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Discoveries of two new *Mogrus* species (Araneae: Salticidae) and notable records from India

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Abstract. This study provides taxonomic contributions to the genus *Mogrus* Simon, 1882 from India, with the descriptions of two new species: *Mogrus shushka* Tripathi, Kadam & Prajapati sp. nov. and *Mogrus pune* Tripathi, Kulkarni & Kadam sp. nov. Furthermore, the male of *Mogrus rajasthanensis* Caleb, Chatterjee, Tyagi, Kundu & Kumar, 2017 is described for the first time, while *Mogrus larisae* Logunov, 1995 is newly reported from India. We provide detailed morphological descriptions and images, as well as discuss variations in female genitalia within the genus.

Keywords. Jumping spiders, genitalia variation, semi-arid ecosystems, species record, taxonomy.

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Introduction

Mogrus Simon, 1882 is a genus of medium-sized jumping spiders widely found in arid and semi-arid regions of Africa, Europe, the Middle East, and Asia (WSC 2026). The genus is mostly found in southern Palaearctic regions, ranging from the Mediterranean to the Arabian Peninsula to Mongolia and western China, with additional occurrences documented in South Asia (Andreeva *et al*. 1981; Caleb *et al*. 2017; Kanesharatnam & Benjamin 2018).

Mogrus has been revised twice since its initial description (Andreeva *et al*. 1981; Logunov 1995), with an earlier classification in the subfamily Pelleninae Petrunkevitch, 1928, and later in Plexippinae Petrunkevitch, 1928 by Prószyński (1976). However, this categorisation was somewhat contested based on morphological discrepancies, especially the lack of a membranous conductor in *Mogrus* male palps compared to kindred genera (Logunov 1995). Molecular phylogenetic research has placed *Mogrus* within the subfamily Salticinae Blackwall, 1841 (Maddison 2015). Further refinement grouped them within the supergroup Hylloida Prószyński, 2016 characterized by a long embolus that originates laterally on the bulbus and parallels its margin, an important diagnostic trait for the genus (Prószyński 2016). In this paper, we describe and illustrate two new species of the genus *Mogrus* from India, and reporting the expanded distribution of the genus.

Material and methods

All measurements are in millimeters (mm). Lengths of palp and leg segments are given as: total (femur, patella, tibia, metatarsus (except for palp), tarsus). The micrographic images were taken with a Leica DFC500 digital camera attached to a Leica M205A stereo microscope with the software package Leica Application Suite (LAS ver. 3.8) for stacking images taken at different focal planes. The terminology for genitalia mostly follows Logunov (1995) and Tripathi *et al*. (2023). The types and studied materials are deposited at NRC-AA (NCBS Research Collection, National Centre for Biological Sciences, Bengaluru, India) and the reference collection of Web of Nature (WON) Research Foundation, Gujarat, India.

Abbreviations used for morphology

ALE = anterior lateral eye
AME = anterior median eye
PLE = posterior lateral eye
PME = posterior median eye
RTA = retrolateral tibial apophysis
I–IV = 1st to 4th leg

Acronyms of repositories

ISEN = Zoological Museum, Institute for Systematics and Ecology of Animals, Novosibirsk, Russia
NCBS = National Centre for Biological Sciences, Bengaluru, Karnataka, India
NZC-ZSI = National Zoological Collections, Zoological Survey of India, Kolkata, India
WON = Web of Nature Research Foundation, Gujarat, India
ZSI-CDT = Centre for DNA Taxonomy, Zoological Survey of India, Kolkata, India

Results

Keys to Indian species of Mogrus

1. Males 2
– Females 5

2. Protuberance of bulb triangular, situated prolaterally, 11 o'clock position ..... ***M. shushka*** Tripathi, Kadam & Prajapati sp. nov.
– Protuberance of bulb heart-shaped, situated retrolaterally, 12–2 o'clock position 3

3. RTA long, broad at base, gradually narrowing, bent tip in ventral view ..... ***M. pune*** Tripathi, Kulkarni & Kadam sp. nov.
– RTA moderately long, arched dorsally, rounded tip in retrolateral view ..... ***M. rajasthanensis*** Caleb, Chatterjee, Tyagi, Kundu & Kumar, 2017

4. RTA slender, extending from base to distal end with nearly parallel margins, terminating in a flattened tip ..... ***M. larisae*** Logunov, 1995
– RTA long, gradually tapering toward the tip, slightly bent in ventral view 5

5. Epigynal depression deep, semi-circular-shaped, occupying central region of epigyne ..... ***M. shushka*** sp. nov.
– Epigynal depression shallow, heart-shaped concavity that tapers anteriorly 6

6. Copulatory openings large, situated mediolaterally ..... ***M. pune*** sp. nov.
– Copulatory openings small, situated posterolaterally 7

7. Copulatory ducts distinct and small; spermathecae circular ..... ***M. rajasthanensis***
– Copulatory ducts indistinct, large, and spermathecae C-shaped ..... ***M. larisae***

New species

Class Arachnida Lamarck, 1801
Order Araneae Clerck, 1757
Family Salticidae Blackwall, 1841
Subfamily Salticinae Blackwall, 1841
Tribe Salticini Blackwall, 1841

Genus ***Mogrus*** Simon, 1882

Type species

Mogrus fulvovittatus Simon, 1882, by original designation.

Diagnosis

For diagnostic features of the genus, see Andreeva *et al*. (1981) and Logunov (1995).

Distribution

Africa, the Middle East, Central Asia, Europe, and South Asia.

Mogrus shushka Tripathi, Kadam & Prajapati sp. nov.
urn:lsid:zoobank.org:act:EF44D5D2-8082-48A7-B24B-233F4AB5E4BB
Figs 1–4

Diagnosis

Males of *M. shushka* sp. nov. are similar to those of *M. cognatus* Wesołowska & van Harten, 1994, in having a long and broad cymbium, a protuberance positioned slightly at the prolateral side but can be distinguished by a triangular-shaped protuberance (vs thumb-shaped in *M. cognatus*); RTA gradually narrows towards the tip (vs pronounced curve and extended tip in *M. cognatus*) (compare Figs 3A–C, 4A–B with Wesołowska & van Harten 1994: figs 112–114; 2010: figs 37–39). Females are similar to those of *M. macrocephalus* Lawrence, 1927 in having a centrally positioned depression; copulatory ducts membranous, initially broad, gradually narrowing and becoming coiled but can be distinguished from the latter by differences in the shape of the depression and the coiling of the copulatory duct. Fertilization ducts are short and closely spaced (vs large and widely spaced in *M. macrocephalus*) compare Figs 3D–H, 4C–D with Azarkina & Foord (2013: figs 51–53).

Etymology

The specific epithet '*shushka*' is a noun in apposition, derived from the Sanskrit word *Śuṣka*, meaning 'dry/arid'. It refers to the species' distribution in the drylands, highlighting its habitat preference for arid and open natural ecosystems.

Type material

Holotype

INDIA • ♂; Rajasthan, Beawar, Chhatrasagar, Nimaaj; 26°06′32.2″ N, 74°01′08.6″ E; elev. 320 m; 28 Sep. 2024; R. Tripathi and G. Kadam leg.; found on a tree branch, by hand; NCBS, NRC-AA-0640.

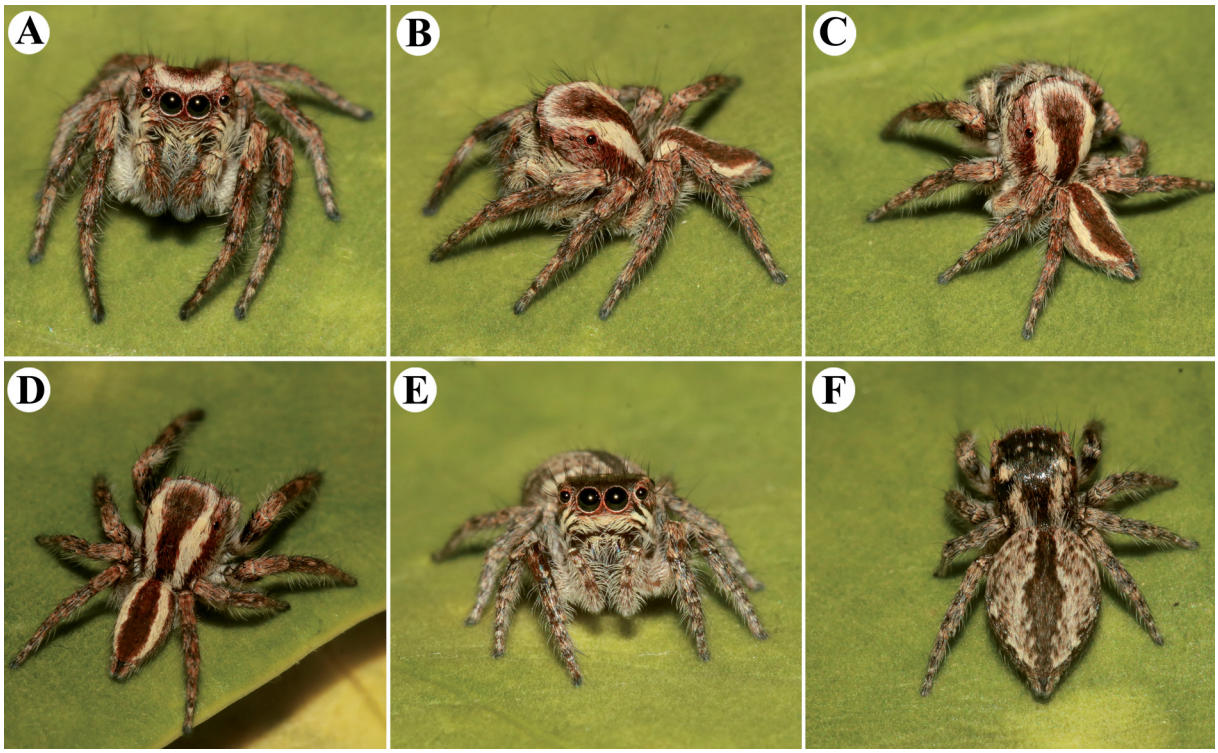

Fig. 1. Field photographs of *Mogrus shushka* Tripathi, Kadam & Prajapati, 2026 sp. nov. **A–D**. Holotype, ♂ (NRC-AA-0640). **E–F**. Paratype, ♀ (NRC-AA-0641).

