

First report of the jumping spider *Epeus daiqini* (Patoleta, Gardzińska & Żabka, 2020) (Araneae: Salticidae) from India

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SIBI, K. K., GIGI, P. & SUDHIKUMAR, A. V.: *First report of the jumping spider Epeus daiqini (Patoleta, Gardzińska & Żabka, 2020) (Araneae: Salticidae) from India.*

Abstract: *Epeus* Peckham & Peckham, 1886 is a genus from family Salticidae. So far, the species *Epeus daiqini* (Patoleta, Gardzińska & Żabka, 2020) only reported from Thailand. This paper reports and describe both sexes of *E. daiqini* for the first time from India.

Keywords: Taxonomy, Faunistic, India, Kerala

Introduction

Epeus Peckham & Peckham, 1886 is a little-known genus from family Salticidae and currently comprises 19 valid species, of which the majority have been reported from south and southeast Asia. Of the 19 described species, four have been recorded from India (World Spider Catalog 2023): *Epeus albus* Prószyński, 1992, *E. chilapataensis* (Biswas & Biswas, 1992), *E. indicus* Prószyński, 1992, *E. triangulopalpis* Malamel, Nafin, Sudhikumar & Sebastian, 2019. The genus *Epeus* described based on the characters like, male carapace usually with protruding and upward bristles; length of ocular is shorter than half of carapace. Legs covered with dense hair and numerous spines (PENG, & LI 2002). The cymbium of male palp flattened and elongated, with a basal apophysis retro-laterally, pointing postero-ventrally; tegulum with a tongue-like process; filiform embolus; and epigyne with several loops and long copulatory ducts (MENG et al. 2015).

Epeus daiqini described by PATOLETA et al. (2020) from Thailand. The species *E. daiqini* closely related to *E. tener* and mainly distinguished by the absence of embolic serration, the presence of a small outgrowth on the retrolateral cymbial apophysis, orientation of copulatory openings and copulatory ducts do not reach epigastric fold (PATOLETA et al. 2020). This paper documents the first report of the jumping spider *E. daiqini* from India based on specimens collected from Pathanamthitta, Kerala.

Material and methods

All specimens were collected by hand picking method and preserved in 70% ethanol and were studied, photographed and measured using a Leica M205C stereomicroscope, a Leica DFC450 Camera, and LAS software (Ver.4.13). Epigyne was dissected and internal genitalia were cleared in 10% potassium hydroxide (KOH) solution. Male palp was separated and photographed. 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).

Abbreviations: AER = anterior eye row, AG = accessory gland, ALE = anterior lateral eye, AME = anterior median eye, CY = cymbium, CA = cymbial apophysis, CATE = Centre for Animal Taxonomy and Ecology, Department of Zoology, Christ College (Autonomous), Irinjalakuda, Kerala, India, CD = copulatory duct, CO = copulatory opening, EM = embolus, FD = fertilization duct, PLE = posterior lateral eye, PME = posterior median eye, PSL = proximal spermathecal loop, RTA = retrolateral tegular apophysis, SD = seminal duct, TL = tegular lobe, TB = tegular bump

Results

Family: Salticidae Blackwall, 1841

Genus: *Epeus* Peckham & Peckham, 1886

Type species: *Epeus daiqini* Patoleta, Gardzińska & Żabka, 2020

Material examined: 3♂ 3♀ (CATE), Pathanamthitta, Kerala (9°15'38.7"N 76°47'56.9"E) K.K. Sibi, 28. September, 2022.

Diagnosis: Male differ from other related species by absence of embolic serration and presence of a small outgrowth on the retrolateral cymbial apophysis (Fig. 1D). Copulatory opening of *E. daiqini* more diagonal. Copulatory ducts do not reach epigastric fold, and proximal spermathecal loop less distinctive than in other species. The accessory glands clearly visible (Fig. 2D-E) (PATOLETA et al. 2020).

Redescription male: Total body length 7.4-7.8, relatively bigger than female. Cephalothorax 3.05 long, 2.67 wide and height 1.95. Carapace dark orange in colour till end of the eye rows, after that sky orange in colour with cephalic crest. They covered with scale like light hairs. Eye diameters: AME-0.81, ALE-0.24, PME-0.11, PLE-0.28. Eye interdistances: AME-AME 0.04, AME-ALE 0.34, PME-PME 1.62, ALE-ALE 1.63, PME-PLE 0.23, PLE-PLE 1.42, AME-PME 0.38. AME surrounded by brown colour and other eyes are surrounded by black colour. Clypeus height 0.96, dark brown in colour. Chelicerae dark reddish brown with two pro marginal teeth and one retro marginal tooth. Sternum length 1.44, width 1.23, oval shaped and yellowish with darker margin. Labium 0.33 long, 0.48 wide. Endites and labium dark orange with paler tips. Abdomen length 4.26, width 1.95 and height 1.52, yellowish with some brown shades. Spinneret's orange, anal tubercle with dark base and light tip. Leg measurements: Leg I 10.22 [2.65, 1.32,



