterior and posterior lateral eyes juxtaposed. Anterior median eyes closely arranged. Chelicerae 0.32 long with stridulatory ridges. Sternum slightly blackish with dark borders. Heart-shaped sternum, wider near first coxa. Legs yellowish with white bands. Legs covered with short black hairs. Leg measurements: I 1.01 [0.34, 0.06, 0.13, 0.30, 0.18], II 0.92 [0.29, 0.06, 0.12, 0.28, 0.17], III 0.78 [0.23, 0.05, 0.10, 0.25, 0.15], IV 1.10 [0.38, 0.06, 0.15, 0.31, 0.20], palp [0.17, 0.05, 0.07, 0.12]. Leg formula 4123. Chaetotaxy 2-2-1-1. Trichobothrium present on metatarsi of all legs. TmI 0.26. Two long black bands, starting from the anterior side of abdomen, fuse to form a single big black patch at the posterior end. White patch on posterior end, in front of spinnerets (Fig.1B). Ventral side blackish yellow, with epigyne projecting outwards from epigastric

groove. Opisthosoma length 1.39, width 0.79. Epigyne simple. Lateral lines of median plate of epigyne initially converge towards centre and then curved outwards, dorsally. Median plate wider than long. Receptacles oval-shaped and curved outwards, dorsally and ventrally (Fig. 2 A-B). Male: Unknown.

Distribution: Europe, Turkey, Caucasus, Russia (Europe to South Siberia), Kazakhstan, Iran, Central Asia, China, India (Kerala).

Genus: *Nasoona* Locket 1982

Type species: *Nasoona prominula* Locket 1982

Diagnosis: Genus *Nasoona* possess variegated abdomen and male carapace with a postocular elevation bearing a group of curved spines, stout spines or setae. The male palp is characterized by highly modified palpal tibia, poorly developed distal suprategular apophysis, reduced radix, presence of convector, presence of paraconvector. At present the paraconvector is only known in *Nasoona*. The epigyne in *Nasoona* has a epigynal cavity, divided by a septum or partially covered from above and small, spherical or bean like receptacles (Tanasevitch, 2018).

***Nasoona orissa* Tanasevitch 2018**

Material examined: India. 1 ♂; Kerala, Kottayam, Kumarakom Bird Sanctuary; 9°37'39.8"N 76°25'42.3"E; 16 September 2020; leaf litter; coll. A. Domichan; DMCK LIN 067.

Diagnosis: Distal apophysis of convector is divided into two lobes, distal process of paraconvector wide and bent. Paracymbium has an L-shaped proximal part and a distal part with a hook-shaped tip. Tibia divided into four lobes; keel-shaped prolateral part, long dorso-prolateral lobe, conical dorso-retrolateral side and a cup shaped retrolateral outgrowth. Convector is with a curved main body and distal apophysis with two uneven lobes. Paraconvector with protruded distal process (Tanasevitch, 2018).

Description: Male: Total length 2.59. Carapace golden brown. Prosoma length 1.18, width 0.72. The area behind the ocular region raised. A row of

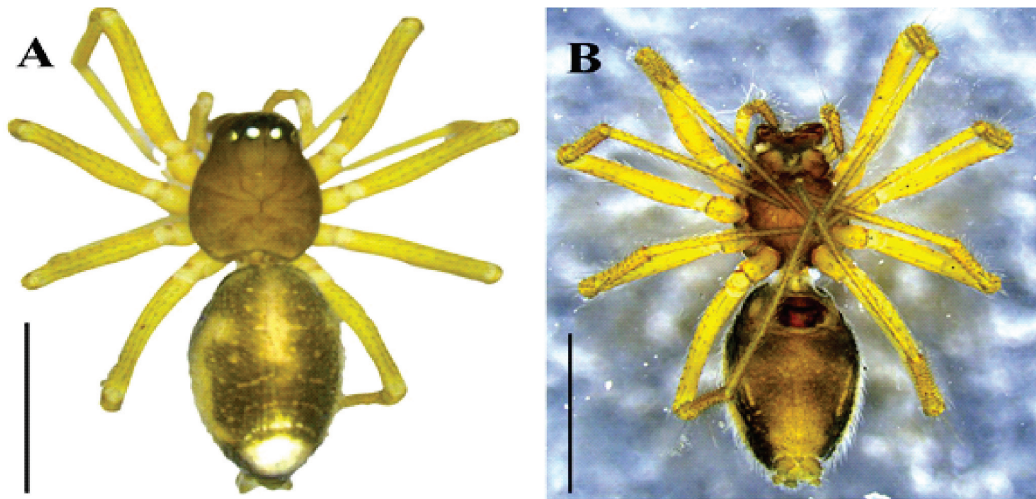


Fig.1 *Oedothorax apicatus* Blackwall, 1850. Female habitus
A. dorsal B. ventral. Scale bar: A-B 1mm.