Paratypes

INDIA • 2 ♀♀; same data as for holotype; NCBS, NRC-AA-0641, NRC-AA-0642 • 1 ♂, 1 ♀; Rajasthan, Jaisalmer, Desert National Park, Loharki area; 27°08′21.9″ N, 71°45′58.2″ E; elev. 234 m; 20 Aug. 2022; R. Tripathi leg.; NCBS, NRC-AA-0643, NRC-AA-0644 • 1 ♂, 2 ♀♀; Gujarat, Kutch, Chaari; 23°33′45.02″ N, 69°24′44.10″ E; elev. 28 m; 7 Dec. 2023; D. Prajapati leg.; found on a tree branch, by hand; WON104360A.

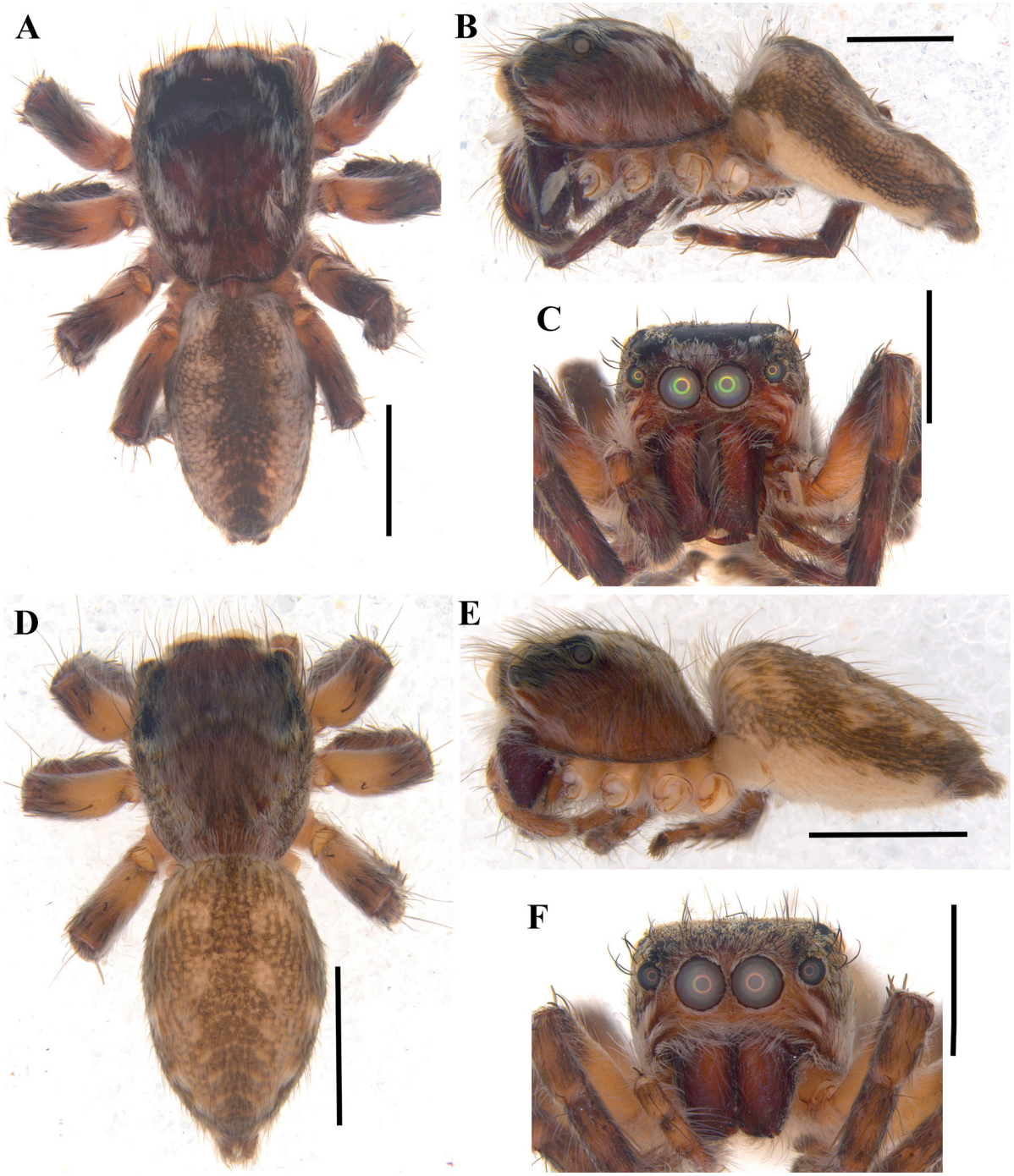

Fig. 2. *Mogrus shushka* Tripathi, Kadam & Prajapati sp. nov. **A–C**. Holotype, ♂ (NRC-AA-0640). **D–F**. Paratype, ♀ (NRC-AA-0641). **A, D**. Habitus, dorsal view. **B, E**. Same, lateral view. **C, F**. Same, frontal view. Scale bars = 2 mm.

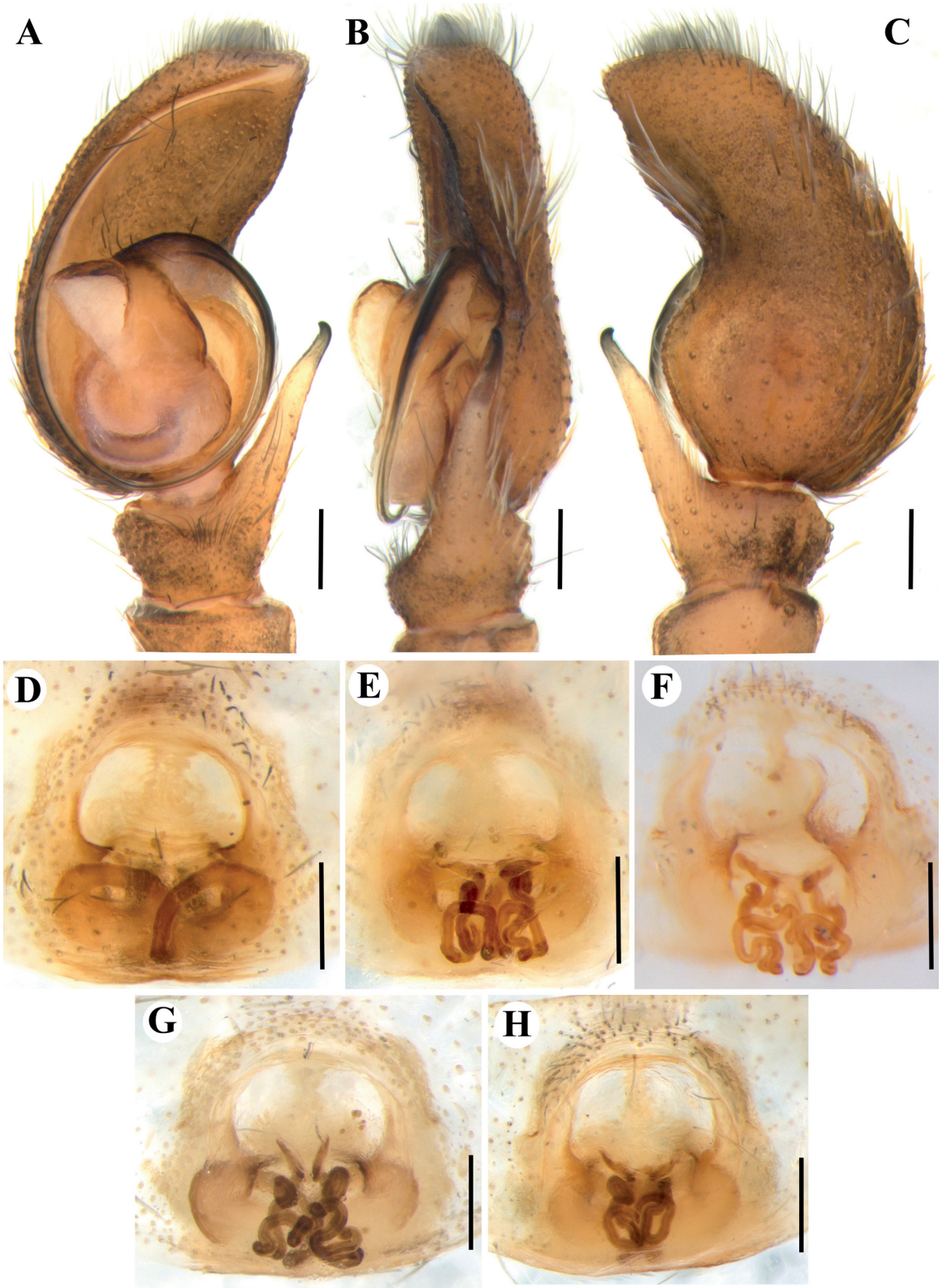

Fig. 3. *Mogrus shushka* Tripathi, Kadam & Prajapati sp. nov., genitalia. **A–C**. Holotype, ♂ (NRC-AA-0640). **D–E**. Paratype, ♀ (NRC-AA-0641). **F**. Paratype, ♀ (NRC-AA-0642). **G**. Paratype, ♀ (NRC-AA-0643). **H**. Paratype, ♀ (NRC-AA-0644). **A–C**. Male left palp. **A**. Ventral view. **B**. Retrolateral view. **C**. Dorsal view. **D–H**. Epigyne/vulva. **D**. Ventral view. **E–H**. Dorsal view. Scale bars = 0.2 mm.