Fig. 1: *Epeus daiqini* male. Fig. 1A. Habitus dorsal view, Fig. 1B. ventral view, Fig. 1C. frontal view, Fig. 1D-F. Palp: Fig. 1D. ventral view, Fig. 1E. prolateral view, Fig. 1F. retro-lateral view (Scale bars: 1-2 = 1 mm, 3 = 0.5 mm, 4-6 = 0.3 mm)

2.67, 2.39, 1.19], Leg II 8.87 [2.82, 1.34, 2.70, 1.33, 0.68], Leg III 9.51 [3.18, 1.26, 2.48, 1.81, 0.78] Leg IV 7.31 [1.83, 0.93, 2.41, 1.64, 0.50]. Leg formula: 1324. Legs light brown, the first pair darker and stronger than the others, with a fringe of brown setae on ventral patella, tibia and metatarsus. Spines numerous on all legs. Spination of leg I: tibia ventral 2–2–2–2, retrolateral 1–1–0–1, metatarsus ventral 2–2, pro and retrolateral 1–1. Cymbium apically slightly curved, absence of embolic serration, retrolateral cymbial apophysis with a short outgrowth. Embolus very long and thin. Tegulum with a small bump and with a distinctive, posterior finger-like tegular lobe. Retrolateral tibial apophysis single (fig. 1, D-F).

Redescription female: Total body length 6.2–6.5. Cephalothorax 2.71 long, 2.10 wide and height 1.41. Carapace pale yellowish, eye field paler, with translucent guanine deposits. Eye diameters: AME-0.64, ALE-0.26, PME-0.08, PLE-0.15. Eye interdistances: AME-AME 0.03, AME-ALE 0.13, PME-PME 1.34, ALE-ALE 1.35, PME-PLE 0.47, PLE-PLE 1.27, AME-PME 0.27. AME surrounded by brown in colour and other eyes are surrounded by black. Clypeus height 0.79, pale brown in colour and densely covered with whitish scale like hairs.

Chelicerae and endites are yellow. Labium pale yellow, 0.39 long and 0.37 wide. Sternum length 1.11, width 0.95, oval shaped with whitish. Abdomen length 3.86, width 1.62 and height 1.52, pale yellowish with mosaic type guanine deposits. Spinnerets pale yellowish. Leg measurements: Leg I 6.31 [1.85, 1.05, 1.85, 0.65], Leg II 6.12 [1.98, 0.99, 1.60, 0.87, 0.68], Leg III 6.14 [1.98, 0.88, 1.52, 1.06, 0.70], Leg IV 6.66 [1.99, 0.78, 1.70, 1.37, 0.82]. Leg formula 2431. Legs yellow, long and spiny, palps yellowish with darker tarsi. Spination of leg I: tibia ventral 2–2–2–2, metatarsus ventral 2–2. Epigynal plate rather round, atrium ovoid, copulatory openings with joined posterior margins, oriented antero-diagonally. The area between openings strongly sclerotized. Pockets absent. Copulatory ducts relatively short and do not reach the epigastric fold area. Accessory glands visible (Fig. 2 D-E).

Natural History: Usually found the mature individuals and juveniles between September–November. They are most active on morning 07:00 to 11:00 and evening between 16:00 to 18:30. This varies by season. They are frequently spotted in shrub lands and plantation.

Distribution: Thailand (World Spider Catalog 2023) and new to India

Discussion

In India the jumping spider genus *Epeus* currently consists of 4 valid species. However, 3 out of 4 *Epeus* species remain known from a single sex only. After *E. triangulopalpis* this is the second species described from both sexes. The genus *Epeus* is closely related to *Plexippoides* Prószyński, 1984, sharing morphological similarities in male genitalia, especially in the form of the cymbial apophysis, tegular lobe and embolus (PRÓSZYŃSKI et al. 2012). Male *E. daiqini* differ from similar or related species *E. tener* Simon, 1877, *E. furcatus* Zhang, Song & Li, 2003, and *E. bicuspидatus* SONG, GU & CHEN, 1988 as missing embolic serration, and the presence of a small outgrowth on the retrolateral cymbial apophysis. In *E. alboguttatus* Thorell, 1887 the female copulatory openings more widely separated from each other. But less distant in *E. pallidus* and *E. szirakii* (PATOLETA et al. 2020). Females differ from