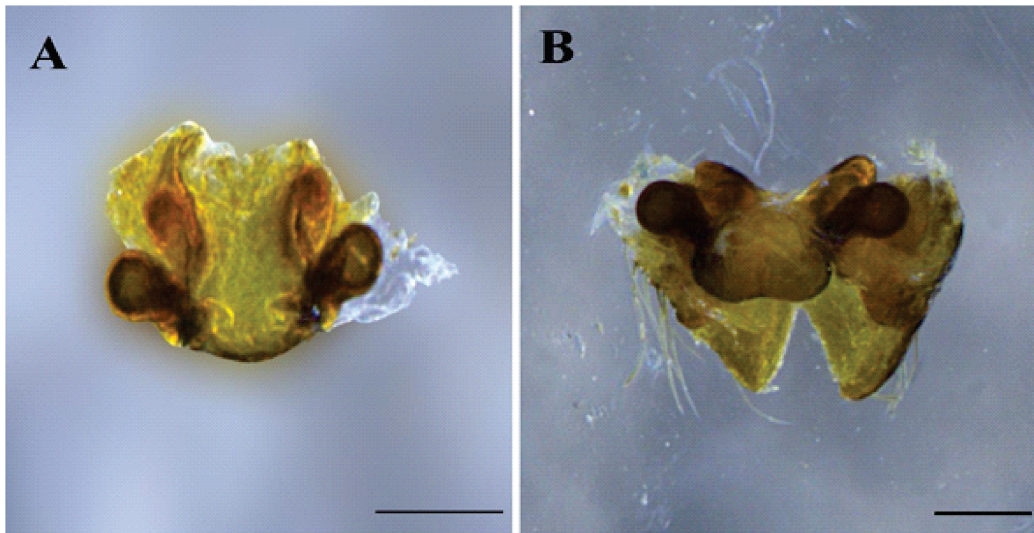


Fig.2 *Oedothorax apicatus* Blackwall, 1850. Female epigyne
A. ventral B. dorsal. Scale bar: A-B 0.1 mm.

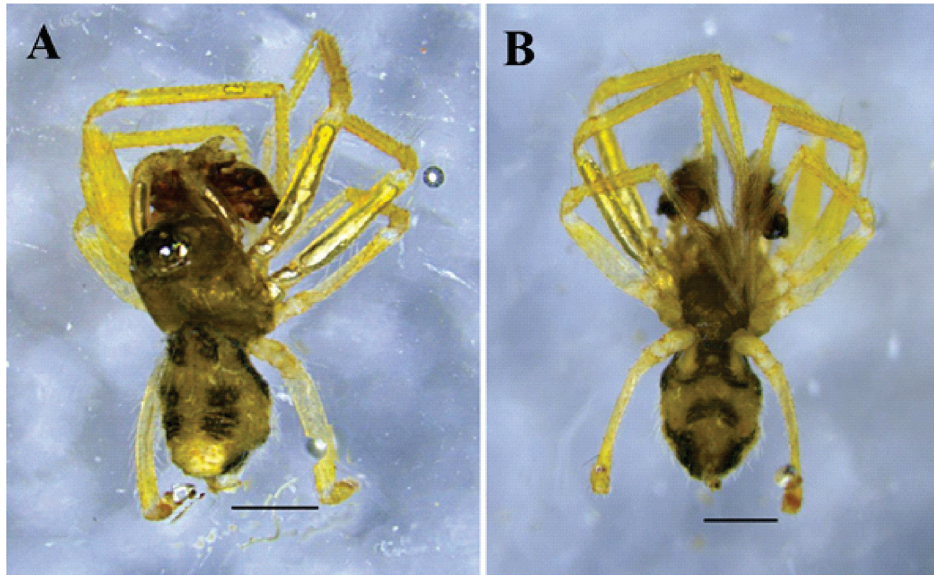


Fig.3 *Nasoona orissa* Tanasevitch, 2018 . Male habitus
A. dorsal view B. ventral view. Scale bar: A-B 1mm.

