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Monograph

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Eleven new species of jumping spiders (Araneae, Salticidae) from Sumatra

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Abstract. Eleven new species of jumping spiders (Araneae: Salticidae) from Jambi Province, Sumatra, Indonesia, are described: *Chalcovietnamicus tikus* Dhiya'ulhaq sp. nov. (♂♀), *Dendroicius garigi* Dhiya'ulhaq sp. nov. (♂), *Epeus kepayang* Dhiya'ulhaq sp. nov. (♂♀), *Indomarengo likaliku* Dhiya'ulhaq sp. nov. (♂♀), *Pengmarengo gepeng* Dhiya'ulhaq sp. nov. (♂♀), *Phintella candramawa* Dhiya'ulhaq sp. nov. (♂♀), *Phintella castor* Dhiya'ulhaq sp. nov. (♂♀), *Phintella siginjai* Dhiya'ulhaq sp. nov. (♂), *Poecilorchestes keciknyo* Dhiya'ulhaq sp. nov. (♂♀), *Psenuc lalawa* Dhiya'ulhaq sp. nov. (♂♀) and *Stertinius senja* Dhiya'ulhaq sp. nov. (♂♀). Additionally, new species records of *Epeus albus* (Prószyński, 1992) (♂♀) and *Simaetha cheni* (Wang & Li, 2021) (♂♀) for Sumatra are provided, as well as high-resolution images of *Epeus sumatranus* (Prószyński & Deeleman-Reinhold, 2012) (♂♀). Spider specimens were collected by canopy fogging in four land-use systems: (1) lowland rainforest, (2) smallholder plantations of 'jungle rubber' (low impact rubber agroforestry, *Hevea brasiliensis*), (3) smallholder monoculture rubber and (4) smallholder monoculture oil palm (*Elaeis guineensis*). Of the eleven new salticid spider species, seven were exclusively found in the rather natural systems of lowland rainforest and jungle rubber, while two were found in jungle rubber and rubber, and the remaining two were found in rubber or oil palm monocultures. No species encountered in oil palm was also encountered in forest or vice versa. This applies also to the extant species, which were either found in monocultures of oil palm and rubber, or in lowland rainforest or jungle rubber. This observation offers the first glimpse

into the ecology of the eleven newly described salticids and adds to existing knowledge on the other three.

Keywords. EFForTS, canopy fogging, Indonesia, Southeast Asia.

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Introduction

The family Salticidae Blackwall, 1841 is one of the most speciose spider families on the planet, comprising over 6700 species, of which more than 300 are recorded from Indonesia (World Spider Catalog 2024). They are enigmatic, if not downright congenial, and are beloved among arachnologists and the broader population alike. This is mainly due to their two large anterior eyes and their often striking coloration, which appeals to the instinctive aesthetics of these species. Beyond emotional connection to them, jumping spiders are of intriguing ecological diversity and significance, especially in Southeast Asia. Here, a large number of salticid species have adapted to an ant-dominated environment by looking like them; this is especially obvious in the genus *Myrmarachne* MacLeay, 1839. Being rather small spiders (3–10 mm), they are formidable jumpers and have been seen to jump up to 16 cm far when fleeing danger (Foelix 2011).

Within the framework of the EFForTS project (Ecological and Socioeconomic Functions of Tropical Lowland Rainforest Transformation Systems), the effect of rainforest transformation to jungle rubber (extensively cultivated rubber in rainforest remnants) and smallholder monocultures of rubber (*Hevea brasiliensis* (Willd. ex A.Juss.) Müll.Arg.,) and oil palm (*Elaeis guineensis* Jacq.) are studied (Drescher *et al.* 2016). As part of this research project, more than 10 000 spider specimens of more than 400 morphospecies were collected in 2013 from tree and palm canopies. We discovered that spider abundance and diversity dropped by more than half after rainforest transformation to monocultures of rubber and oil palm (Ramos *et al.* 2022). Similar patterns were observed by Junggebauer *et al.* (2021), who reported losses in taxonomic diversity and phylogenetic diversity in a collection of 912 salticid spider specimens of 21 genera and 70 morphospecies from research plots in the EFForTS project but collected four years later. Ramos *et al.* (2022) reported that spiders of Salticidae were the most speciose and abundant, contributing almost 20% of the species (87 of 445) and specimens (2043 of 10 676). Most of the specimens forming the basis of the work by Ramos *et al.* (2022) were not determined to species level, due to a high proportion of juveniles (more than half of the specimens) and a high proportion of undescribed species. Here, we address the taxonomic gap in the report by Ramos *et al.* (2022) by describing eleven new species of their collection, as well as providing new records for Sumatra of two known species and photos of another.

Material and methods

Sample collection

The specimens used here were part of a collection of more than half a million canopy arthropods (Pollierer *et al.* 2023), stemming from 96 individual canopy fogging events in 32 permanent research plots of the EFForTS project sampled in 2013 (Drescher *et al.* 2016). Research plots were evenly distributed among four land-use systems: lowland rainforest, 'jungle rubber' (low impact rubber agroforestry), and smallholder monocultures of rubber (*Hevea brasiliensis*) and oil palm (*Elaeis guineensis*).

Canopy fogging was conducted by applying 50 ml of DECIS 25 (Bayer Crop Science; active ingredient deltamethrin, 25 g/L) dissolved in four liters of petroleum oil ('white oil') to three target canopies in

each of the 32 permanent EFForTS research plots (Drescher *et al.* 2016). Underneath each canopy, 16 square collection traps were placed, each measuring 1 m × 1 m, to which PE bottles with 100 ml 99.8% EtOH p.A. were attached. Two hours after applying the entire mixture of white oil and insecticide to the canopy, the contents of the collection traps were emptied into the ethanol filled bottles, which were themselves combined into a single 1 L PE bottle with fresh ethanol. Canopy arthropods were stored at -20°C whenever possible, and subsequently sorted to orders and deeper taxa, including spiders. Overall, more than 10 000 spider individuals of more than 30 families and at least 400 species were found (Ramos *et al.* 2022). More details can be found in Drescher *et al.* (2016) concerning plot design and the EFForTS research framework, Pollierer *et al.* (2023) regarding the canopy fogging method, and Ramos *et al.* (2022) and Junggebauer *et al*. (2021) with regard to biodiversity patterns of the collected canopy spider community. Photographic documentation of the spider community is available on Ecotaxonomy.org and in *Spiders of Jambi: A Guide to the EFForTS Collection* (Dhiya'ulhaq *et al*. 2024)

Identification and photography

Specimens were examined under a ZEISS Stemi 2000 microscope. Female genitalia were excised from the specimen's body and then cleared in a solution of 10% KOH for at least one hour in order to examine the internal copulatory organs. Imaging of the specimens was done using a Keyence VHX–7000 digital microscope system. Description of coloration is based on specimens in ethanol. Measurements of legs are given as total length (femur, patella, tibia, metatarsus, tarsus).

Abbreviations

ALE = anterior lateral eye
ALS = anterior lateral spinneret
AME = anterior median eye
PLE = posterior lateral eye
PLS = posterior lateral spinneret
PME = posterior median eye
RTA = retrolateral tibial apophysis
VTA = ventral tibial apophysis

Repositories

GOET = Animal Ecology Group, J.-F. Blumenbach Institute of Zoology and Anthropology, University of Göttingen, Göttingen, Germany (Jochen Drescher, Stefan Scheu)
MZB = Museum Zoologicum Bogoriense, Bogor, Indonesia (Cahyo Rahmadi)
SMF = Naturmuseum Senckenberg, Frankfurt am Main, Germany (Jana Grüger, Peter Jäger)
ZMH = Zoologisches Museum Hamburg, Hamburg, Germany (Nadine Dupérré, Danilo Harms)

Male holotypes and female paratypes will be deposited at the Museum Zoologicum Bogoriense (MZB), Bogor, West Java, Indonesia, after personal transfer and handover by Stefan Scheu, as speaker of the EFForTS consortium, to representatives of the National Research and Innovation Agency (Badan Riset dan Inovasi Nasional, BRIN, Indonesia), anticipated for 2026. Further male and female paratypes are deposited in German collections, pursuant to a bilateral MTA (Material Transfer Agreement) between Damayanti Buchori (Provider, IPB University Bogor) and Stefan Scheu (Recipient, GOET). Paratypes deposited to ZMH are connected to collection numbers. Paratypes deposited to SMF will receive collection numbers after publication of this manuscript.

