



First record of the cobweb spider (*Steatoda erigoniformis*) from India

There are three species of the Genus *Steatoda* Sundevall, 1833 (Family Theridiidae Sundevall, 1833) distributed on the Indian subcontinent (Caleb & Sankaran 2022, WSC 2022). Here, we report the first record of *S. erigoniformis* (O. Pickard-Cambridge, 1872) from India, specifically from Maharashtra and Rajasthan states. Previously, this species was known from Central Asia and China (Levy & Amitai 1982, Song *et al.* 1999, Bosmans & Hervé 2021), but now its range extends south to Central India.

The specimens were studied and photographed with a Leica DMC4500 digital camera mounted on a Leica M205 C stereomicroscope. Photographs were stacked with the image stacking software Leica Application Suite (LAS) version 4.3.0. Measurements were taken using the Leica Application Suite (LAS) version 4.3.0 software.

All measurements are reported in mm. Lengths of the palp/pedipalp and leg segments are given as follows: total length (length of femur, patella, tibia, metatarsus [except for palp/pedipalp], tarsus) and are listed from the proximal to the distal position. Morphological characters and abbreviations used in the text follow Levy & Amitai (1982).

Abbreviations: ALE, anterior lateral eye; AME, anterior median eye; PLE, posterior lateral eye; PME, posterior median eye. Material is deposited in the following museum (curator): MNHN, National Museum of Natural History, Paris (C. Rollard); NRC, National Centre for Biological Sciences, Bangalore (T. Karmakar).

Steatoda erigoniformis (P.-Cambridge, 1872)

Theridion erigoniforme P.-Cambridge, 1872

Steatoda signata P.-Cambridge, 1876

Holotype. A female (MNHN, not examined), collected from south Faqus (30.07°N, 1.83°E), Sawaleh, Egypt, by M. B. Condé on 7 Sep 1949.

Material examined ($n=3$). India: Maharashtra: 1 male (NRC-AA-7698; Fig. 1A–D) and 1 female (NRC-AA-7699) collected from Uruli-Kanchan Village (18°28'33.2" N, 74°08'03.2" E; alt: 569 m), by R. Tripathi on 20 Aug 2018; Rajasthan State: 1 female (NRC-AA-7700) collected from Thar Desert National Park Wildlife Sanctuary Jaisalmer (26°45'09.6"N, 71°25'40.5"E; alt: 269 m), by R. Tripathi on 15 Sep 2021.

Diagnosis. See Levy & Amitai (1982: page 11 and figures 63–71) to refer a previously published diagnosis.

Redescription. Male. Colour of carapace, eye region, fangs, clypeus, chelicerae, sternum, endites and legs dark brown; opisthosoma and spinnerets purplish-black. Carapace granulated, broad-oval, lateral margin serrated and clothed with scattered fine black hairs. Fovea narrow, horizontal, straight and reddish-brown. Cephalic region slightly elevated in lateral view. Cheliceral promargin lack tooth and retromargin with single tiny tooth. Opisthosoma widely oval; medially with four large sigillae; four white pigmented spots on anterior upper sides of dorsum and two or three smaller ones in a row, above spinnerets. Body length 1.90. Carapace length 0.97, width 0.65. Abdomen length 0.88, width 0.68. Ocular area length 0.11, width 0.25. Eye diameters and interdistances: AME 0.04, ALE 0.05, PME 0.05, PLE 0.05; AME–AME 0.03, AME–ALE 0.02, PME–PME 0.03, ALE–ALE 0.15, PME–PLE 0.03, PLE–PLE 0.19. Chelicera length 0.27. Clypeus height 0.15. Measurements of pedipalp & legs: Pedipalp 0.63 [0.28, 0.05, 0.10, 0.20], I 2.47 [0.75, 0.28, 0.59, 0.52, 0.33], II 2.09 [0.65, 0.24, 0.49, 0.42, 0.29], III 1.85 [0.57, 0.23, 0.38, 0.42, 0.25], IV 2.77 [0.85, 0.33, 0.65, 0.58, 0.36]. Leg formula: 4123. *Pedipalp* (Fig. 2A–C); pale brown; embolus long, twisted helix-like, mediolaterally orienting, with broad transverse embolic base; conductor with large distal projection, membranous, surrounding embolic tip.

