



## First record of *Mitrager rustica* (Tanasevitch, 2015) and *Neriene birmanica* (Thorell, 1887) (Araneae, Linyphiidae) from Kerala, India

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**ABSTRACT:** Two linyphiid species, *Mitrager rustica* (Tanasevitch, 2015) and *Neriene birmanica* (Thorell, 1887) are reported from Kerala. *M. rustica*, endemic to India, is making its second report after 15 years and it is first report of *N. birmanica* from Kerala. © 2022 Association for Advancement of Entomology

**KEYWORDS:** Kanjoor, tegulum, palp, report

Linyphiidae Blackwall, 1859 is the second largest family of spiders with a worldwide report of 4724 species under 624 genera. *Mitrager* Van Helsdingen, 1985 comes under subfamily Erigoninae and *Neriene* Blackwall, 1833 belongs to subfamily Linyphiinae. Till date, 25 species of *Mitrager* and 60 species from *Neriene* have been reported worldwide (World Spider Catalog, 2022). However, six *Mitrager* species have been reported from India namely: *M. cornuta* (Tanasevitch, 2015), *M. falciferoides* (Tanasevitch, 2015), *M. globiceps* (Thaler, 1987), *M. lopchu* (Tanasevitch, 2015), *M. rustica* (Tanasevitch, 2015) and *M. villosus* (Tanasevitch, 2015) described *M. rustica* from Tamil Nadu. *Neriene birmanica* Thorell, 1887 has been reported from Jammu & Kashmir, Karnataka and Uttarakhand.

Linyphiid specimens were collected from Central Kerala and preserved in ethyl alcohol (80%). Specimens were examined using compound microscope. Microphotographs were taken using Flexacam C1 attached to LEICA SAPO Automontage Microscope using Leica Application Suite X (LAS X) software. All measurements are in millimeters. The measurements of legs are given in the order: total [femur, patella, tibia, metatarsus (except palp), tarsus]. Epigyne was cleared by boiling in KOH (10%) for 5 minutes.

Abbreviations used in the text:

ALE- anterior lateral eye; AME- anterior median eye; DSA- distal suprategular apophysis; EM- embolic membrane; MP- median plate; PC- paracymbium; PLE- posterior lateral eye; PLP- posterior part of lamella; PME- posterior median eye; R- receptacle; T- tegulum; ST- subtegulum.

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## Taxonomy

Family Linyphiidae Blackwall, 1859

Genus *Mitrager* Van Helsdingen, 1985

Type species: *Mitrager noordami* van Helsdingen, 1985

***Mitrager rustica* (Tanasevitch, 2015)** Figs. 1-4

**Diagnosis:** Males are characterized by slightly modified carapace, spination of paracymbium and specific structure of convector (Tanasevitch, 2015). In epigyne, lateral sides of median plate are directed inwards and receptacles are slightly curved outwards.

**Material examined:** 1 (DMCKLIN056), Kanjoor, Ernakulam district, Kerala (10°08'39.0"N; 76°25'04.4"E), hand-collected from leaf litter, 22 December 2020, leg. A. Domichan. 1♂ with same data (DMCKLIN035).

**Description: Male** - Total length 2.70. Prosoma length 1.32, width 1.22. Eye interdistances: AME-AME 0.04, AME-ALE 0.03, PME-PME 0.04, PME-PLE 0.04. Eye diameter: 0.03. Opisthosoma length 1.37, width 1.29. Measurements of legs and palp: I 3.55 [1.14, 0.30, 0.85, 1.02, 0.24], II 3.35 [1.07, 0.31, 0.80, 0.97, 0.20], III 3.26 [1.08, 0.31, 0.81, 0.98, 0.24], IV 3.8 [1.17, 0.31, 0.92, 1.14, 0.26] palp: 2.05 [0.55, 0.31, 0.56, 0.63]. Leg formula 4123. Chaetotaxy 2-2-1-1. All metatarsi with a trichobothrium. TmI 0.65. Carapace yellowish. Area behind ocular region raised. Long hairs present behind posterior median eyes. Abdomen yellowish with three pairs of black patches on dorsal side. Pair of black patches on anterior and posterior lateral sides (Fig.1A). Pair of black patches on ventral sides. Sternum yellowish with dark borders (Fig.1B). Legs yellowish with white bands. Paracymbium simple with many spines. Tip of retro lateral tibial apophysis pointed. Distal supratergular apophysis narrows towards the central portion and distal portion appears rounded. Teeth like structure present at central portion of distal supratergular apophysis. Tip of distal convector apophysis pointed and twisted (Fig. 2 A-C).