Results

Class Arachnida Cuvier, 1812
Order Araneae Clerck, 1757
Family Salticidae Blackwall, 1841
Genus *Chalcovietnamicus* Marusik, 1991

Chalcovietnamicus tikus Dhiya'ulhaq sp. nov.
urn:lsid:zoobank.org:act:55B68178-4C9A-4AB4-8BCA-7436486B7DBB
Figs 1–4

Diagnosis

Chalcovietnamicus tikus Dhiya'ulhaq sp. nov. belongs to the *daiqini*-group based on the dense covering with khaki setae on body and absence of flag-like embolic apophysis (Yu *et al.* 2023). Within the *daiqini*-

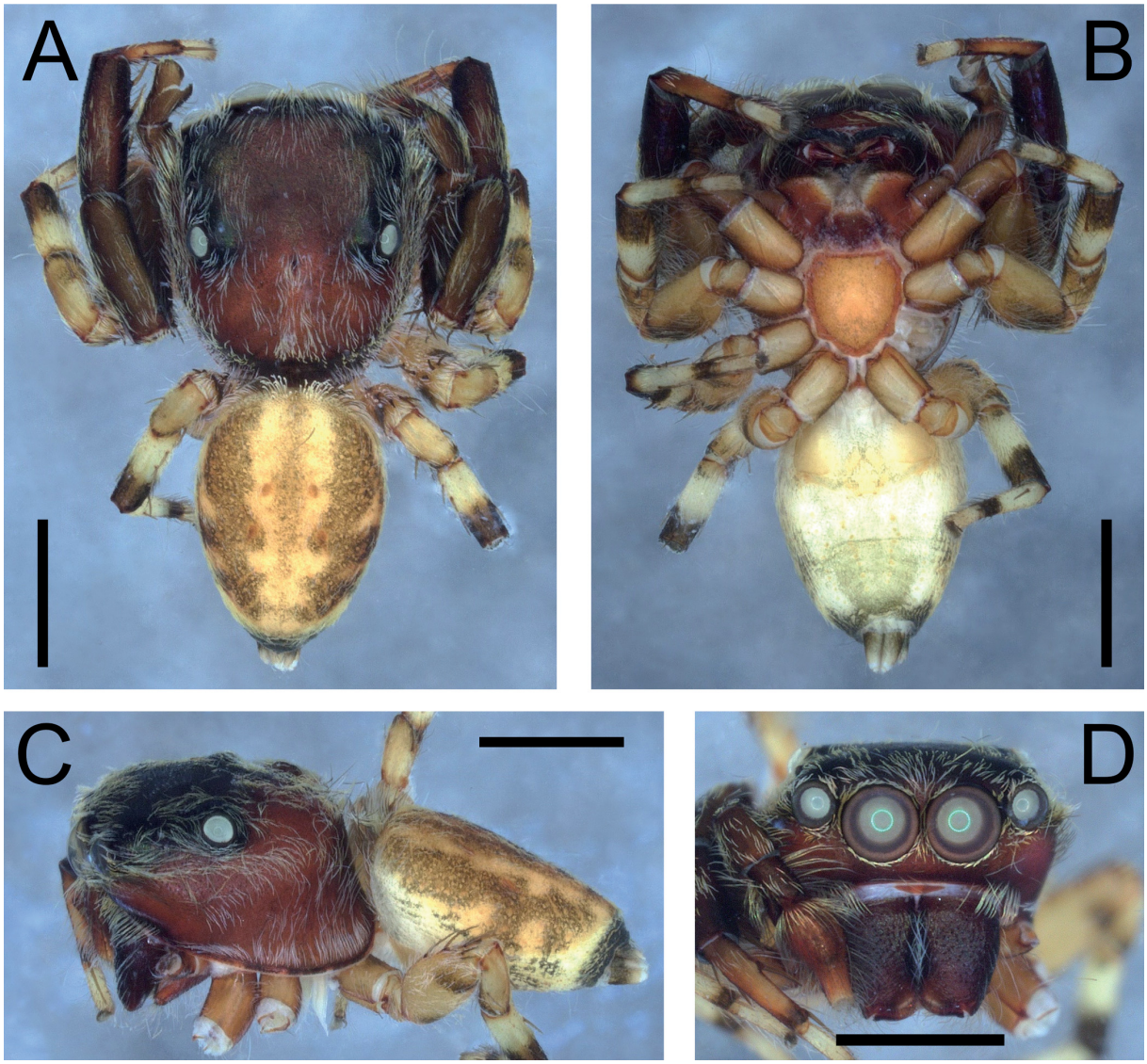

Fig. 1. *Chalcovietnamicus tikus* Dhiya'ulhaq sp. nov., holotype, ♂ (AraSalt018N_HJ2.1_001). **A–C**. Habitus. **A**. Dorsal view. **B**. Ventral view. **C**. Lateral view. **D**. Prosoma, frontal view. Scale bars = 1 mm.