Female (Fig. 1E–H). General aspects essentially as in male except for the followings:

Plate 15

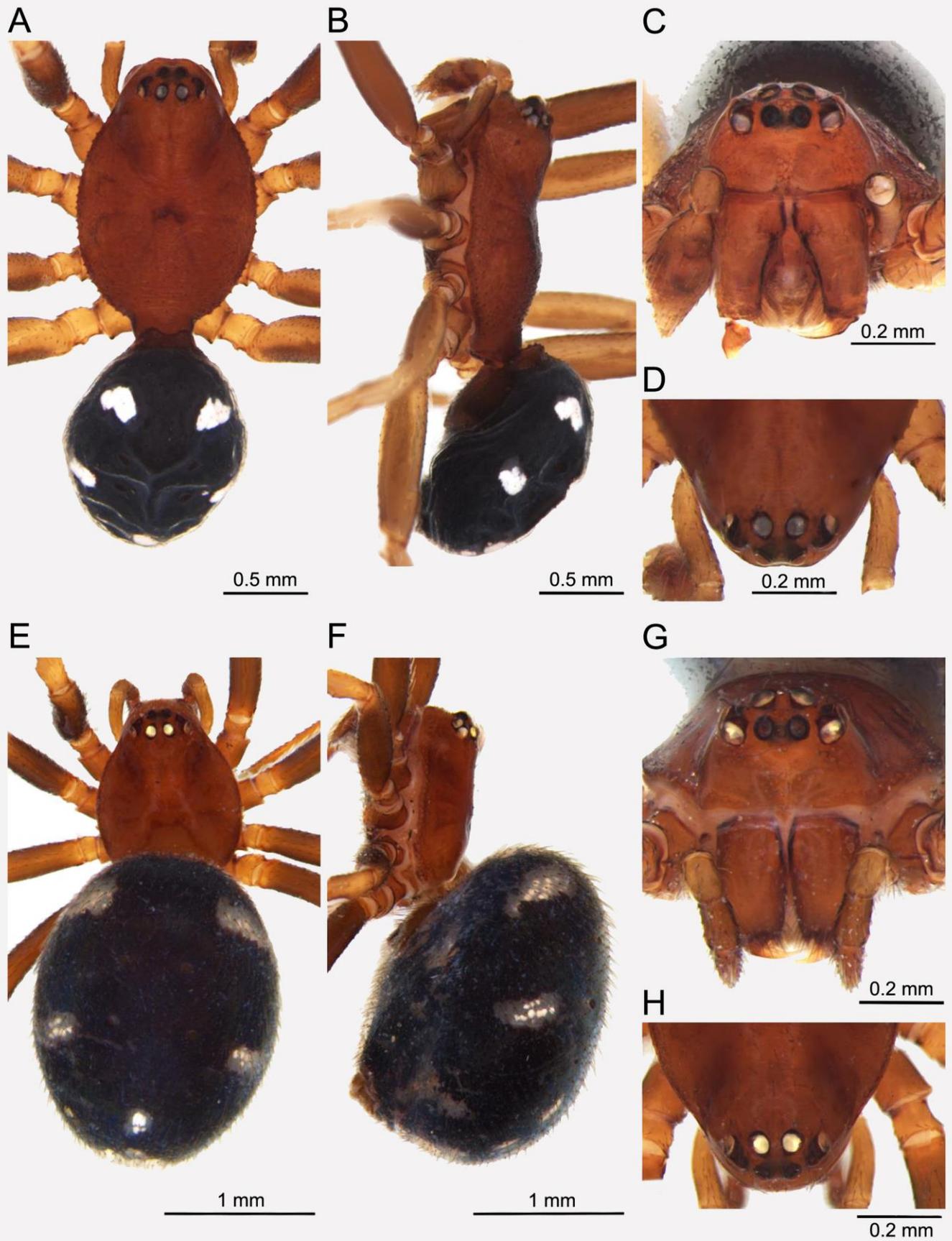


Figure 1. The habitus of the *Steatoda erigoniformis* from Maharashtra, India: **Male** (A) dorsal and (B) lateral views of body, (C) frontal view of carapace, (D) dorsal view of cephalic area; **Female** (E) dorsal and (F) lateral views of body, (G) frontal view of carapace, (H) dorsal view of cephalic area