**Female** - Total length 2.8. Prosoma length 1.3, width 0.94. Eye interdistances: PME-PME 0.03, PME-PLE 0.03. Eye diameter: 0.02. Opisthosoma length 1.5, width 0.98. Measurements of legs and palp: I 1.77 [0.53, 0.13, 0.40, 0.38, 0.33], II 1.69 [0.47, 0.13, 0.42, 0.36, 0.31], III 1.67 [0.50, 0.12, 0.41, 0.33, 0.31], IV 2.16 [0.61, 0.13, 0.51, 0.55, 0.36], palp 1.03 [0.32, 0.08, 0.29, 0.34]. Leg formula 4123. Chaetotaxy 2-2-1-1. All metatarsi with a trichobothrium. TmI 0.78. Carapace brownish. Area behind ocular region raised. Abdomen slightly pinkish with three pairs of black patches on dorsal side (Fig. 3A). Dark patches along lateral sides. Pair of black patches below epigyne. Sternum brownish with dark borders (Fig. 3B). Legs slightly yellowish with white bands. Thick lateral lines of median plate of epigyne directed inwards with slightly curved, hook like tip. Receptacles, round, slightly curved outwards (Fig.4 A-B).

**Ecology:** The specimens were collected from leaf litter. Due to its proximity to a moving stream, the soil and litter were slightly damp. After a mild rainfall the day before, the weather was slightly humid. The collection was done early in the day. Using a specimen vial, the running specimens were captured.

**Distribution:** India (Tamil Nadu, Kerala)

Genus *Neriere* Blackwall, 1833

Type species: *Neriere marginata* Blackwall, 1833

***Neriere birmanica* (Thorell, 1887)** Figs. 5-6

**Diagnosis:** Paracymbium possess narrow distal arm tapering to a sharp tip and hook-shaped tip of distal part of median apophysis curved in ventral direction (Helsdingen, 1969). It can be distinguished by the tiny paracymbium, sword-shaped embolic tip, terminal apophysis with about one coil (Xu *et al.*, 2010).

**Material examined:** 1 (DMCK LIN 072), Kumarakom Bird Sanctuary, Kottayam district, Kerala (9°37'39.8; 76°25'42.3"E), collected from sheet web, 19 February 2021, leg. A. Domichan.

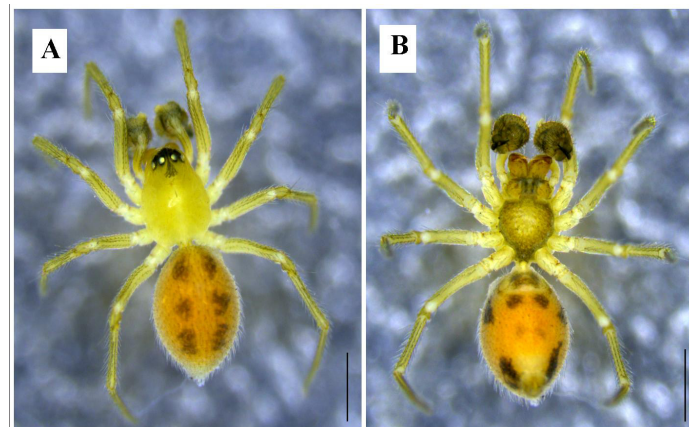


Fig. 1 *Mitrager rustica* (Tanasevitch, 2015) Male habitus; A. dorsal view; B. ventral view (Scale bars: A-B 1mm.)