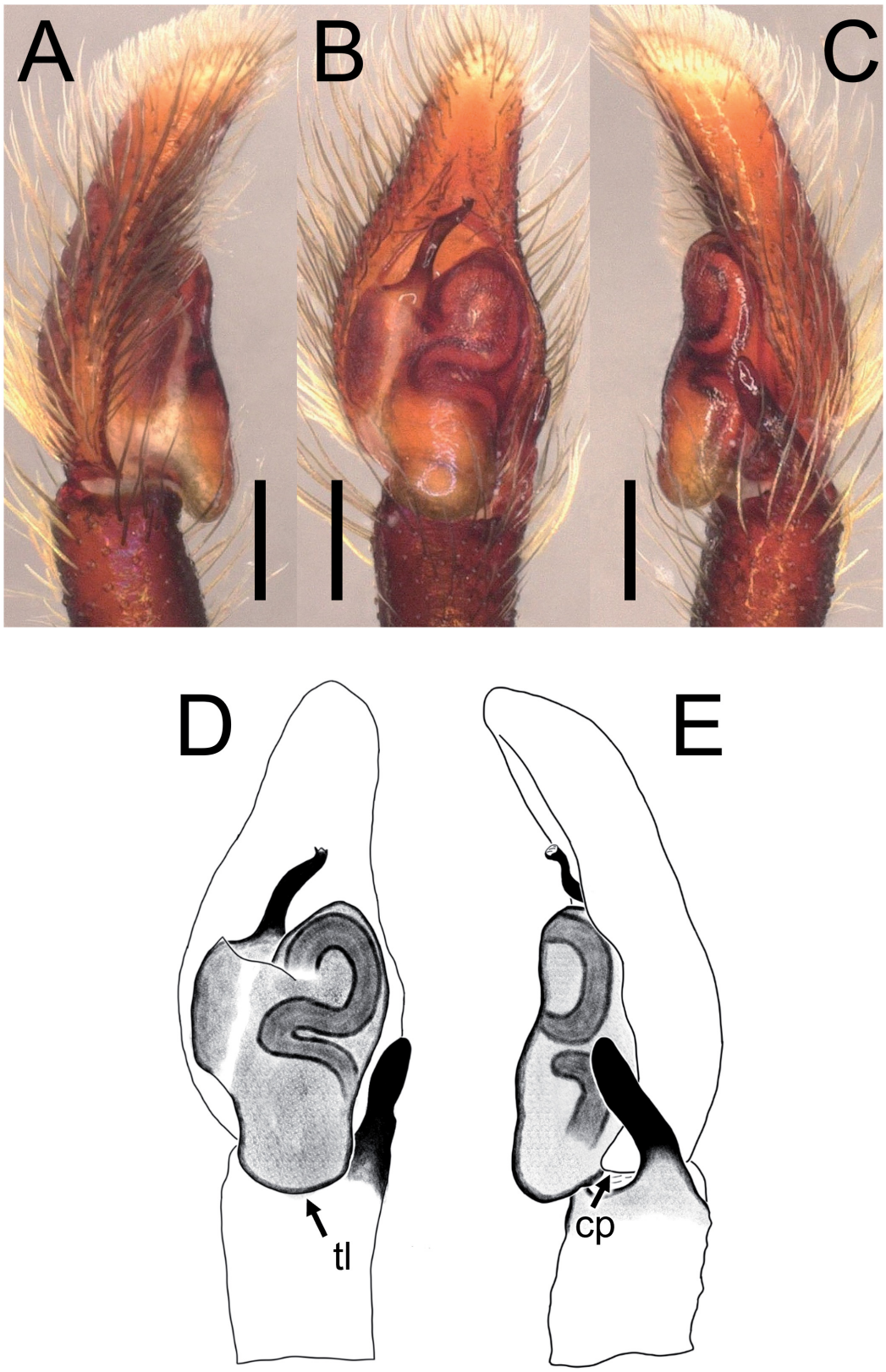

Fig. 2. *Chalcovietnamicus tikus* Dhiya'ulhaq sp. nov., holotype, ♂ (AraSalt018N_HJ2.1_001), left palp. **A**. Prolateral view. **B**, **D**. Ventral view. **C**, **E**. Retrolateral view. Abbreviations: cp = cymbial process; tl = tegular lobe. Scale bars = 0.2 mm.

group, male *C. tikus* most resembles those of *Chalcovietnamicus daiqini* (Prószyński & Deeleman-Reinhold, 2012) and *Chalcovietnamicus marusiki* Yu, Maddison & Zhang, 2023 by slender, curved embolus and finger-shaped RTA with rounded tip, but can be distinguished by retrolaterally-bending embolus and rounded tip of tegular lobe (Fig. 2C, E vs embolus prolaterally-curving and tegular lobe tip prolaterally pointed in *C. marusiki* [Yu *et al.* 2023: figs 51, 56]). Females are similar to those of *C. marusiki* by diagonally-aligned, kidney-shaped spermatheca, but can be distinguished in having sharply bent copulatory ducts (Fig. 4B, D vs gently curved in *C. marusiki* [Yu *et al.* 2023: fig. 59]) and abruptly narrowed accessory glands with wide bases (vs tapering in *C. marusiki)*.

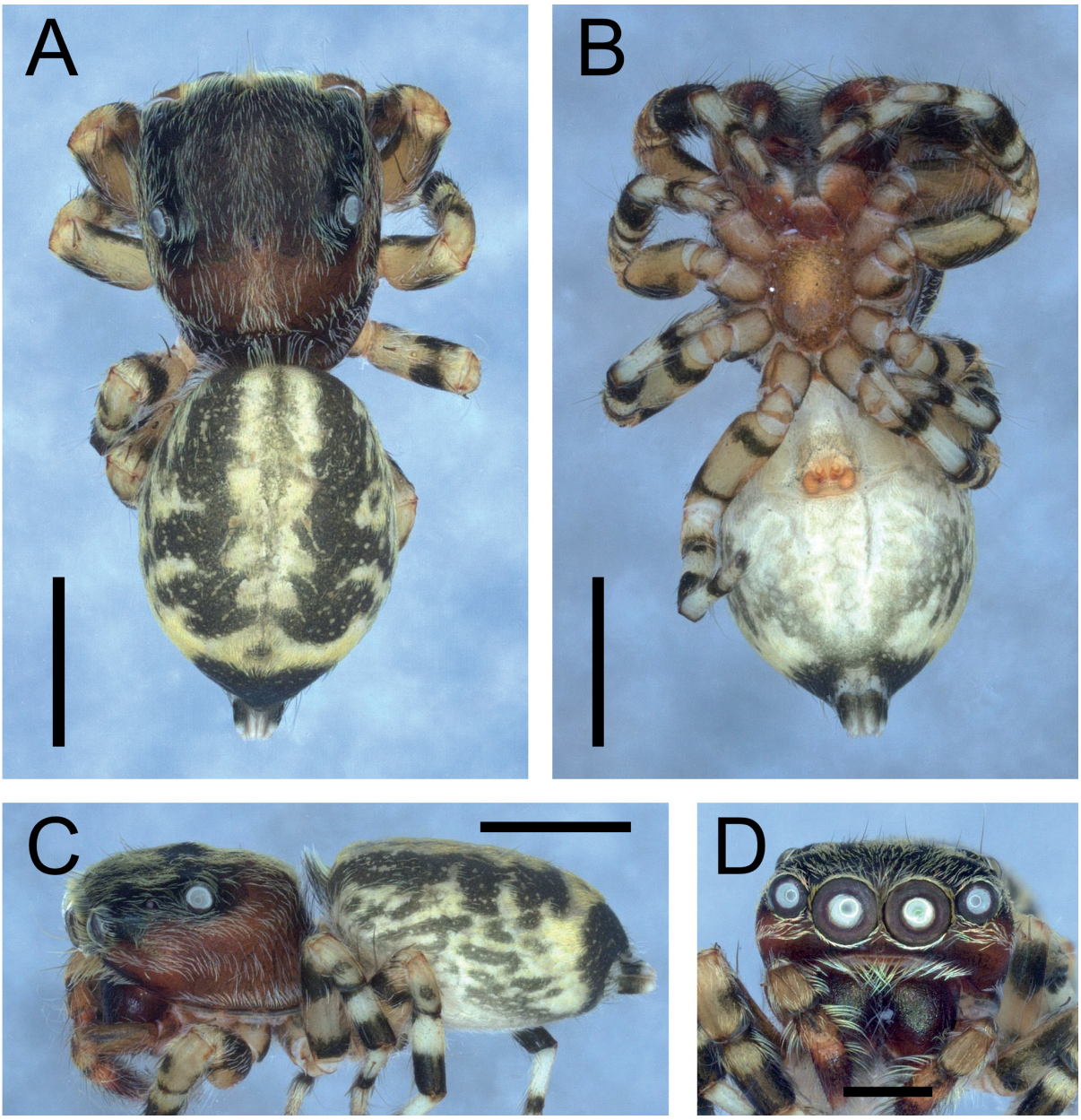

Fig. 3. *Chalcovietnamicus tikus* Dhiya'ulhaq sp. nov., paratype, ♀ (AraSalt018N_HJ2.1_001). **A–C**. Habitus. **A**. Dorsal view. **B**. Ventral view. **C**. Lateral view. **D**. Prosoma, frontal view. Scale bars: A–C = 1 mm; D = 0.5 mm.

Etymology

The specific epithet is taken from the Indonesian word '*tikus*', meaning 'mouse' or 'rat', referring to the small size. Noun in apposition.

Material examined

Holotype

INDONESIA – **Jambi Province** • ♂; Sarolangun, Bukit Duabelas National Park; 1°56′34.3″ S, 102°34′52.6″ E; elev. 85 m; 5 Oct. 2013; J. Drescher leg.; canopy fogging in rainforest; GOET 2013_BF3.1_AraSalt018N_001 (to be transferred to MZB).