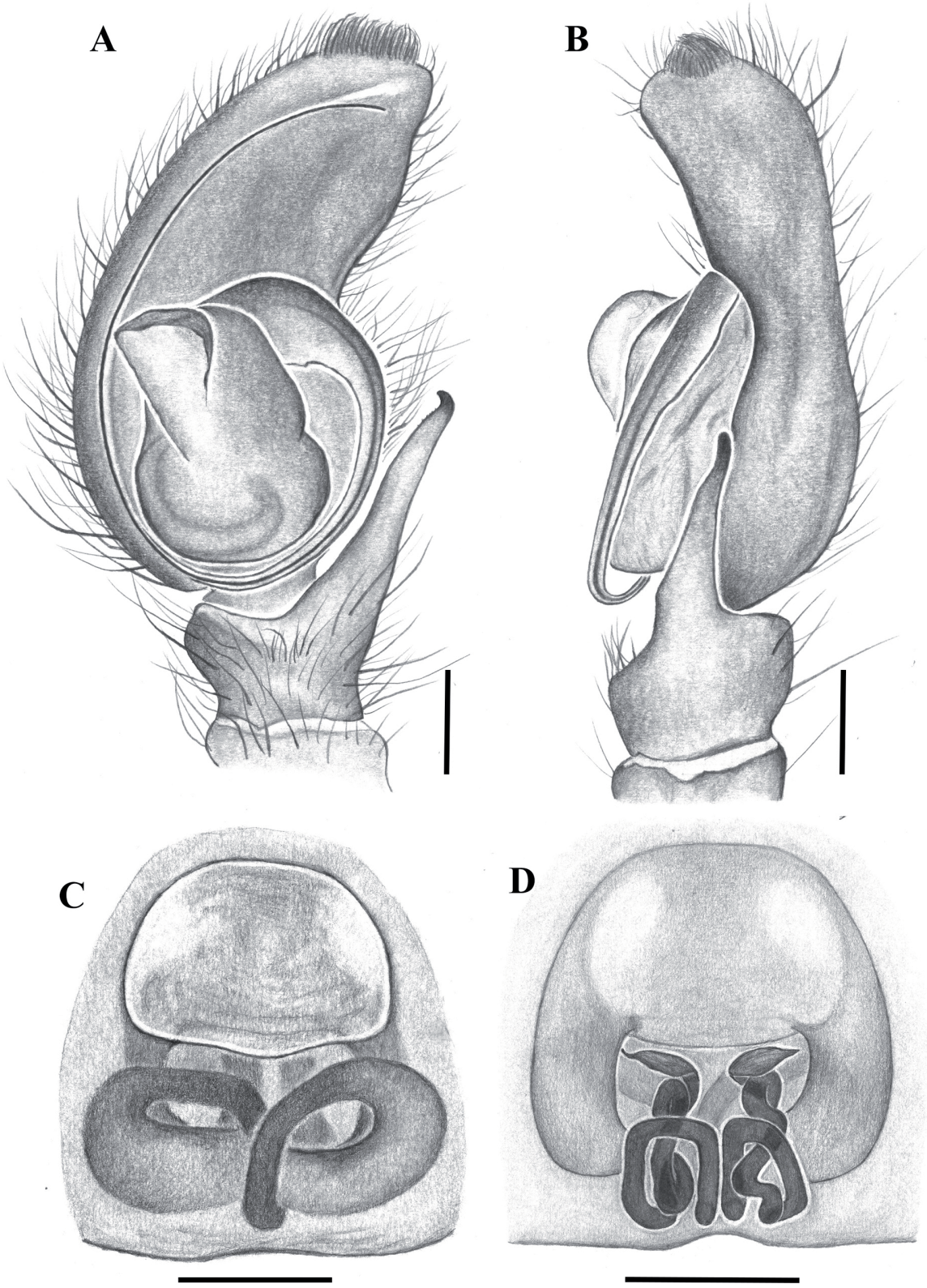

Fig. 4. *Mogrus shushka* Tripathi, Kadam & Prajapati sp. nov., genitalia. **A–B**. Holotype, ♂ (NRC-AA-0640). **C–D**. Paratype, ♀ (NRC-AA-0641). **A–B**. Male left palp. **A**. Ventral view. **B**. Retrolateral view. **C–D**. Epigyne/vulva. **C**. Ventral view. **D**. Dorsal view. Scale bars = 0.2 mm.

Description

Male (holotype, Figs 1A–D, 2A–C)

Colouration in alcohol. Carapace, eye region, clypeus, chelicerae, endites, labium, legs, opisthosoma, sternum chocolate brown (Fig. 2A–C). Carapace with two prominent, nearly uniform white bands originating behind AMEs, extending posteriorly, and merging at the anterior part to form distinct U-shape (Figs 1A, 2A). Eye field with recumbent black flattened setae reflects in alcohol; anterior eyes encircled by tiny dirt whitish hairs (Fig. 2A, C). White hairs cover clypeal region; thin brown stripes arise beneath ALE extending laterally (Fig. 2C). Abdomen ovoid, with dark brown median region featuring chevron-shaped markings, bordered by thick white longitudinal stripes on either side (Fig. 2A).

Measurements. Total length: 7.28. Carapace: length 3.52, width 2.57. Abdomen: length 3.76, width 2.21. Length of chelicerae: 1.73. Clypeus height: 0.18. Eye diameters: AME 0.61, ALE 0.31, PME 0.09, PLE 0.31; AME–AME: 0.05. Eye interdistances: AME–ALE 0.17, PME–PLE 0.36, ALE–ALE 1.66, PME–PME 2.12, ALE–PME 0.37, PLE–PLE 2.16. Measurements of palp and legs: palp: 2.88 (1.04, 0.35, 0.28, 1.21), leg I 7.66 (2.18, 1.26, 2.01, 1.42, 0.79), II 6.17 (1.88, 1.04, 1.49, 1.04, 0.72), III 6.12 (2.02, 0.86, 1.41, 1.18, 0.65), IV 5.98 (1.92, 0.74, 1.31, 1.29, 0.72). Leg formula: 1234.

Palp (Figs 3A–C, 4A–B). Yellowish brown palp with darker cymbium. Cymbium elongated and broad, with smoothly arched prolateral margin, while retrolateral side exhibits distinct depression (Figs 3A, C, 4A). Bulbus with prominent protuberance prolaterally (Figs 3A, 4A). Embolus filiform, broad at base, originating at 12 o'clock position (left palp in ventral view), encircling tegulum (Figs 3A, 4A). RTA moderately long, broad at base, and slightly curved distally (Figs 3A–C, 4A–B).

Female (paratype, Figs 1E–F, 2D–F)

Colouration in alcohol. General aspects essentially as in male except following: habitus colour lighter than male, opisthosoma with creamy-white blotches and streaks (Fig. 2D).

Measurements. Total length: 6.23. Carapace: length 2.66, width 2.21. Abdomen: length 3.57, width 2.24. Length of chelicerae: 1.08. Clypeus height: 0.18. Eye diameters: AME 0.55; ALE 0.31, PME 0.07, PLE 0.25; AME–AME 0.04. Eye interdistances: AME–ALE 0.11, ALE–ALE 1.38, ALE–PME 0.29, PME–PLE 0.27, PLE–PLE 1.92, PME–PME 1.94. Measurements of palp and legs: palp: 1.57 (0.61, 0.19, 0.24, 0.53), leg I 4.36 (1.38, 0.81, 0.97, 0.69, 0.51), II 4.03 (1.32, 0.69, 0.89, 0.68, 0.45), III 4.49 (1.60, 0.62, 0.97, 0.78, 0.52), IV 4.58 (1.48, 0.66, 0.89, 1.01, 0.54). Leg formula: 4312.

Genitalia (Figs 3D–E, 4C–D). Epigyne broadly oval, with distinct central semi-crescent depression (Figs 3D, 4C). Copulatory openings slit-like, situated at rear edge of depression. Insemination ducts membranous, broad initially becoming narrow and coiled (Figs 3E, 4D); fertilization ducts prominent, directed laterally (Figs 3E, 4D).

Distribution

India (Gujarat and Rajasthan).

Variation

Copulatory duct coiling varies in all the female paratypes studied (Fig. 3E–H).

Mogrus pune Tripathi, Kulkarni & Kadam sp. nov.
urn:lsid:zoobank.org:act:034C9812-C92D-4293-B40D-058B8048A78D
Figs 5–8

Diagnosis

Mogrus pune sp. nov. both males and females are most similar to those of *M. mathisi* (Berland & Millot, 1941), males match by having a prominent protuberance between the 12 and 1 o'clock position; a

long, thin embolus tip end at the 1 o'clock position; RTA long, wide at base but can be distinguished by heart-shaped protuberance in ventral view (vs triangular in *M. mathisi*); bulbus of uneven shape (vs nearly circular in *M. mathisi*); RTA slightly bent at the tip in ventral view (vs tip nearly straight in *M. mathisi*) (compare Figs 7A–B, 8A–B with Wesołowska 2003: figs 1–6). Females are similar in having a large central depression on the anterior region of the epigyne, the copulatory duct anteriorly wide and membraneous; the chevron pattern on the posterior half of the abdomen but can be distinguished by the shape of the depression on the epigyne and the coiling of the copulatory duct (compare Figs 7C–D, 8C–D with Wesołowska 2003: figs 7–10).