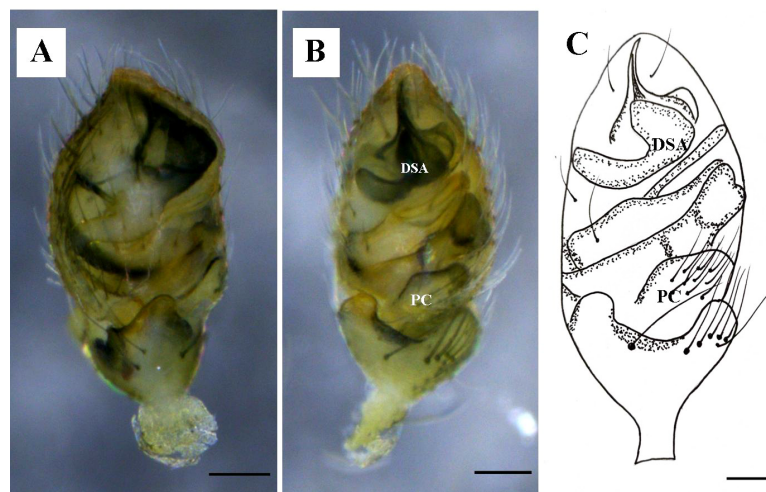


Fig. 2 *Mitrager rustica* (Tanasevitch, 2015). Male palp - A. dorso-ventral view; B-C. ventral view (Scale bars: A-C 1mm)

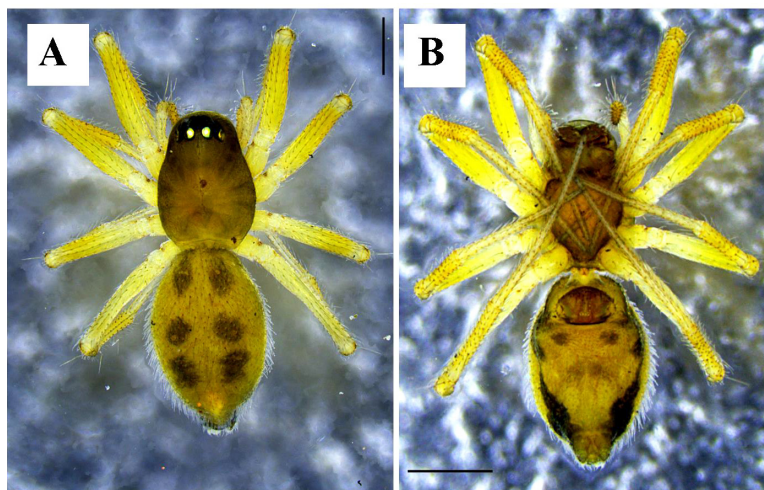


Fig. 3 *Mitrager rustica* (Tanasevitch, 2015) Female habitus - A. dorsal view; B. ventral view (Scale bars: A-B 1mm)



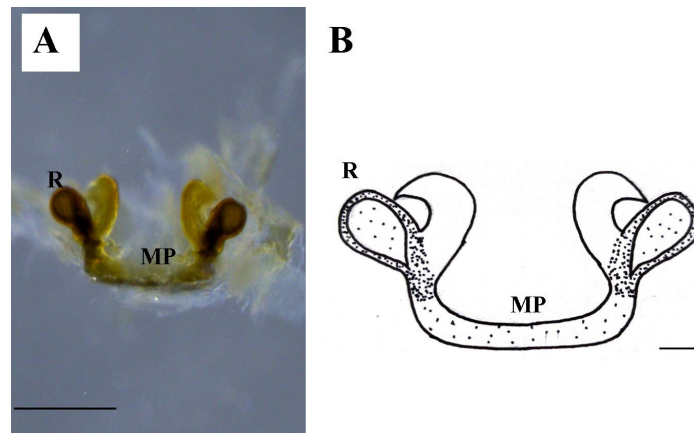


Fig. 4 *Mitrager rustica* (Tanasevitch, 2015). Female epigyne A-B. ventral view (Scale bars: A-B 0.1 mm)

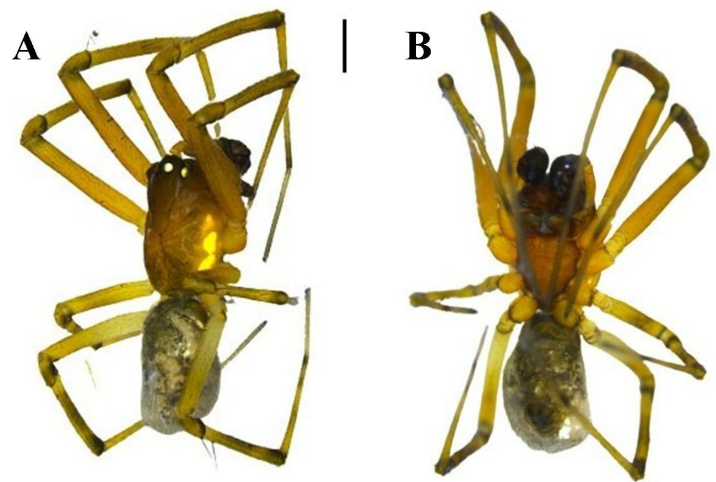


Fig. 5 *Neriene birmanica* (Thorell, 1887) Male habitus A. dorsal view; B. ventral view (Scale bars: A-B 1 mm)