Paratype

INDONESIA – **Jambi Province** • 1 ♀; Bajubang, Batang Hari, Bajubang, Pompa Air; 1°49′33.3″ S, 103°17′38.1″ E; elev. 51 m; 14 May 201; J. Drescher leg.; canopy fogging in jungle rubber plantation; GOET 2013_HJ2.1_AraSalt018N_001 (to be transferred to MZB).

Description

Male (Figs 1–2)

Measurements. Total length 3.74. Carapace length 2.02; width 1.67. Opisthosoma length 1.72; width 1.29. Diameter of eyes: AME 0.52; ALE 0.25; PLE 0.21. Interdistances between eyes: ALE–ALE 1.07; ALE–PLE 0.70; PLE–PLE 1.22. Clypeus height 0.13. Leg measurements: leg I 4.19 (1.25, 0.80, 1.04,

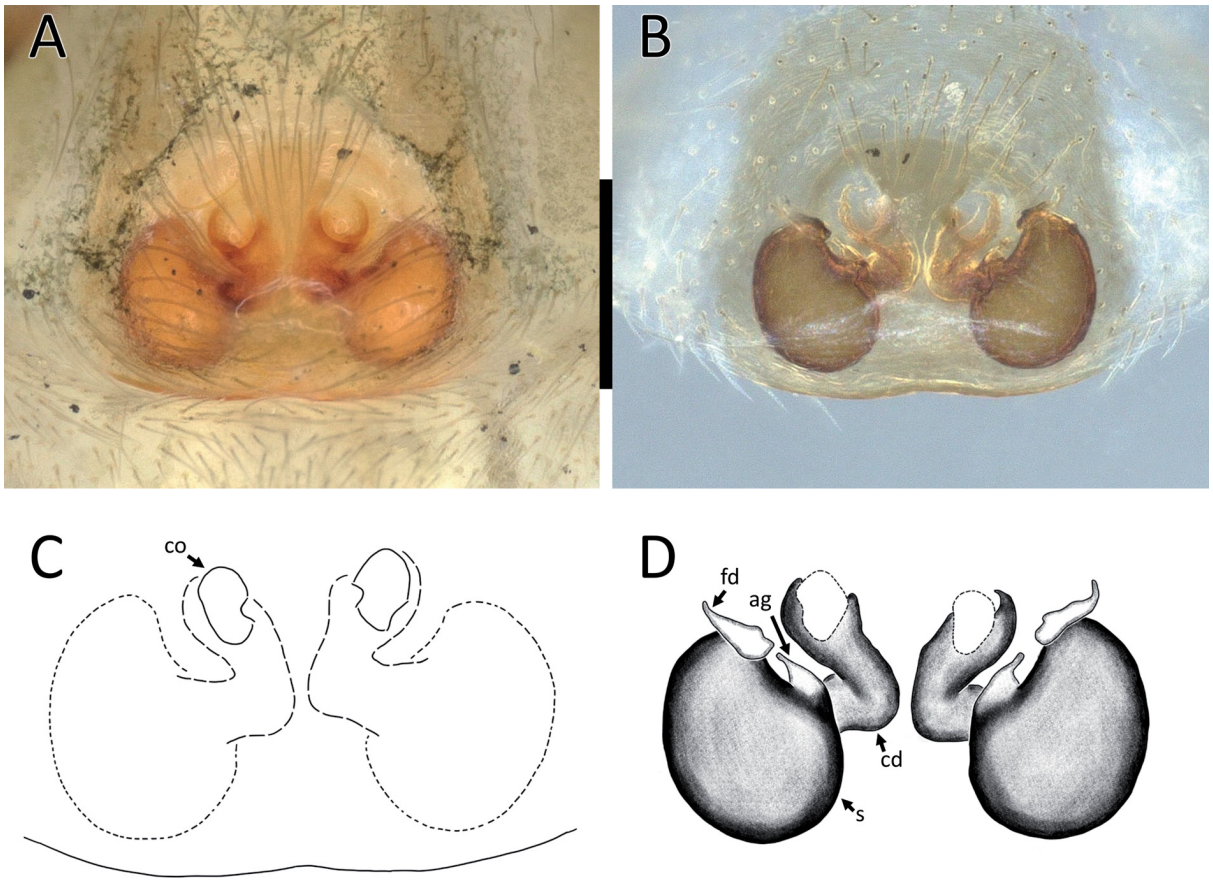

Fig. 4. *Chalcovietnamicus tikus* Dhiya'ulhaq sp. nov., paratype, ♀ (AraSalt018N_HJ2.1_001). **A, C**. Epigynum, ventral view. **B, D**. Vulva, cleared, dorsal view. Abbreviations: ag = accessory gland; cd = copulatory duct; co = copulatory opening; fd = fertilization duct; s = spermatheca. Scale bar = 0.2 mm.

0.69, 0.41); leg II 2.77 (0.91, 0.43, 0.55, 0.57, 0.31); leg III 2.91 (0.94, 0.36, 0.60, 0.63, 0.38); leg IV 2.86 (0.94, 0.37, 0.65, 0.58, 0.32).

Habitus and coloration. Carapace reddish-brown, covered with cream-colored setae. Chelicerae colored darker than carapace; dentition: one promarginal, one bicuspid retromarginal. Opisthosoma oval; dorsally covered in light-brown scutum, as well as faint stripe in middle and one pair of dark zig-zag patterns on side; ventral side of opisthosoma pale, posterior half with dark patch; spinnerets surrounded by dark circle. Leg I stouter than other legs; femur to tibia uniformly colored and slightly darker than carapace; tarsus pale. Legs II–IV with alternating dark and pale color. Spinnerets basally brown, distally pale.

Palp (Fig. 2). Tibia length-to-width ratio 1.25. RTA finger shaped; apex rounded; almost as long as palpal tibia and forming a 70 degrees angle towards it. Cymbium elongated. Cymbial process present. Tegular lobe wide, tip rounded. Embolus arising at 11:30 position, approximately third of palpal bulb length, retrolaterally bent at distal third.

Female (Figs 3–4)

Measurements. Total length 3.89. Carapace length 1.79; width 1.47. Opisthosoma length 2.10; width 1.59. Diameter of eyes: AME 0.39; ALE 0.24; PLE 0.16. Interdistances between eyes: ALE–ALE 1.09; ALE–PLE 0.56; PLE–PLE 0.85. Clypeus height 0.05. Leg measurements: leg I 2.35 (0.74, 0.35, 0.51, 0.41, 0.34); leg II 2.05 (0.66, 0.32, 0.41, 0.38, 0.28); leg III 2.34 (0.80, 0.34, 0.42, 0.48, 0.30); leg IV 2.55 (0.83, 0.27, 0.56, 0.55, 0.34).

Habitus and coloration. Female habitus as in male, except following: leg I only slightly thicker than other legs and similarly striated; margins of sternum almost smooth; abdominal scutum absent, dark abdominal pattern more pronounced.

Epigynum (Fig. 4). Epigynal plate rectangular, slightly longer than wide. Copulatory openings oval; diameter one of fourth spermathecal length; spaced 1.5 diameter apart. Copulatory ducts as long as spermathecae, acutely bent at latter third. Spermathecae kidney shaped, slightly longer than wide, diagonally oriented. Accessory glands with wide base, abruptly narrowed in middle. Fertilisation ducts one-fourth length of spermatheca.

Distribution

Sumatra: Jambi Province.

Natural history

All specimens were collected by canopy fogging in rainforests and jungle rubber plantations and are considered arboreal.

Genus *Dendroicius* Lin & Li, 2020

Dendroicius garigi Dhiya'ulhaq sp. nov.
urn:lsid:zoobank.org:act:CA171A51-181E-4A2F-AA8C-F5FDF356F01A
Figs 5–6

Diagnosis

Males of *Dendroicius garigi* Dhiya'ulhaq sp. nov. can be easily distinguished from those of the only other species *Dendroicius hotaruae* Lin & Li, 2020 by the finger-shaped tegular sclerite (Fig. 6B, E vs sheet-like in *D. hotaruae* [Lin & Li 2020: fig. 3b, e]), absence of dorsal embolic apophysis (vs present)

and tibial apophyses merged into one large structure (Fig. 6C, G vs multiple separate apophyses in *D. hotaruae* [Lin & Li 2020: fig. 3e]).