Etymology

The specific epithet *pune* (noun in apposition) refers to Pune city, the type locality of the species. The name is dedicated to the small protected areas in and around Pune, which harbour a remarkable biodiversity despite urban pressures. It also highlights the importance of conserving the unique semi-arid ecosystems of the region.

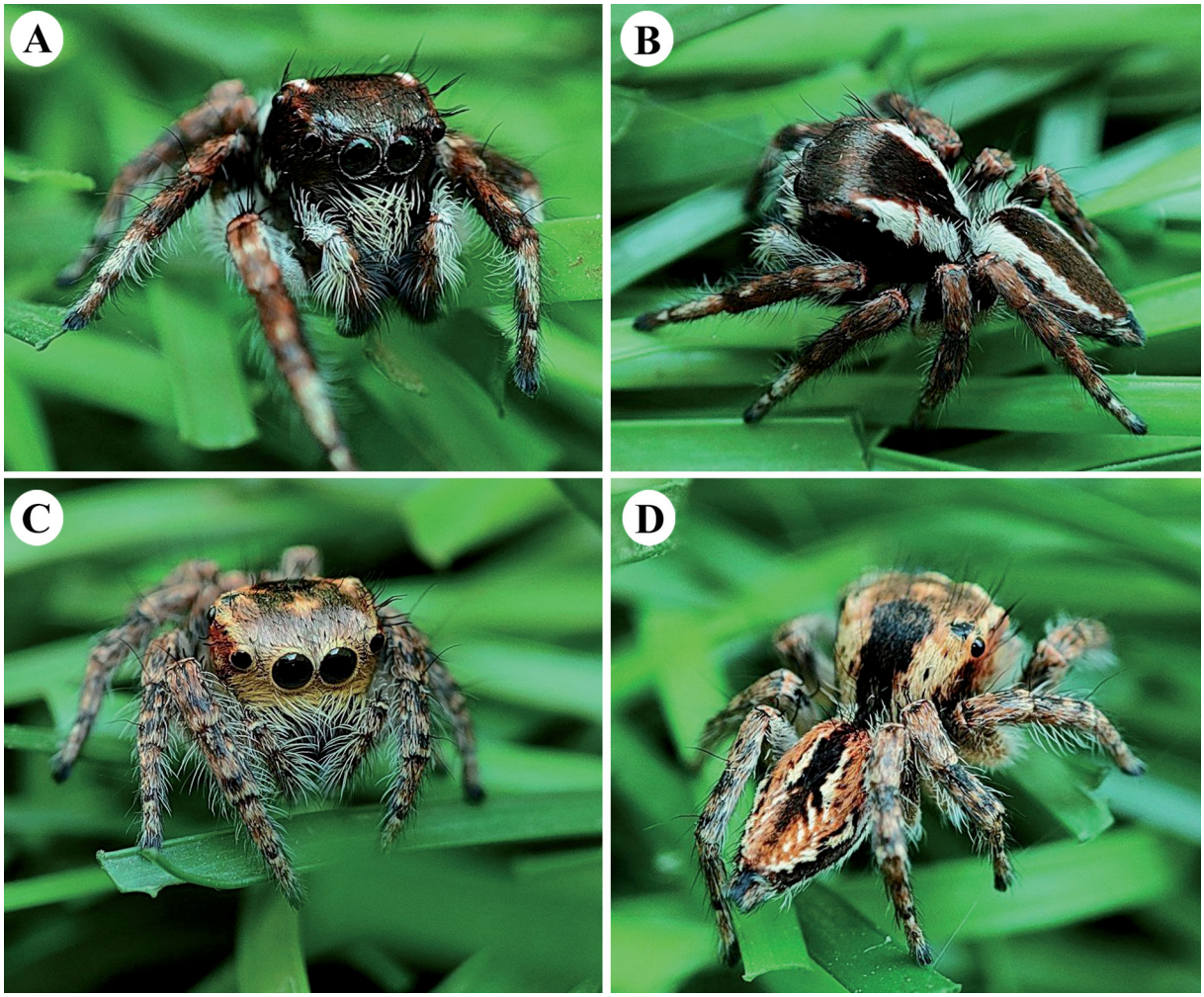

Fig. 5. Field photographs of *Mogrus pune* Tripathi, Kulkarni & Kadam sp. nov. **A–B**. Holotype, ♂ (NRC-AA-0645). **C–D**. Paratype, ♀ (NRC-AA-0646).

Type material

Holotype

INDIA • ♂; Maharashtra, Pune, Alfa Laval Biodiversity Park, Pimpri Chinchwad; 18°42′11″ N, 73°47′44″ E; elev. 597 m; 31 May 2024; A. Kulkarni leg.; found on a tree branch, by hand; NCBS, NRC-AA-0645.

Paratype

INDIA • 1 ♀; same data as for holotype; NCBS, NRC-AA-0646.

Description

Male (holotype, Figs 5A–B, 6A–C)

Colouration in alcohol. Carapace, eye region, clypeus, chelicerae, endites, labium, legs, opisthosoma, sternum dark brown (Figs 5A–B, 6A–C). Carapace with two prominent white bands of uniform thickness, originating behind PLEs and extending posteriorly, in between covered with black appressed hair (Figs 5B, 6A). Clypeus short; covered with long black hairs. Chelicerae elongated, with distinct gap visible in frontal view (Fig. 6C). Abdomen oval-shaped, tapers posteriorly, featuring dark brown median region with pale lateral bands (Figs 5B, 6A). Leg covered with white and black hairs intermixed; femur I–IV apical half pale colour (Fig. 6A).

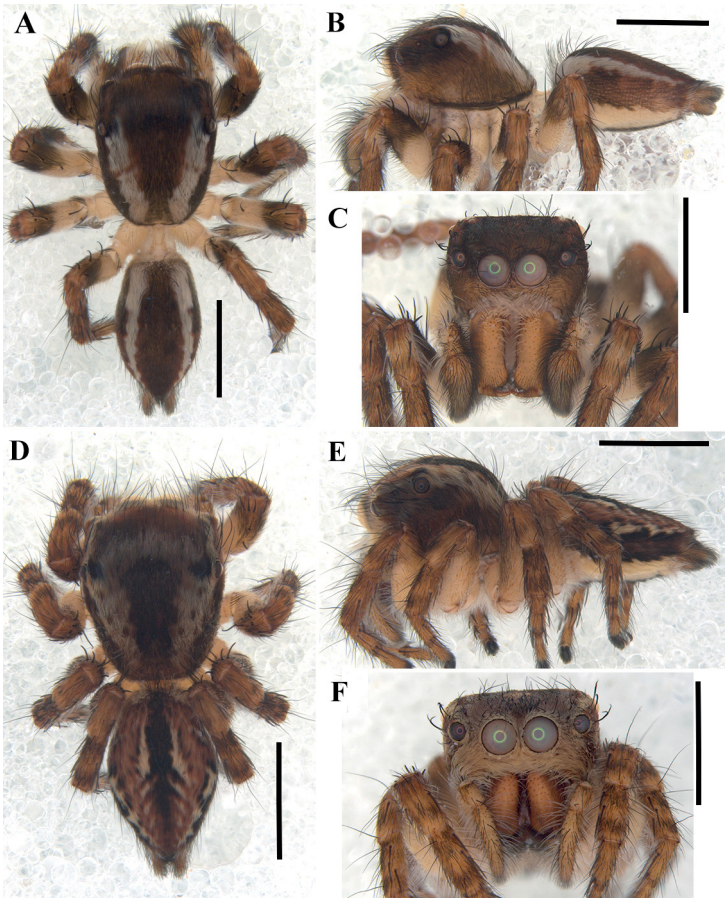

Fig. 6. *Mogrus pune* Tripathi, Kulkarni & Kadam sp. nov. **A–C**. Holotype, ♂ (NRC-AA-0645). **D–F**. Paratype, ♀ (NRC-AA-0646). **A, D**. Habitus, dorsal view. **B, E**. Same, lateral view. **C, F**. Same, frontal view. Scale bars = 2 mm.

Measurements. Total length. 5.78. Carapace length 2.94, width (at middle) 2.18. Abdomen length 2.84, width (at middle) 1.63. Eye diameters: AME 0.55, ALE 0.29, PME 0.07, PLE 0.27. Eye interdistances: AME–ALE 0.17, AME–AME 0.03, PME–PME 1.72, ALE–ALE 1.49, PME–PLE 0.29, PLE–PLE 1.94, ALE–PME 0.34. Length of chelicerae: 1.33. Measurements of palp and legs: palp: 2.36 (0.85, 0.22, 0.23, 1.06), leg I 5.6 (1.61, 0.92, 1.32, 1.06, 0.65), II 4.65 (1.51, 0.79, 1.03, 0.86, 0.46), III 4.8 (1.66, 0.70, 0.95, 0.88, 0.61), IV 4.75 (1.53, 0.66, 0.96, 1.03, 0.57). Leg formula: 1342.