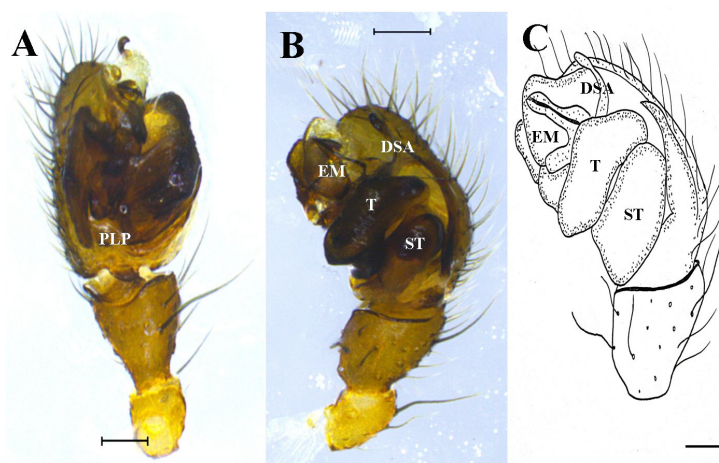


Fig. 6 *Neriene birmanica* (Thorell, 1887). Male palp A. retro-lateral view; B-C. ventro-lateral view (Scale bars: A-C 0.1 mm)

**Description: Male** - Total length 3.49. Prosoma length-1.73, width-1.54. Eye interdistances: AME-AME 0.04, AME-ALE 0.05, PME-PME 0.06, PME-PLE 0.08. Eye diameter: 0.07. Opisthosoma length 1.75, width 1.5. Chelicerae length 1.45. Measurements of legs and palp: I 5.18[1.62, 0.48, 1.27, 1.54, 0.27], II 5.06 [ 1.58, 0.45, 1.3, 1.5, 0.23], III 4.58[1.3, 0.43, 1.18, 1.39, 0.28], IV 4.97[1.48, 0.47, 1.29, 1.52, 0.21], palp [0.66, 0.52, 0.61, 0.56]. Leg formula 1243. Cephalothorax brownish yellow. Ocular area raised. Heterogeneous eight eyes. Long, black hairs on ocular area. Anterior row of eyes recurved. Posterior row of eyes straight. Anterior and posterior lateral eyes juxtaposed. Chelicerae with three promarginal teeth and three retromarginal teeth. Stridulatory ridges absent. Sternum slightly brownish, wider near first coxa and darker along border (Fig. 5B). Legs yellowish, with black colouration at end of each segment. Thin legs with black long spines and short black hairs. Abdomen white with black markings on dorsal surface and greenish brown on ventral surface. Anterior part of abdomen straight. Posterior abdomen wider and slightly curved upwards. Body somewhat cylindrical in shape (Fig. 5A).

Palp: Distal end of paracymbium narrow towards end, with its pointed tip. Paracymbium U shaped with pointed proximal end. Terminal apophysis with one coil. Median apophysis with slender, hook like tip. Lamella well developed with thin, long and pointed lateral portion, broad and short anterior side. Posterior side of lamella thin, short and pointed whereas dorsal side is short and broad. Embolus thin and curved with sword-shaped tip. Tegulum broad and bulged medially. Subtegulum broad and bulging (Fig. 6 A-C).

Ecology: The specimen was collected, from sheet web, built on lower branches of a tree. Only one male specimen was found in the web. Kumarakom Bird Sanctuary had a humid weather during collection.

**Distribution:** India (Jammu & Kashmir, Karnataka, Uttarakhand, Kerala)

Present study identifies *M. rustica*, endemic to India, is making its second report after 15 years and it is first report of *N. birmanica* from Kerala. Despite minor differences, morphological characters like colour and pattern of abdomen is similar among most of the linyphiid litter dwellers. Thorough study of male and female genitalia is essential part of linyphiid identification. Being an understudied area, Central Kerala might be home to many linyphiids.

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