Etymology

The specific epithet is taken from Jambi Malay, meaning 'denticles', referring to the denticles on the palpal tibia. Noun in apposition.

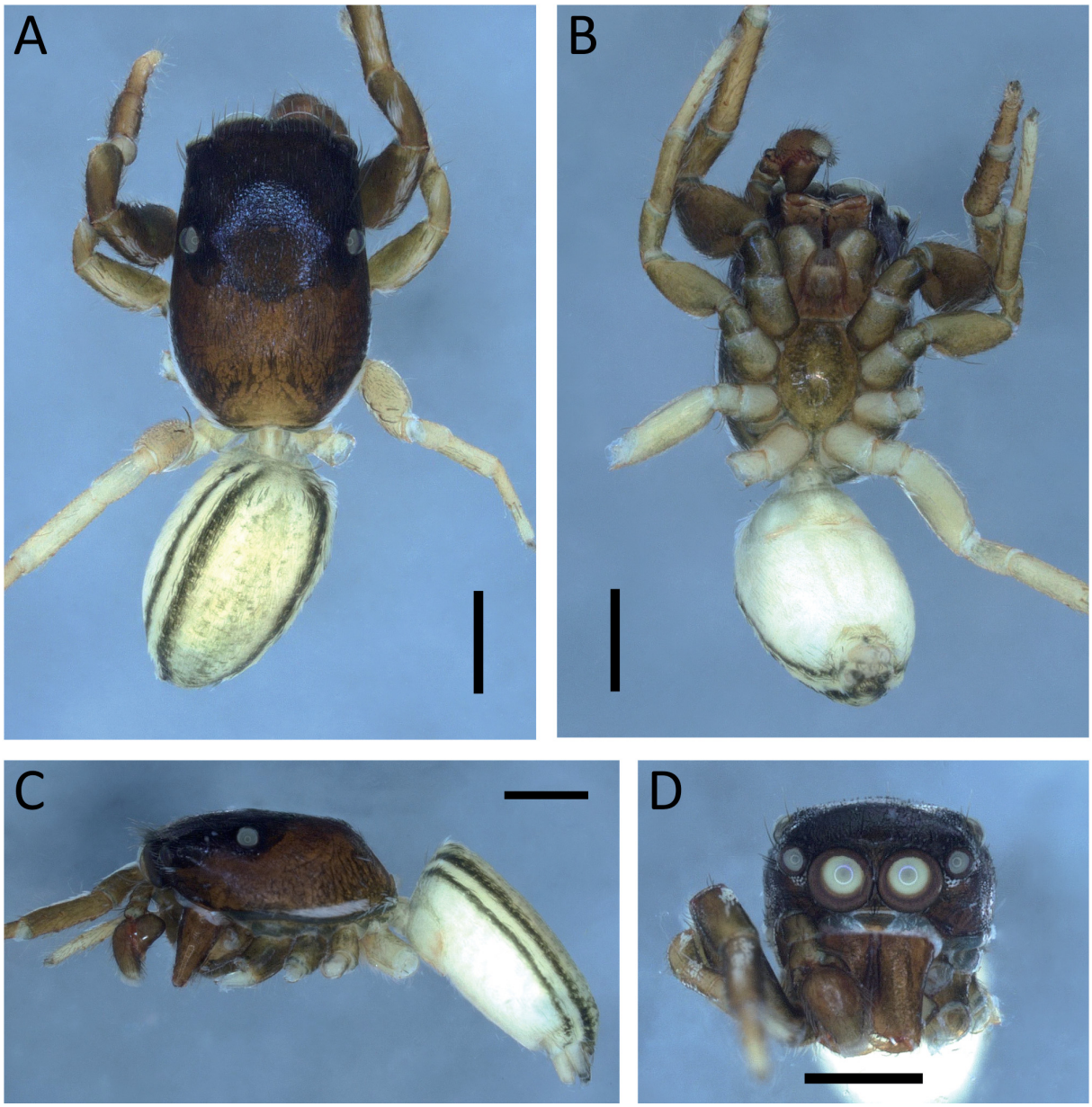

Fig. 5. *Dendroicius garigi* Dhiya'ulhaq sp. nov., holotype, ♂ (AraSalt008N_BJ5.1_001). **A–C**. Habitus. **A**. Dorsal view. **B**. Ventral view. **C**. Lateral view. **D**. Prosoma, frontal view. Scale bars = 0.5 mm.

Material examined

Holotype

INDONESIA – **Jambi Province** • ♂; Sarolangun, Paoh, Semaran; 2°08′35.9″ S, 102°51′04.5″ E; elev. 45 m; 16 Jul. 2013; J. Drescher leg.; canopy fogging in jungle rubber plantation; GOET 2013_BJ5.1_AraSalt008N_001 (to be transferred to MZB).