Palp (Figs 7A–B, 8A–B). Primarily amber-colored, with some areas appearing darker (Fig. 7A). Cymbium elongated, broad, slightly tilted toward retrolateral side in ventral view (Figs 7A, 8A). Bulbus with large, heart-shaped protuberance positioned retrolaterally, appearing membranous and oval in retrolateral view (Figs 7A–B, 8A–B). Embolus filiform, broad at base, originating at 1 o'clock position (left palp in ventral view), encircling tegulum (Figs 7A, 8A). RTA long, gradually narrow and bend at tip in ventral view (Figs 7A–B, 8A–B).

Female (paratype, Figs 5C–D, 6D–F)

Colouration in alcohol. General aspects essentially as in male except following: habitus colour lighter than male; carapace with faint white band covered with black blotches (Fig. 6D). Opisthosoma lacks white stripes, with chevron pattern at posterior half (Fig. 6D).

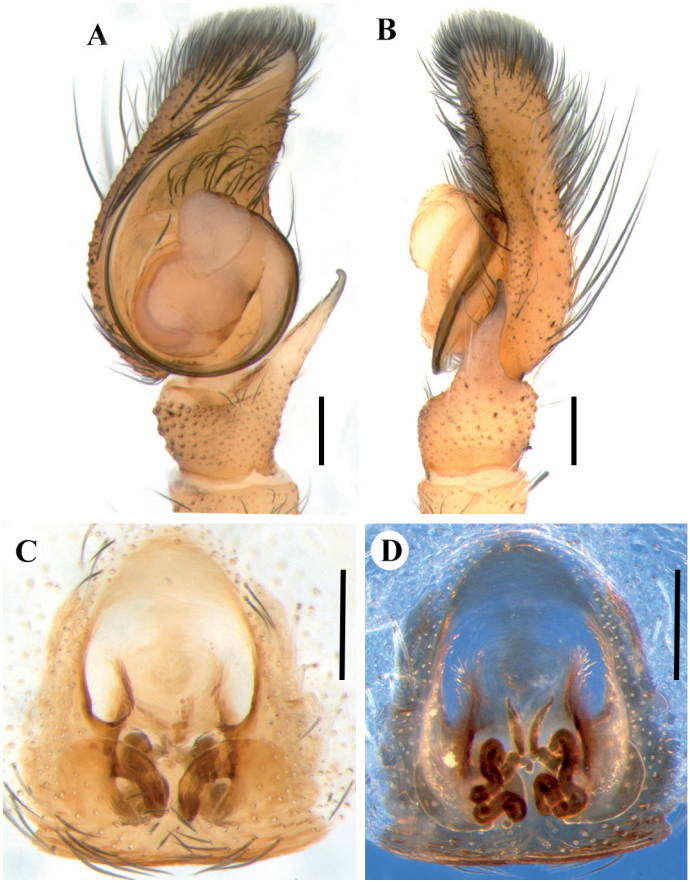

Fig. 7. *Mogrus pune* Tripathi, Kulkarni & Kadam sp. nov., genitalia. **A–B**. Holotype, ♂ (NRC-AA-0645). **C–D**. Paratype, ♀ (NRC-AA-0646). **A–B**. Male left palp. **A**. Ventral view. **B**. Retrolateral view. **C–D**. Epigyne/vulva. **C**. Ventral view. **D**. Dorsal view. Scale bars = 0.2 mm.

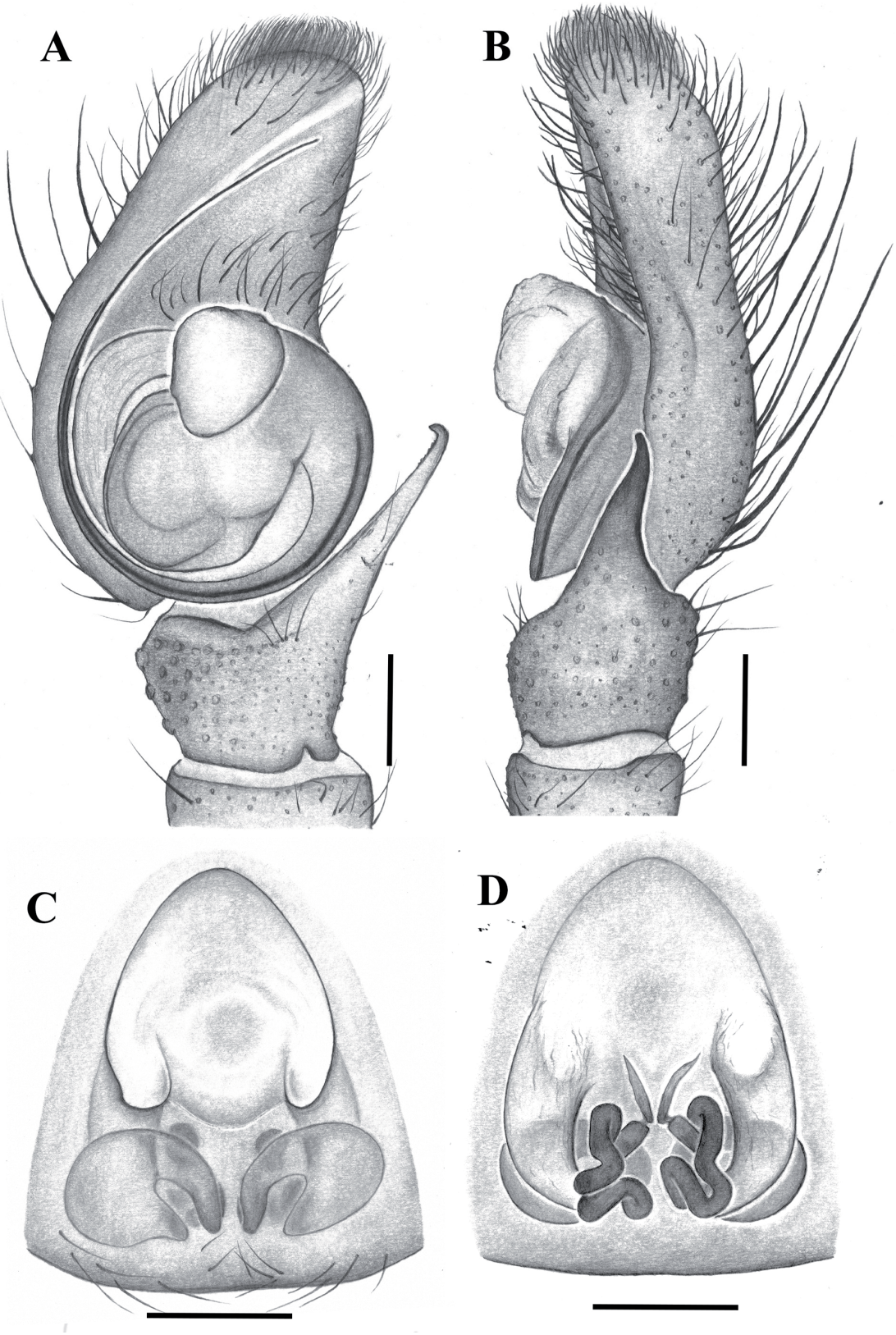

Fig. 8. *Mogrus pune* Tripathi, Kulkarni & Kadam sp. nov., genitalia. **A–B**. Holotype, ♂ (NRC-AA-0645). **C–D**. Paratype, ♀ (NRC-AA-0646). **A–B**. Male left palp. **A**. Ventral view. **B**. Retrolateral view. **C–D**. Epigyne/vulva. **C**. Ventral view. **D**. Dorsal view. Scale bars = 0.2 mm.

Measurements. Body length. 5.65. Carapace length 2.84, width (at middle) 2.28. Abdomen length 2.81, width (at middle) 1.76. Eye diameters: AME 0.55, ALE 0.29, PME 0.07, PLE 0.29. Eye interdistances: AME–ALE 0.21, AME–AME 0.02, PME–PME 1.99, ALE–ALE 1.58, PME–PLE 0.26, PLE–PLE 2.05, ALE–PME 0.31. Length of chelicerae: 1.07. Measurements of palp and legs: palp: 2.36 (0.85, 0.22, 0.23, 1.06), leg I 4.55 (1.43, 0.80, 1.01, 0.79, 0.52), II 4.14 (1.37, 0.72, 0.90, 0.68, 0.47), III 4.44 (1.52, 0.72, 0.79, 0.88, 0.53), IV 4.46 (1.49, 0.58, 0.85, 1.01, 0.53). Leg formula: 4132.

Genitalia (Figs 7C–D, 8C–D). Epigyne subtriangular with slightly convex anterior margin and large median depression (Figs 7C, 8C). Copulatory opening large, widely spaced. Copulatory duct initially wide and membranous, while looped and darker at end (Figs 7D, 8D). Fertilization ducts prominent, diverging (Figs 7D, 8D).

Distribution

India (Maharashtra).

New record for India

Mogrus larisae Logunov, 1995
Figs 9–10

Mogrus larisae Logunov, 1995: 596, figs 1–4, 7, 18–30 (♂♀).

Mogrus larisae – Wesołowska 1996: 34, fig. 21b–c (♂).

Diagnosis

For diagnosis, see Logunov (1995) and Wesołowska (1996).

Type material

Holotype (not examined)
KAZAKHSTAN • ♂; South Kazakhstan, Chimkent area, Arys; 3 May 1988; D. Logunov leg.; ISEN 2682.

Paratypes (not examined)
KAZAKHSTAN • 6 ♀♀; same data as for holotype; ISEN 2678. For complete list of paratypes, see Logunov (1995).

Material examined

INDIA • 1 ♂, 4 ♀♀; Rajasthan, Jaisalmer, Desert National Park, Sudasri area; 26°43′03.9″ N, 70°36′18.0″ E; elev. 235 m; 24 Oct. 2022; R. Tripathi leg.; found on grass, by hand; NCBS, NRC-AA-0647 to NRC-AA-0651.