Plate 16

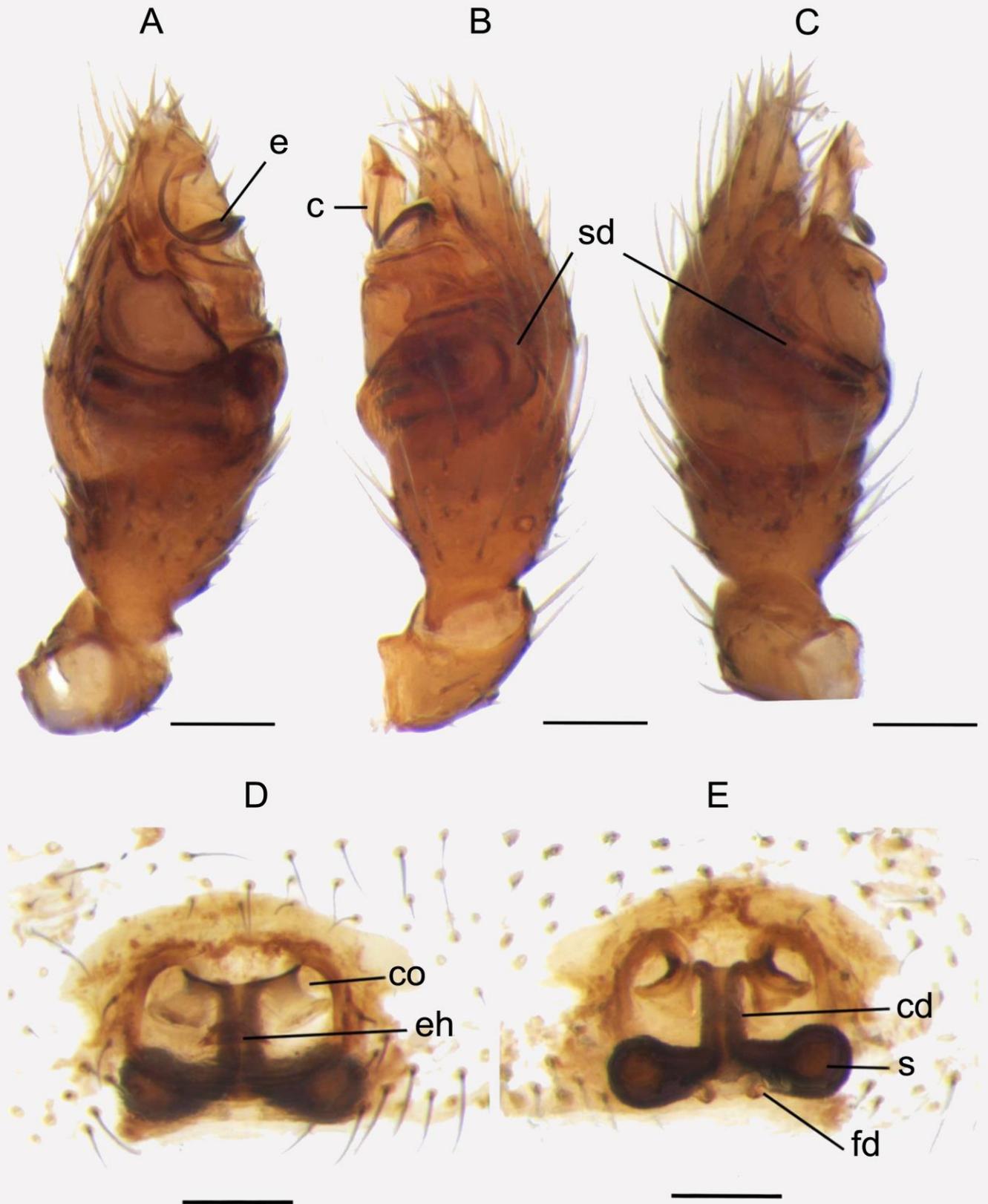


Figure 2. Copulatory organs of *Steatoda erigoniformis* from Maharashtra, India: **Male** (A) ventral, (B) retrolateral and (C) prolateral views of the left palp; (D) ventral and (E) dorsal views of the epigyne; **c.** conductor; **cd.** copulatory duct; **co.** copulatory opening; **e.** embolus; **eh.** epigynal hood; **fd.** fertilization duct; **s.** spermatheca; **sd.** sperm duct; scale: 0.1 mm

Carapace lateral serration absent. Cephalic elevation indistinct. Abdomen wide, hirsute; spots off-white with two additional on sides, usually not visible from above, placed obliquely, in front of spinnerets. Body length 2.16. Carapace length 0.64, width 0.58. Abdomen length 1.46, width 1.17. Ocular area length 0.16, width 0.30. Eye diameters and interdistances: AME 0.04, ALE 0.05, PME 0.05, PLE 0.05; AME–AME 0.02, AME–ALE 0.01, PME–PME 0.03, ALE–ALE 0.14, PME–PLE 0.02, PLE–PLE 0.16. Chelicera length 0.25. Clypeus height 0.10. Measurements of palp & legs: Palp 0.58 [0.19, 0.08, 0.11, 0.20], I 1.99 [0.60, 0.23, 0.46, 0.41, 0.29], II 1.76 [0.59, 0.22, 0.37, 0.35, 0.23], III 1.52 [0.48, 0.21, 0.29, 0.33, 0.21], IV 2.16 [0.67, 0.27, 0.48, 0.45, 0.29]. *Genitalia* (Fig. 2D, E); epigynum hirsute, translucent, disc-shaped; with central depression and small inverted triangular-shaped epigynal hood. Copulatory ducts short, medially placed, parallelly oriented, connected distally to spermathecae; spermathecae discoid-shaped, contiguous. Fertilization ducts narrow and converging.