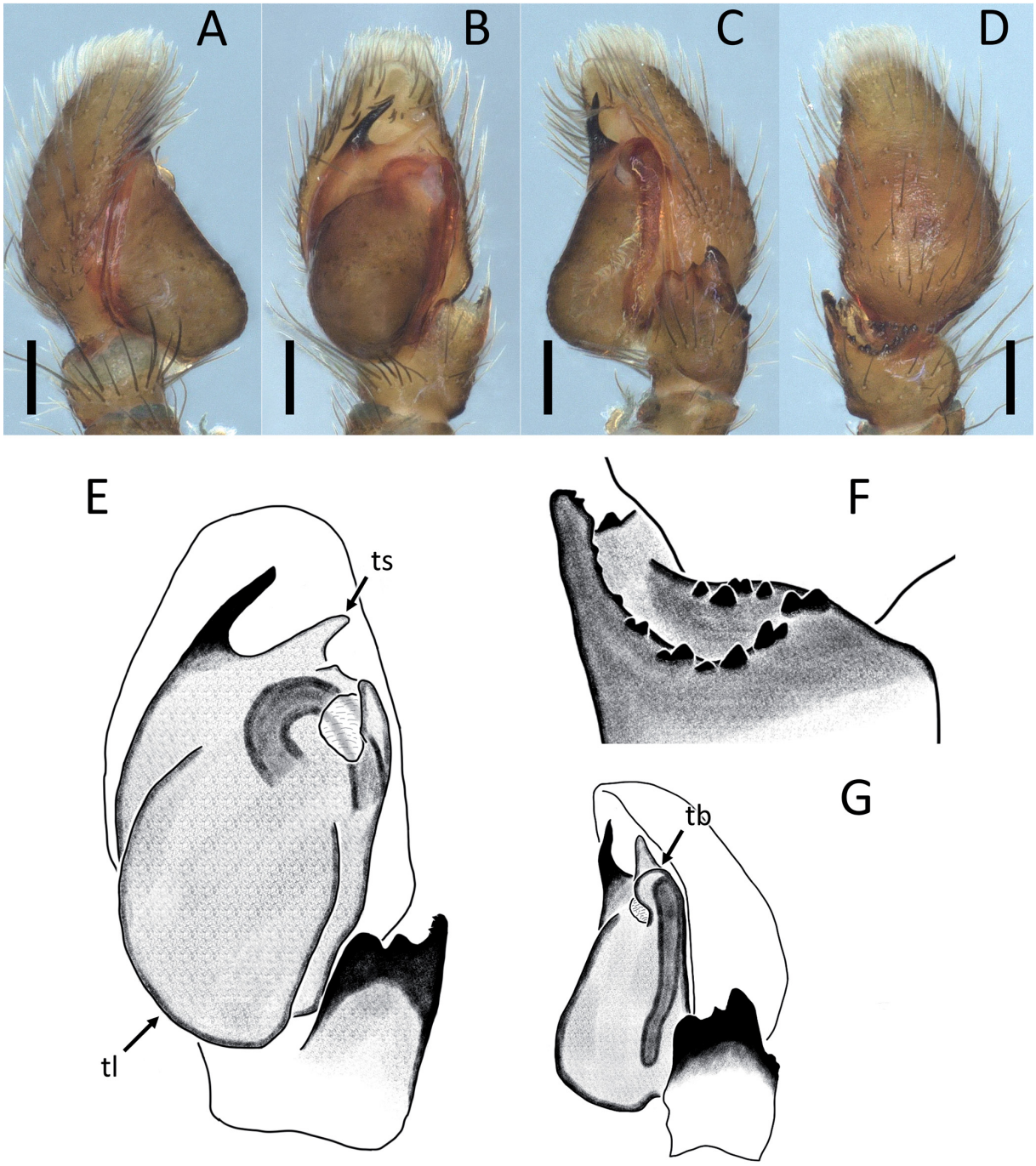

Fig. 6. *Dendroicius garigi* Dhiya'ulhaq sp. nov., holotype, ♂ (AraSalt008N_BJ5.1_001), left palp. **A**. Prolateral view. **B**, **E**. Ventral view. **C**, **G**. Retrolateral view. **D**. Dorsal view. **F**. Tibia, dorsal view. Abbreviations: tb = tegular bump; tl = tegular lobe; ts = tegular sclerite. Scale bars = 0.1 mm.

Description

Male (Figs 5–6)

Measurements. Total length 2.86. Carapace length 1.53; width 1.03. Opisthosoma length 1.33; width 0.80. Diameter of eyes: AME 0.28; ALE 0.14; PLE 0.12. Interdistances between eyes: AME–AME 0.03; AME–ALE 0.03; ALE–ALE 0.61; ALE–PLE 0.32; PLE–PLE 0.75. Leg measurements: leg I 2.18 (0.63, 0.37, 0.55, 0.37, 0.26); leg II 1.50 (0.40, 0.26, 0.36, 0.28, 0.20); leg III 1.61 (0.57, 0.19, 0.33, 0.32, 0.20); leg IV 2.17 (0.70, 0.25, 0.51, 0.41, 0.30).

Habitus and coloration. Carapace dark-brown, covered in black setae; lateral margins with thin stripe of white setae starting medially up to posterior end; small patch of white setae below ALE. Chelicerae colored slightly lighter than carapace; dentition: two promarginal, one retromarginal. Opisthosoma oval, yellow, laterally with thin longitudinal stripe of white setae in between stripes of black setae. Legs dorsally covered in white setae. Anterior legs brown except pale tarsus. Leg I stouter than other legs. Posterior legs pale. Spinnerets pale, except brown tip of PLS.

Palp (Fig. 6). Tibia length-to-width ratio 0.60. RTA wide with three apices: ventral apex rounded, median and dorsal apices triangular. Numerous small denticles present along dorsal edge of RTA and towards distal edge of tibia. Cymbium rather broad. Tegular lobe wide and expanded; tegular bump rounded with wide base, right next to small membranous area. Sperm ducts inverted J-shaped retrolaterally; slightly curved prolaterally. Tegular sclerite pale, slightly shorter than embolus. Embolus needle-shaped, slightly more than third of length of bulb, forming 60 degree angle towards bulb.

Female

Unknown.

Distribution

Sumatra: Jambi Province.

Natural history

The holotype was collected by canopy fogging in a jungle rubber plantation and is considered arboreal.

Genus *Epeus* G.W. Peckham & E.G. Peckham, 1886

Epeus albus Prószyński, 1992
Figs 7–9

Epeus albus Prószyński, 1992b: 171, figs 20–21, 25 (♀).
Lyssomanes chilapataensis Biswas & Biswas, 1992: 386, figs 14–16 (♀).

Epeus chilapataensis – Logunov 2004: 75.
Epeus tener – Patoleta *et al.* 2020: 8, fig. 2a–g. (♂, misidentification).
Epeus daiqini – Sibi *et al.* 2023: 80, figs 1a–f, 2a–e. (♂♀, misidentification).
Epeus albus – Sudhin *et al.* 2024a: 448, figs 1a–h, 2a–e, 3a–f, 4a–f, 5a–e (♂♀, synonym of *E. chilapataensis*).

Diagnosis and description

See Sudhin *et al.* (2024a).

Material examined

INDONESIA – **Jambi Province** • 1 ♂; Batang Hari, Bajubang, Sungkai; 1°51′28.4″ S, 103°18′27.5″ E; elev. 53 m; 3 Jun. 2013; leg. J. Drescher; canopy fogging in oil palm plantation; GOET 2013_HO3.2_

AraSalt103N_001 (to be transferred to MZB) • 1 ♂; Batang Hari, Bajubang, Pompa Air; 1°52′44.6″ S, 103°16′28.4″ E; elev. 68 m; 17 May 2013; leg. J. Drescher; canopy fogging in rubber plantation; GOET 2013_HR2.1_AraSalt103N_001 (to be transferred to MZB) • 2 ♀♀; Batang Hari, Bajubang, Sungkai; 1°51′36.5″ S, 103°18′00.6″ E; elev. 41 m; 2 Jun. 2013; leg. J. Drescher; canopy fogging in rubber plantation; GOET 2013_HR3.2_AraSalt103N_001, 2013_HR3.2_AraSalt103N_002 (to be transferred to MZB).