Description

For description, see Logunov (1995) and Wesołowska (1996).

Measurements

Male (Figs 9A–C, 10A–C)
Total length: 4.27. Carapace: length 2.08, width 1.49. Abdomen: length 2.19, width 1.26. Length of chelicerae: 0.76. Clypeus height: 0.06. AME 0.43, ALE 0.24, PME 0.06, PLE 0.22; AME–AME 0.03, AME–ALE 0.07, ALE–ALE 1.02, ALE–PME 0.23, PME–PLE 0.20, PLE–PLE 1.29, PME–PME 1.30. Measurements of palp and legs: palp: 1.61 (0.59, 0.15,0.18, 0.69), leg I 3.65 (1.10, 0.57, 0.83, 0.66, 0.49), II 3.20 (1.02, 0.47, 0.70, 0.61, 0.40), III 3.79 (1.30, 0.54, 0.72, 0.75, 0.48), IV 3.73 (1.21, 0.48, 0.79, 0.79, 0.46). Leg formula: 3412.

Female (9D–F, 10D–K)
Total length: 7.81. Carapace: length 2.92, width 2.23. Abdomen: length 4.89, width 2.98. Length of chelicerae: 1.12. Clypeus height: 0.24. AME 0.55; ALE 0.28, PME 0.07, PLE 0.27; AME–AME 0.04, AME–ALE 0.13, ALE–ALE 1.42, ALE–PME 0.29, PME–PLE 0.30, PLE–PLE 1.87, PME–PME 1.83.

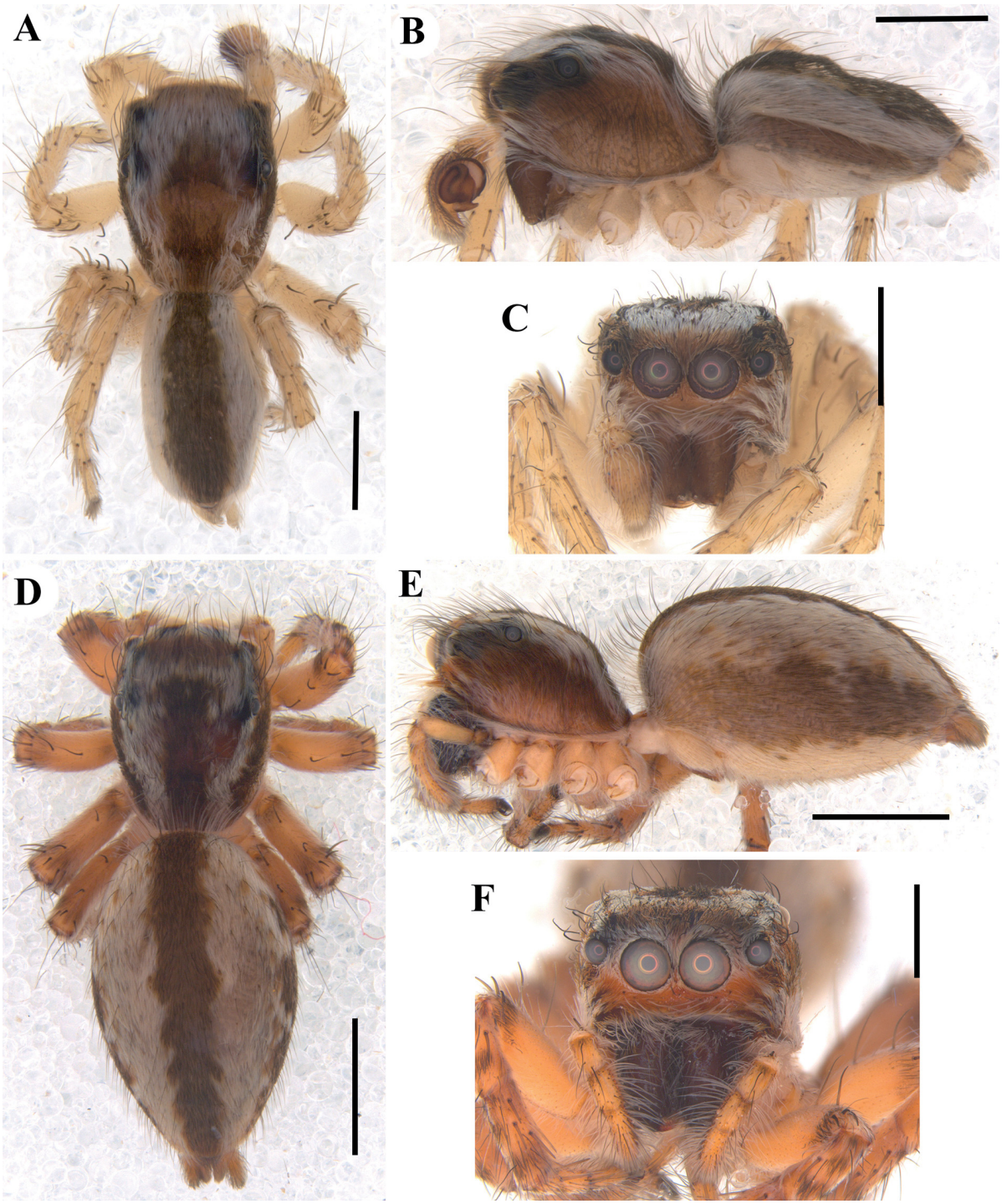

Fig. 9. *Mogrus larisae* Logunov, 1995. **A–C**. ♂ (NRC-AA-0647). **D–F**. ♀ (NRC-AA-0648) (D–F). **A, D**. Habitus, dorsal view. **B, E**. Same, lateral view. **C, F**. Same, frontal view. Scale bars: A–E = 2 mm; F = 1 mm.

Measurements of palp and legs: palp: 2.15 (0.82, 0.26, 0.33, 0.74), leg I 4.64 (1.45, 0.85, 1.02, 0.80, 0.52), II 4.33 (1.49, 0.76, 0.94, 0.64, 0.50), III 5.21 (1.81, 0.89, 0.89, 1.03, 0.59), IV 5.12 (1.71, 0.69, 1.05, 1.11, 0.56). Leg formula: 3412.

Variations

Shape of the copulatory opening, spermathecae, and accessory gland varies in all the female paratypes studied (Fig. 10D–K).

Records from India

Rajasthan.

Distribution

Kazakhstan, Kyrgyzstan, India, Iran, Turkmenistan, Uzbekistan (Logunov 1995; Wesolowska 1996; WSC 2026; present record).

Remark

First record of the species from India.

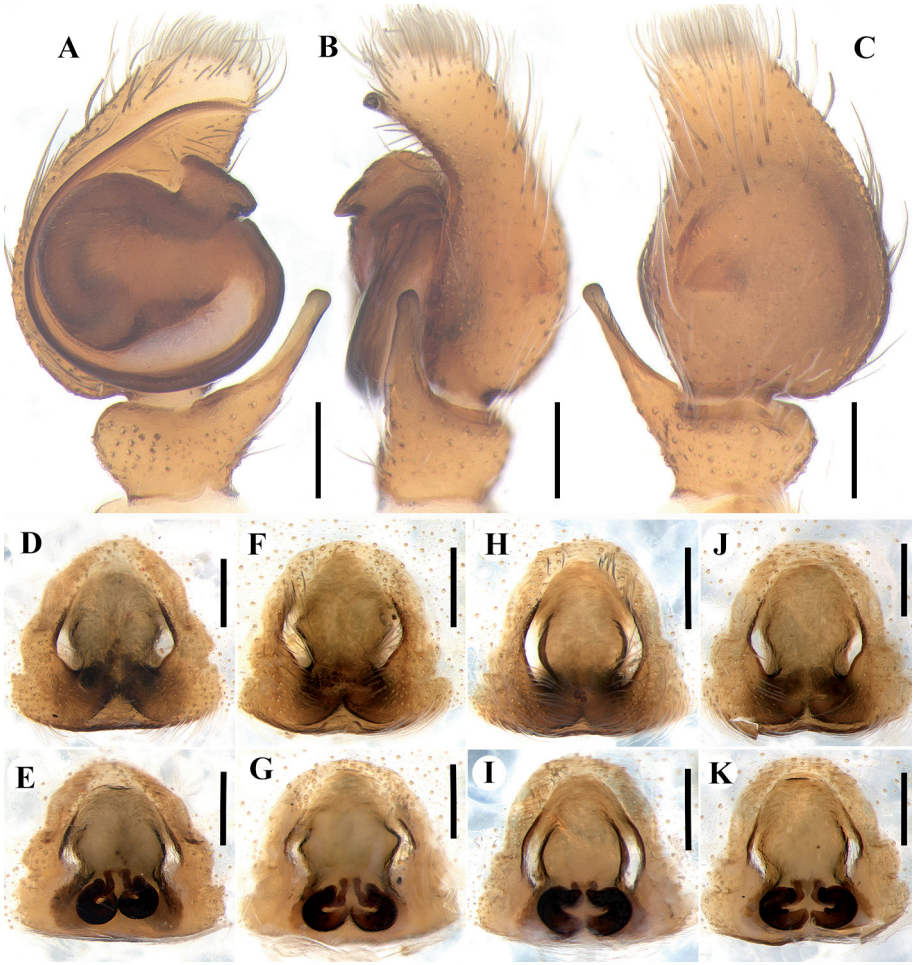

Fig. 10. *Mogrus larisae* Logunov, 1995. **A–C**. ♂ (NRC-AA-0647), left palp. **A**. Ventral view. **B**. Retrolateral view. **C**. Dorsal view. **D–K**. Epigyne/vulva. **D–E**. ♀ (NRC-AA-0648). **F–G**. ♀ (NRC-AA-0649). **H–I**. ♀ (NRC-AA-0650). **J–K**. ♀ (NRC-AA-0651). **D, F, H, J**. Ventral views. **E, G, I, K**. Dorsal views. Scale bars = 0.2 mm.