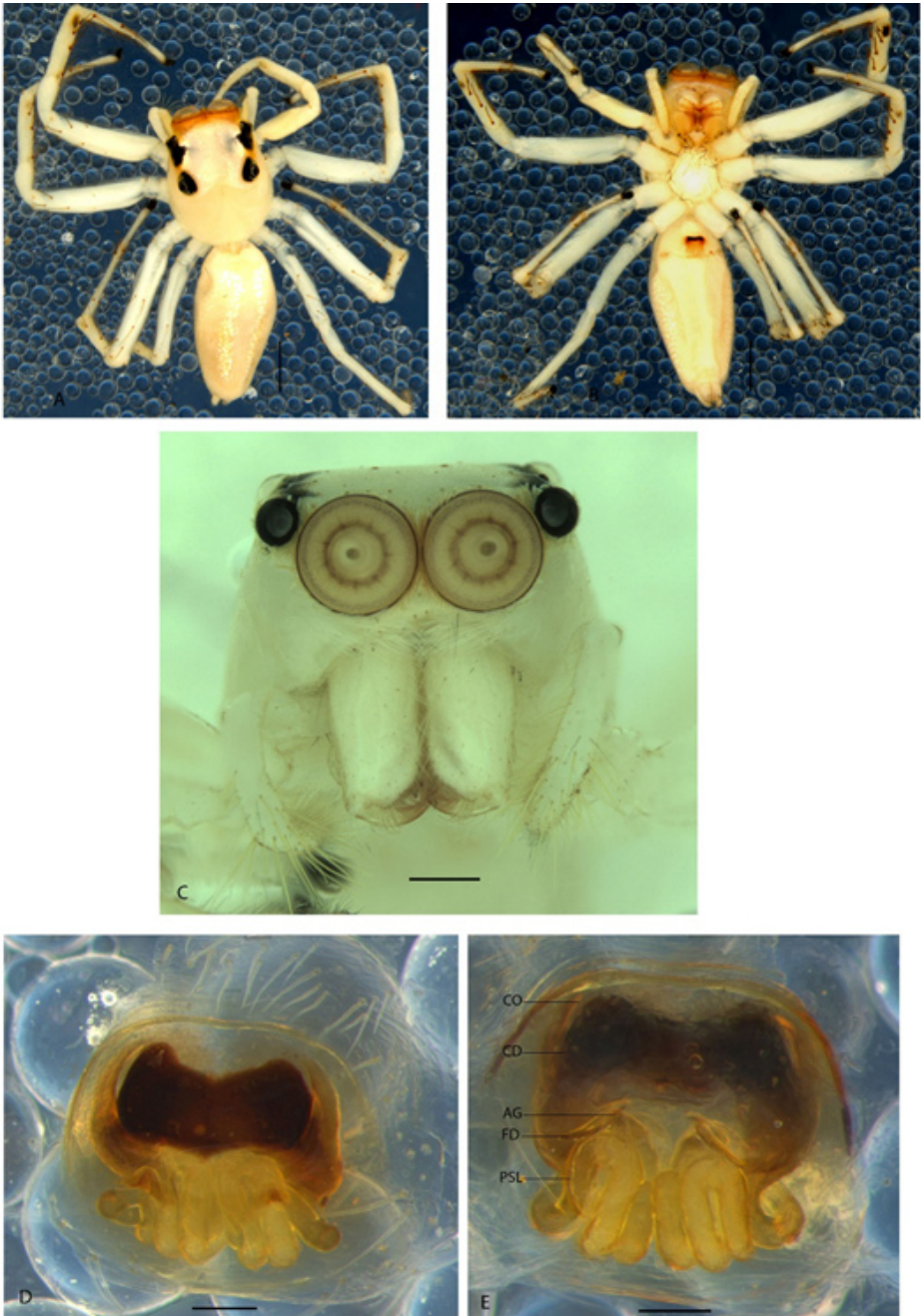


Fig. 2. *Epeus daiqini* female. Fig 2A. Habitus dorsal view, Fig. 2B. ventral view, Fig. 2C. frontal view, D-E epigyne, Fig. 2D. ventral view, Fig. 2E. dorsal view, (Scale bars: 7-8 = 1 mm, 9 = 0.5 mm, 10-11 = 0.1 mm)

E. tener by the orientation of copulatory openings, it is more diagonal in *E. daiqini*. Copulatory ducts do not reach epigastric fold, and proximal spermathecal loop (PSL) less distinctive than in other species. Accessory glands visible. These characteristic features made clear that our specimens belong to the species *E. daiqini*.

Acknowledgments

We are grateful to Rev. Fr. Dr. Jolly Andrews CMI, Principal, Christ College (Autonomous), Irinjalakuda, Kerala, India for allowing us to use their research facilities. First author is grateful to UGC-NFSC National Fellowship for Scheduled Caste Students (No. F. 82-44/2020 (SA-III)) for financial assistance to conduct this study. Authors also acknowledge the funding rendered by DST-SERB Major Research Project EEQ/2021/000453, for the facilities used in the study. We are grateful to all co-researchers in CATE lab for their moral support.

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