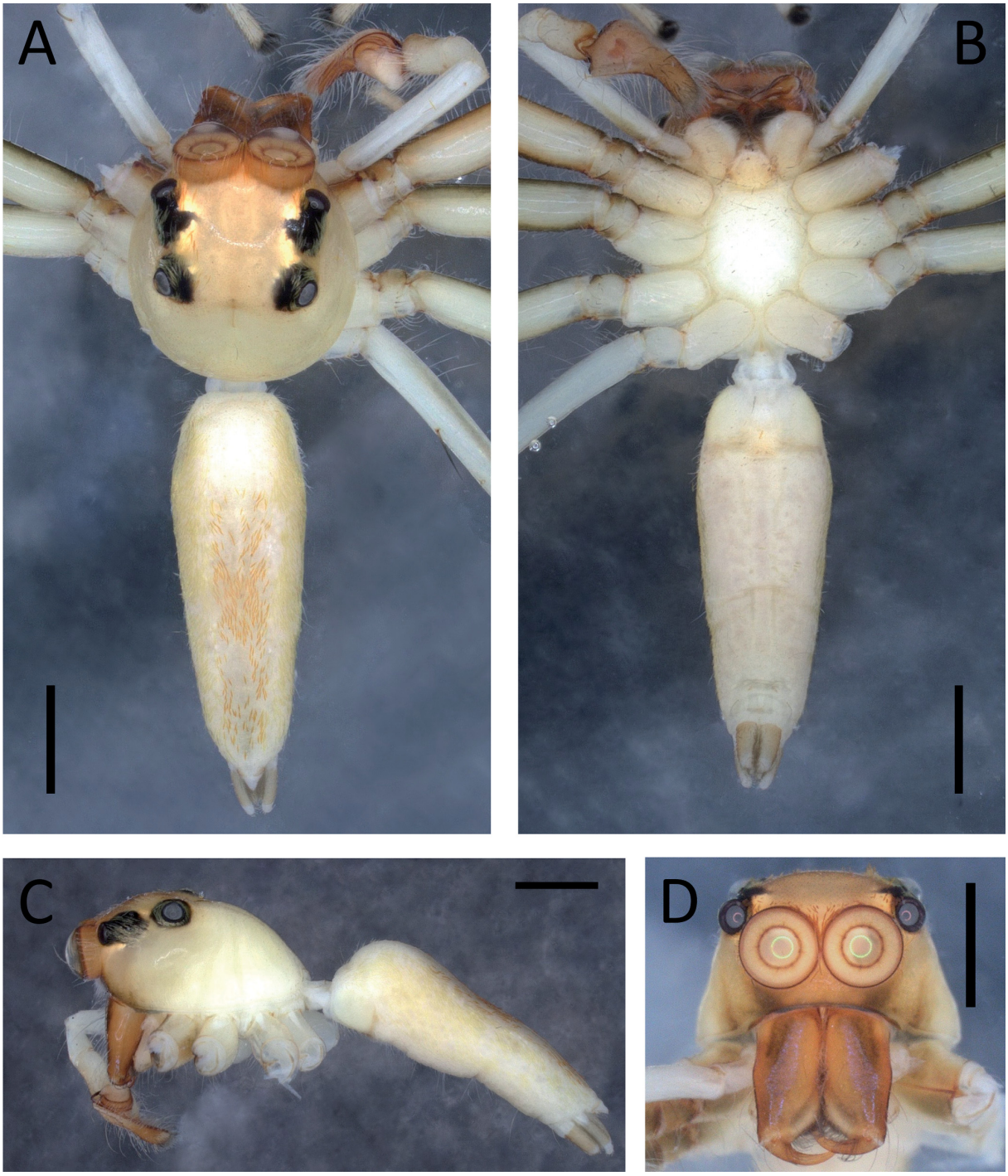

Fig. 7. *Epeus albus* Prószyński, 1992, ♂ (AraSalt103N_HO3.2_001). **A–C**. Habitus. **A**. Dorsal view. **B**. Ventral view. **C**. Lateral view. **D**. Prosoma, frontal view. Scale bars = 1 mm.

Distribution

India, Thailand, Sumatra: Jambi Province (new record).

Natural history

All specimens were collected by canopy fogging in oil palm and rubber monoculture plantations and are considered arboreal.

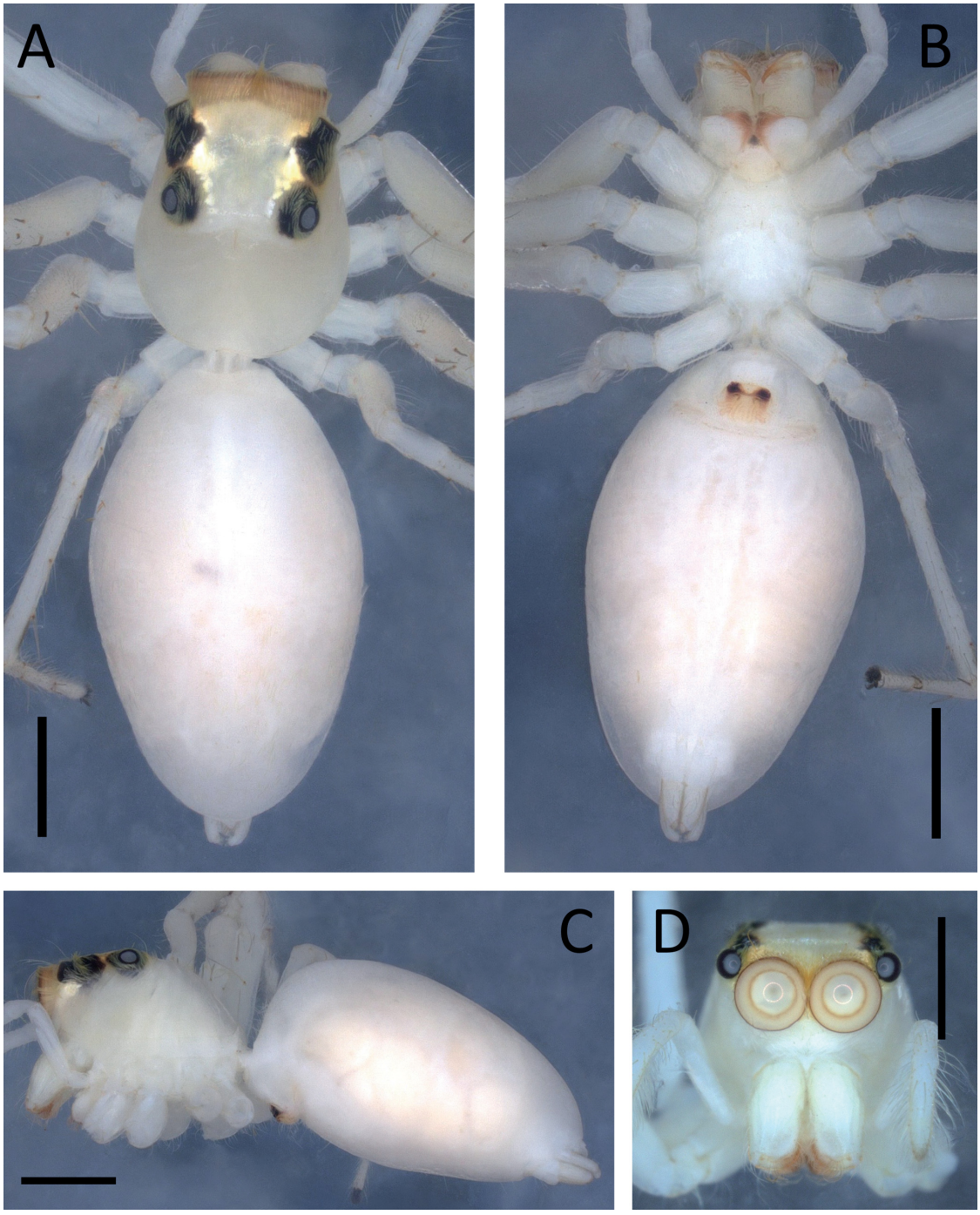

Fig. 8. *Epeus albus* Prószyński, 1992, ♀ (AraSalt103N_HR3.2_001). **A–C**. Habitus. **A**. Dorsal view. **B**. Ventral view. **C**. Lateral view. **D**. Prosoma, frontal view. Scale bars = 1 mm.

Remarks

The male specimen of *Epeus tener* (Simon, 1877) recorded by Patoleta *et al.* (2020: fig. 2a–g) from Thailand does not appear to match with the illustration provided by Prószyński (1984: figs 13–15) of a specimen from Java and instead should belong to *Epeus albus* judging by the shape of the RTA, which has a truncated tip (vs rounded in *E. tener*).