First description of male

Mogrus rajasthanensis Caleb, Chatterjee, Tyagi, Kundu & Kumar, 2017
Figs 11–14

Mogrus rajasthanensis Caleb *et al*., 2017: 332, figs 10–20 (♀).

Diagnosis

Males of *M. rajasthanensis* are similar to those of *M. frontosus* Simon, 1871 in having a protuberance at the 2 o'clock position, RTA long and broad at the base, curving dorsally at the tip, but can be distinguished by a slightly longer cymbium (vs short in *M. frontosus*); the palpal bulb longer than wide (vs nearly subequal in length and width in *M. frontosus*) (compare Figs 13A–B, 14A–B with Andreeva *et al.* 1981: figs 9–11). For diagnosis of females, see Caleb *et al*. (2017).

Type material

Holotype (not examined)
INDIA • 1 ♀; Rajasthan, Sirohi, Mount Abu; 24.5917° N, 72.7237° E; elev. 1167 m; 14 Mar. 2017; K. Tyagi and V. Kumar leg.; ZSI-CDT-AA560. Now deposited in NZC-ZSI 6581/18 (Dr John Caleb pers. com.).

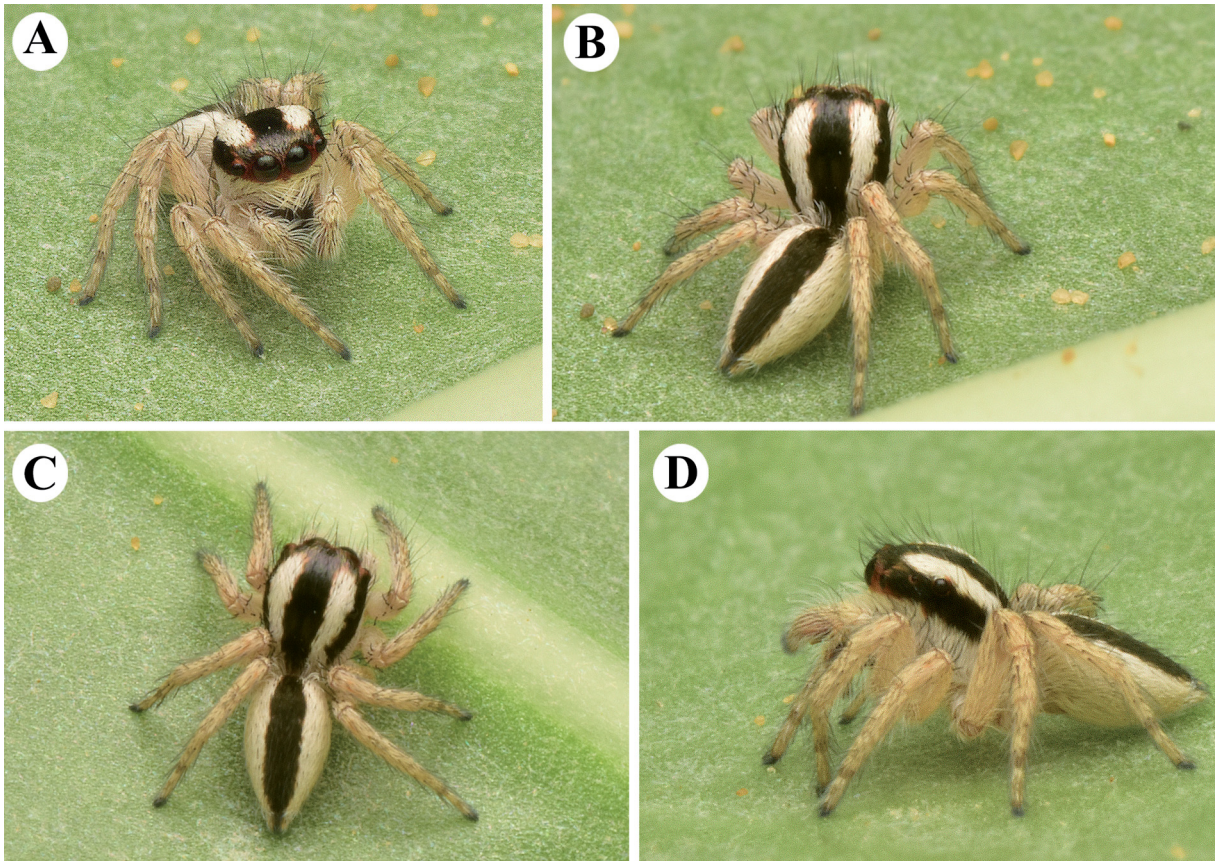

Fig. 11. Field photographs of *Mogrus rajasthanensis* Caleb, Chatterjee, Tyagi, Kundu & Kumar, 2017, ♂ (NRC-AA-0652). **A**. Frontal view. **B–C**. Same, dorsal view. **D**. Same, lateral view.

Material examined

INDIA • 2 ♂♂, 2 ♀♀; Rajasthan, Jaisalmer, Desert National Park, Sudasri area; 26°43′23.0″ N, 70°36′06.7″ E; elev. 221 m; 24 Oct. 2022; R. Tripathi leg.; found on ground, by hand; NCBS, NRC-AA-0652 to NRC-AA-0655.

Description

Male (Fig. 12A–C)

Colouration in alcohol. Carapace, clypeus, endites, labium, legs, opisthosoma, sternum peach colour; chelicerae brown (Fig. 12A–C). Carapace with three distinct black longitudinal bands, a wide median black band extends from ocular region to posterior margin, flanked by two thinner black stripes along lateral margins, these lateral stripes originate near posterior lateral eyes and extend towards thoracic region, in between black bands white appressed hairs present appearing like white bands (Fig. 12A–C). All eyes positioned within lateral black bands; region around anterior eyes reddish orange (Fig. 12A–C). Clypeus region covered with long white hairs; thin brown stripes emerge from beneath ALEs and lateral sides of AMEs and extend laterally (Fig. 12C). Abdomen ovoid, with a distinct central dark band running longitudinally, surrounded by a dense covering of white hairs (Fig. 12A); ventral side uniformly pale, with scattered fine setae.

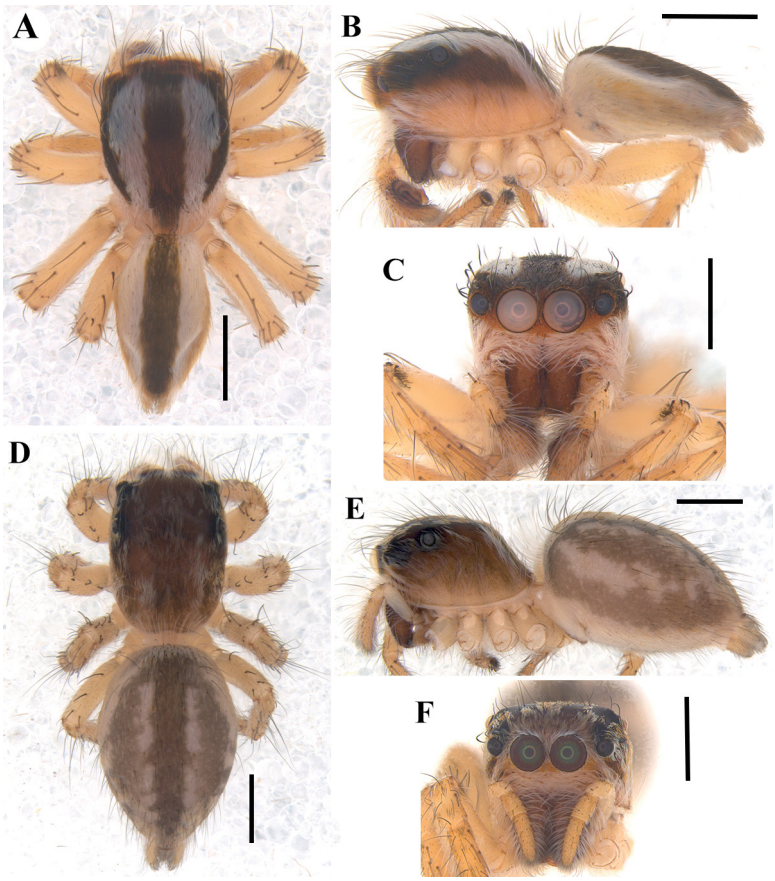

Fig. 12. *Mogrus rajasthanensis* Caleb, Chatterjee, Tyagi, Kundu & Kumar, 2017. **A–C**. ♂ (NRC-AA-0652). **D–F**. ♀ (NRC-AA-0653). **A, D**. Habitus, dorsal view. **B, E**. Same, lateral view. **C, F.** Same, frontal view. Scale bars = 1 mm.

Measurements. Total length: 3.97. Carapace: length 1.98, width 1.48. Abdomen: length 1.99, width 1.12. Length of chelicerae: 0.71. Clypeus height: 0.09. AME 0.43; ALE 0.24, PME 0.04, PLE 0.19; AME–AME 0.03, AME–ALE 0.06, ALE–ALE 1.02, ALE–PME 0.24, PME–PLE 0.19, PLE– PLE 1.28, PME–PME 1.30. Measurements of palp and legs: palp: 1.48 (0.54, 0.15, 0.17, 0.62), leg I 3.42 (1.03, 0.50, 0.84, 0.64, 0.41), II 2.88 (0.94, 0.41, 0.66, 0.49, 0.38), III 3.74 (1.34, 0.46, 0.84, 0.74, 0.36), IV 3.55 (1.19, 0.45, 0.73, 0.73, 0.45). Leg formula: 3412.