Distribution. Widespread from the East Mediterranean to the Middle East, Caucasus, China, Korea, Japan, India (Maharashtra and Rajasthan; Fig. 3). Introduced to the Caribbean, USA and Venezuela (WSC 2022; current record).

Habitat. *Steatoda erigoniformis* was found on the ground under stones and cattle dung. In Rajasthan, this species was encountered in arid grasslands, largely surrounded by sand dunes (Fig. 3A). In Maharashtra, individuals were observed in an agricultural landscape surrounded by mountains (Fig. 3B).

Acknowledgments

We thank Rev. Fr. J. Andrews (Principal, Christ College, Irinjalakuda, Thrissur) for providing facilities; the Rajasthan State Forest Department for providing the research permit; the Director and curator (National Center for Biological Sciences, Bangalore, India) for the deposition of voucher specimens; Manju Siliwal and Sutirtha Dutta (Wildlife Institute of India, Dehradun) for their support and CAMPA-GIB team members for their assistance in the field. The research was funded by the joint CSIR (Council for Scientific and Industrial Research), UGC (University Grants Commission) for the Junior Research Fellowship to RT. This study was also a part of the Bustard Recovery Programme of Wildlife Institute of India, funded by the National

Compensatory Afforestation Fund Management and Planning Authority, Government of India, with an additional grant from Rajasthan State Pollution Control Board.

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Submitted: 23 May 2022, Accepted: 29 Oct 2022
Section Editor: Francesco Ballarin

R. Tripathi¹, A.K. Jangid², U. Bhagirathan³ & A.V. Sudhikumar¹

¹ Centre for Animal Taxonomy & Ecology, Department of Zoology, Christ College, Irinjalakuda, Thrissur, Kerala 680125, India
E-mail: rishikeshtripathi14@gmail.com

² Wildlife Institute of India, Dehradun, Uttarakhand 248001, India

³ Sree Kerala Varma College, Thrissur, Kerala 680011, India

Plate 17

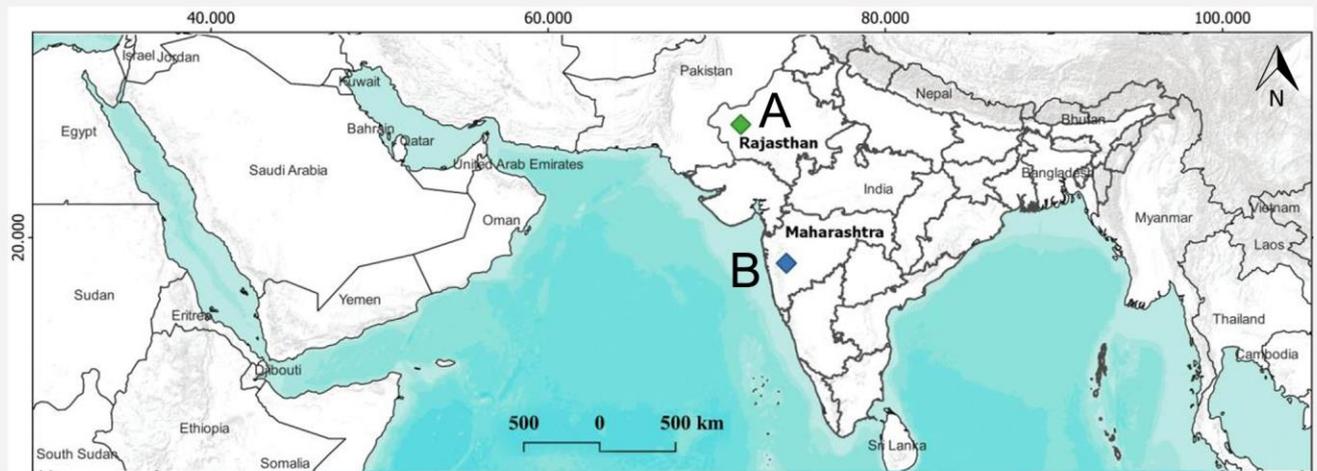


Figure 3. Collection sites and habitats of the *Steatoda erigoniformis*: (A) Desert National Park Wildlife Sanctuary, Jaisalmer, Rajasthan, India and (B) Urli-Kanchan Village, Pune, Maharashtra, India