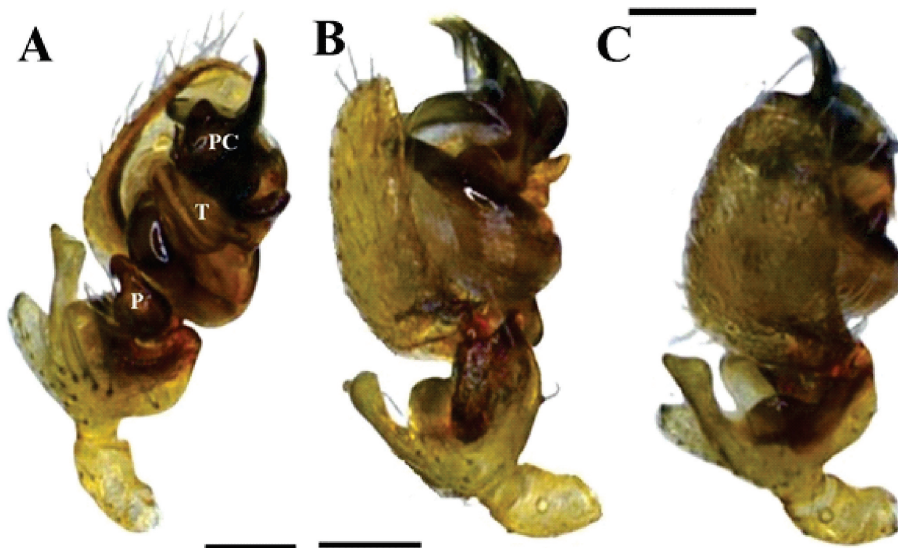


Fig.4 *Nasoona orissa* Tanasevitch, 2018. Male palp
A. ventral B. lateral C. dorso-lateral. Scale bar: A-C 0.1mm.

long, stout hairs behind the posterior median eyes. The hairs are forward-directed and slightly curved or bent (Fig.3A). Eye interdistances: AME-AME 0.01, AME-ALE 0.02, PME-PME 0.03, PME-PLE 0.04. Eye diameter: 0.02. Chelicerae 0.35 long, pale brownish. Sternum brownish, heart-shaped. Legs yellowish with black hairs and long spines. Measurements of legs and palp: I 3.48 [1.09, 0.34, 0.95, 0.89, 0.21], II 2.38 [1.01, 0.22, 0.45, 0.55, 0.15], III 1.69 [0.81, 0.20, 0.28, 0.31, 0.09], IV 3.67 [1.16, 0.37, 1.01, 0.92, 0.21], palp 1.40 [0.54, 0.14, 0.31, 0.47]. Leg formula 4123. Chaetotaxy 2-2-1-1. All legs have a trichobothrium on metatarsus. TmI 0.48. Abdomen yellowish with three pairs of black patches on dorsal side. Pair of black patches on anterior and posterior lateral sides. Pair of black patches on ventral sides (Fig. 3B). Opisthosoma length 1.41 width 0.65.

Palp: Prolateral part of tibia straight and slopes towards centre (keel shaped), dorso-prolateral part with a depression at the centre (M-shaped). Dorso-retrolateral side of tibia with a wide depression at the centre with small spines, ventro- retrolateral part cup or U shaped, dorsal prolateral outgrowth long, with a depression at the centre. Paracymbium has a narrow proximal part and wide distal part with a hook-shaped structure at the tip. Tegulum wide, narrows anteriorly, with a small projection. Subtegulum wide, almost oval shaped, anterior part narrower than posterior part. Embolus thin and long. Distal part of paraconvactor long and pointed, whereas proximal part is wide. Distal apophysis of convactor divided into two parts. The edges of convactor and paraconvactor serrated (Fig. 4 A - C). Female: Unknown

Distribution: India (Odisha, Kerala).

Oedothorax is one of the largest Linyphiid genus with 85 described species and *Nasoona* Locket 1982 has a worldwide record of 17 species (World spider catalog, 2022). The study contribute to Linyphiid diversity of Kerala by addition of two species, *O. apicatus* is reported for the first time from India and *N. crucifera* Thorell 1895 is the only representation of the genus *Nasoona* from Kerala (World spider catalog, 2022).

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