Palp (Figs 13A–C, 14). Light to medium brown, with a darker sclerotized bulb. Bulb nearly oval, with prominent protuberance retrolaterally at 2 o'clock position in ventral view (Figs 13A, 14A). Embolus originate beneath protuberance; broad at base; encircling tegulum. RTA elongated, curved and tapering distally, hook-liked (Figs 13B–C, 14B).

Female (Figs 12D–F, 13D–F)

For detailed descriptions and illustrations of females, see Caleb *et al*. (2017).

Measurements. Total length: 5.20. Carapace: length 2.25, width 1.68. Abdomen: length 2.95, width 2.01. Length of chelicerae: 0.84. Clypeus height: 0.11. AME 0.43; ALE 0.24, PME 0.05, PLE 0.21; AME–AME 0.03, AME–ALE 0.07, ALE–ALE 1.06, ALE–PME 0.25, PME–PLE 0.19, PLE–PLE 1.46, PME–PME 1.42. Measurements of palp and legs: palp: 1.53 (0.61, 0.18, 0.23, 0.51), leg I 4.37 (1.05, 1.50, 0.77, 0.61, 0.44), II 3.05 (1.01, 0.49, 0.69, 0.46, 0.40), III 3.68 (1.31, 0.59, 0.70, 0.67, 0.41), IV 3.79 (1.22, 0.51, 0.78, 0.79, 0.49). Leg formula: 1432.

Fig. 13. *Mogrus rajasthanensis* Caleb, Chatterjee, Tyagi, Kundu & Kumar, 2017, genitalia. **A–C**. ♂ (NRC-AA-0652). **D–E**. ♀ (NRC-AA-0653). **F**. ♀ (NRC-AA-0654). **A–C**. Left palp. **A**. Ventral view. **B**. Retrolateral view. **C**. RTA close-up. **D–F**. Epigyne/vulva. **D**. Ventral view. **E–F**. Dorsal view. Scale bars = 0.2 mm.

Variation

The male does not exhibit noticeable differences, whereas the female shows several distinct variations: longitudinal grooves along the lateral margins differ in shape: in one specimen, the grooves appears slightly curved, whereas in another, it exhibits a sharp bend. Additionally, the copulatory ducts form a V-shaped bend, which is relatively short in one individual but elongated in another. Furthermore, the size of the spermathecae also varies among the specimens, indicating intraspecific morphological variation in the female genital structures (Fig. 13D–F).

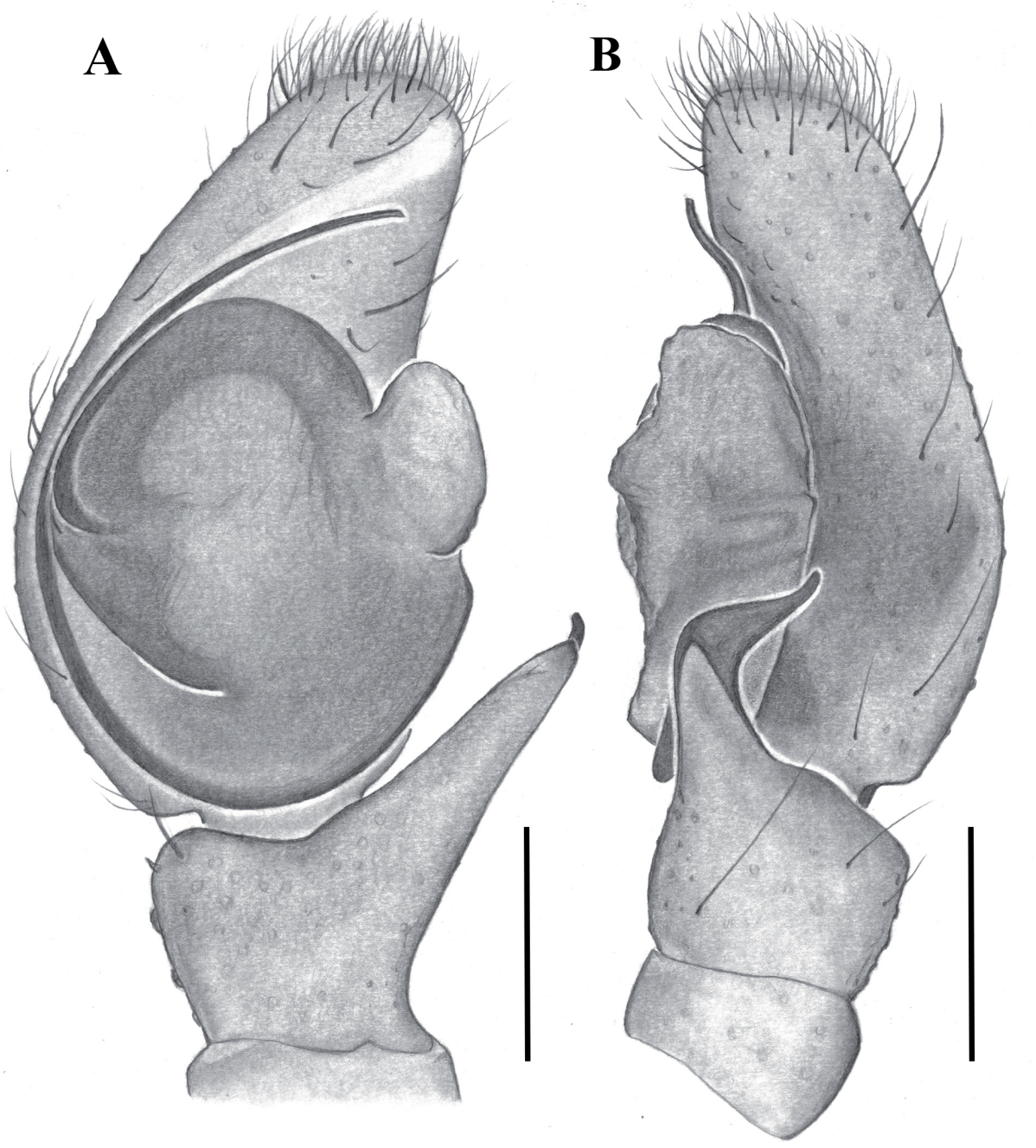

Fig. 14. *Mogrus rajasthanensis* Caleb, Chatterjee, Tyagi, Kundu & Kumar, 2017, ♂ (NRC-AA-0652), genitalia, left palp. **A**. Ventral view. **B**. Retrolateral view. Scale bars = 0.2 mm.

Records from India

Rajasthan (Caleb *et al*. 2017; present study).

Distribution

India (WSC 2026).

Remarks

Mogrus rajasthanensis was originally described based solely on female specimens (Caleb *et al*. 2017). In the present study, male specimens are provisionally attributed to this species. The females closely resemble those of *M. canescens* (C.L. Koch, 1846), whereas the males assigned here show a strong similarity to those of *M. frontosus* (Simon, 1871). Females identified as *M. canescens* from Morocco have a distinct posterior median epigynal pocket (Oger 2024), a feature absent in specimens from Yemen previously assigned to *M. canescens* (Wesołowska & van Harten 1994*)*, as well as in the holotype and additional female material of *M. rajasthanensis* (Caleb *et al*. 2017). This suggests that at least part of the Yemeni material may be referrable to *M. rajasthanensis*, although this interpretation requires confirmation.

During extensive field surveys in Rajasthan, no males corresponding to the known morphology of *M. canescens* were encountered. While this observation alone is not conclusive, it supports the possibility that *M. rajasthanensis* and *M. canescens* represent distinct taxa in the region. The close resemblance between the males, attributed here to *M. rajasthanensis*, and *M. frontosus*, combined with differences in the female genital morphology, highlights the difficulty of reliable sex matching within *Mogrus*. Given the poor taxonomic resolution of the genus and the likelihood of mismatched sexes across species with overlapping distributions, the association of males and females in *M. rajasthanensis* should be regarded as tentative. A DNA barcode is available for *M. rajasthanensis*; however, comparative molecular data for related species remain insufficient. A comprehensive revision of *Mogrus*, integrating morphology, molecular data, and material from type localities, will be required to resolve these taxonomic uncertainties.

Discussion

Identification of species of *Mogrus* can be challenging both in the field and under a microscope due to limited morphological differences and significant intraspecific variation. Most species have two longitudinal white stripes on the carapace and a central stripe or chevron pattern on the abdomen. Subtle differences in copulatory structures, such as those between *M. rajasthanensis* and *M. frontosus*, or *M. larisae* and *M. antoninus,* further complicate identification. Significant variation in female genitalia, discussed in detail in the variation sections, highlights the importance of carefully evaluating these features when designating species within the genus.

The discovery of *M. shushka* sp. nov. and *M. pune* sp. nov., together with the first record of *M. larisae*, significantly extends the known range of *Mogrus* into the western arid zones of India. This distribution aligns with the genus's core range in the southern Palaearctic and arid Afro-Asia (WSC 2026), supporting historical biogeographic connections via the Indian subcontinent's arid corridor (Seton *et al*. 2012). The presence of multiple species of *Mogrus* in semi-arid habitats of western India highlights the underexplored salticid diversity of these ecosystems and underscores their biogeographic significance.

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