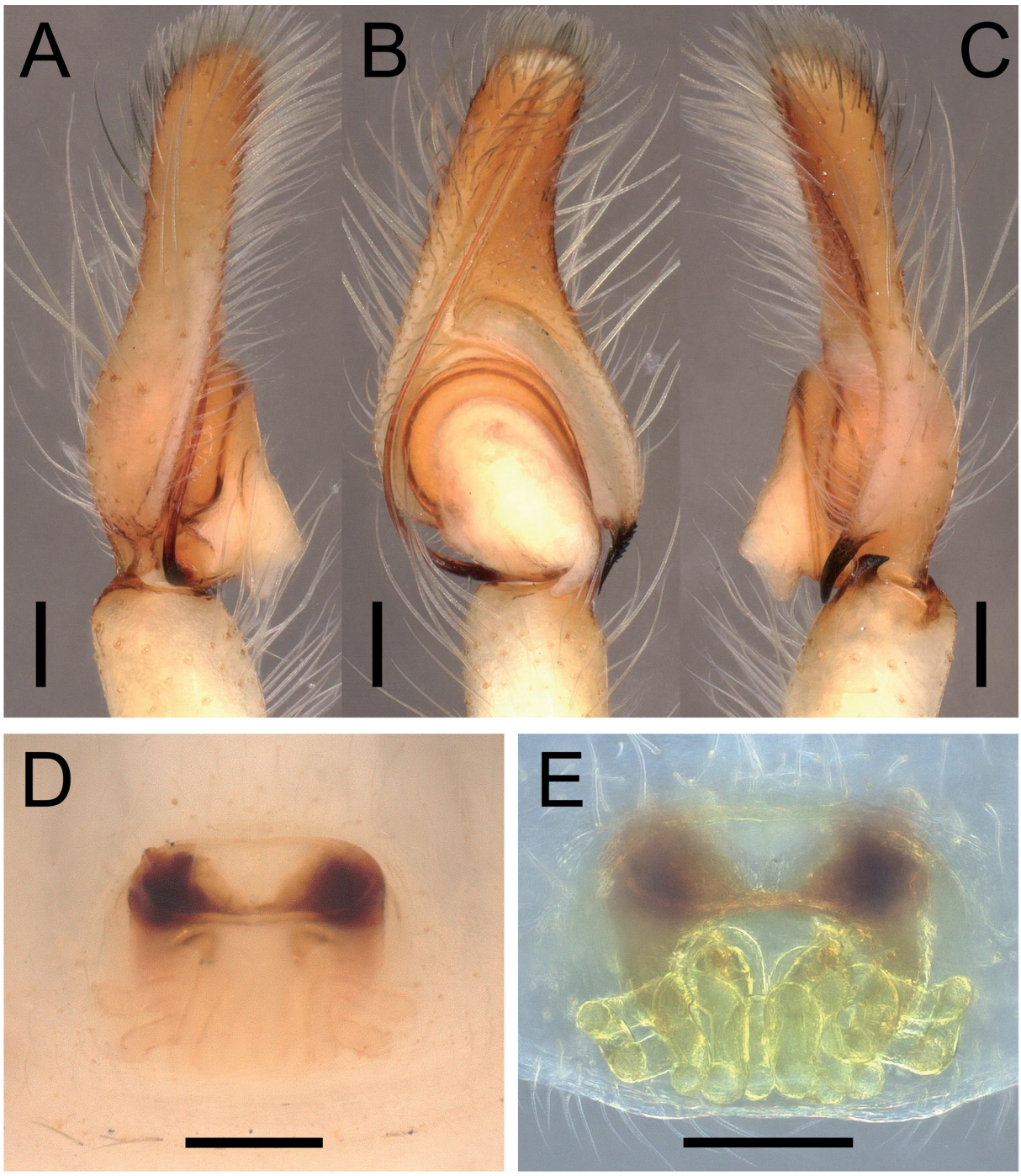

Fig. 9. *Epeus albus* Prószyński, 1992. **A–C**. Male (AraSalt103N_HR3.2_001), left palp. **A**. Prolateral view. **B**. Ventral view. **C**. Retrolateral view. **D–E**. Female (AraSalt103N_HR3.2_001). **D**. Epigynum, ventral view. **E**. Vulva, cleared, dorsal view. Scale bars = 0.2 mm.

Epeus kepayang Dhiya'ulhaq sp. nov.
urn:lsid:zoobank.org:act:BF5920AA-7784-4765-A2B5-67A6AD6780BB
Figs 10–13

Diagnosis

Males of *Epeus kepayang* Dhiya'ulhaq sp. nov. are very similar to those of *Epeus phamtri* Tam & Hill, 2025 and *Epeus hawigalboguttatus* (Barrion & Litsinger, 1995) by their genitalia but can be differentiated from the latter two species by a thumb-shaped tegular lobe arising at 4.30 position (vs narrowed in middle in *E. phamtri* [Żabka 1985: fig. 109; Peng 2020: fig. 47a]; bent, arising at 6.00

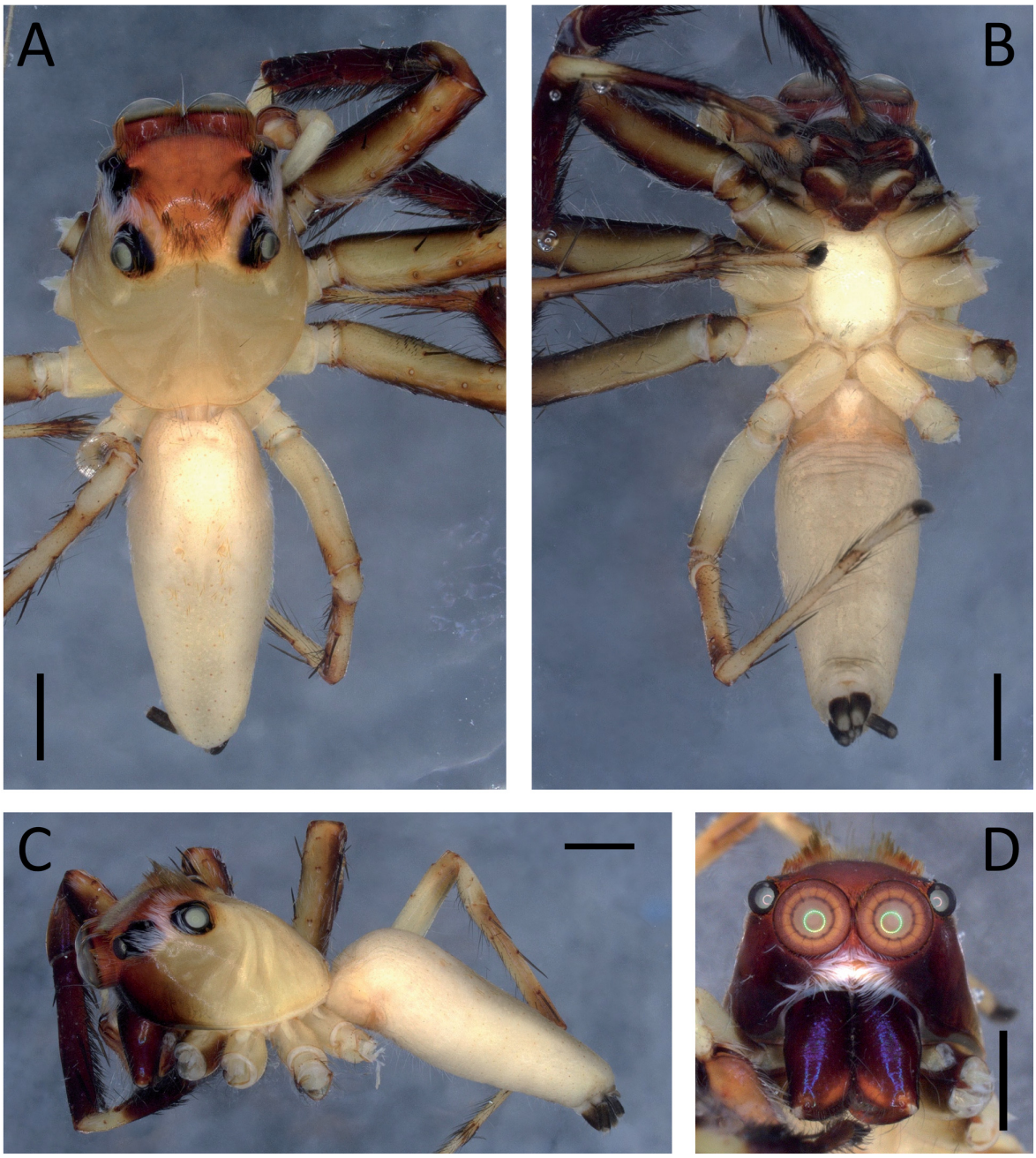

Fig. 10. *Epeus kepayang* Dhiya'ulhaq sp. nov., holotype, ♂ (AraSalt101N_BF4.2_001). **A–C**. Habitus. **A**. Dorsal view. **B**. Ventral view. **C**. Lateral view. **D**. Prosoma, frontal view. Scale bars = 1 mm.

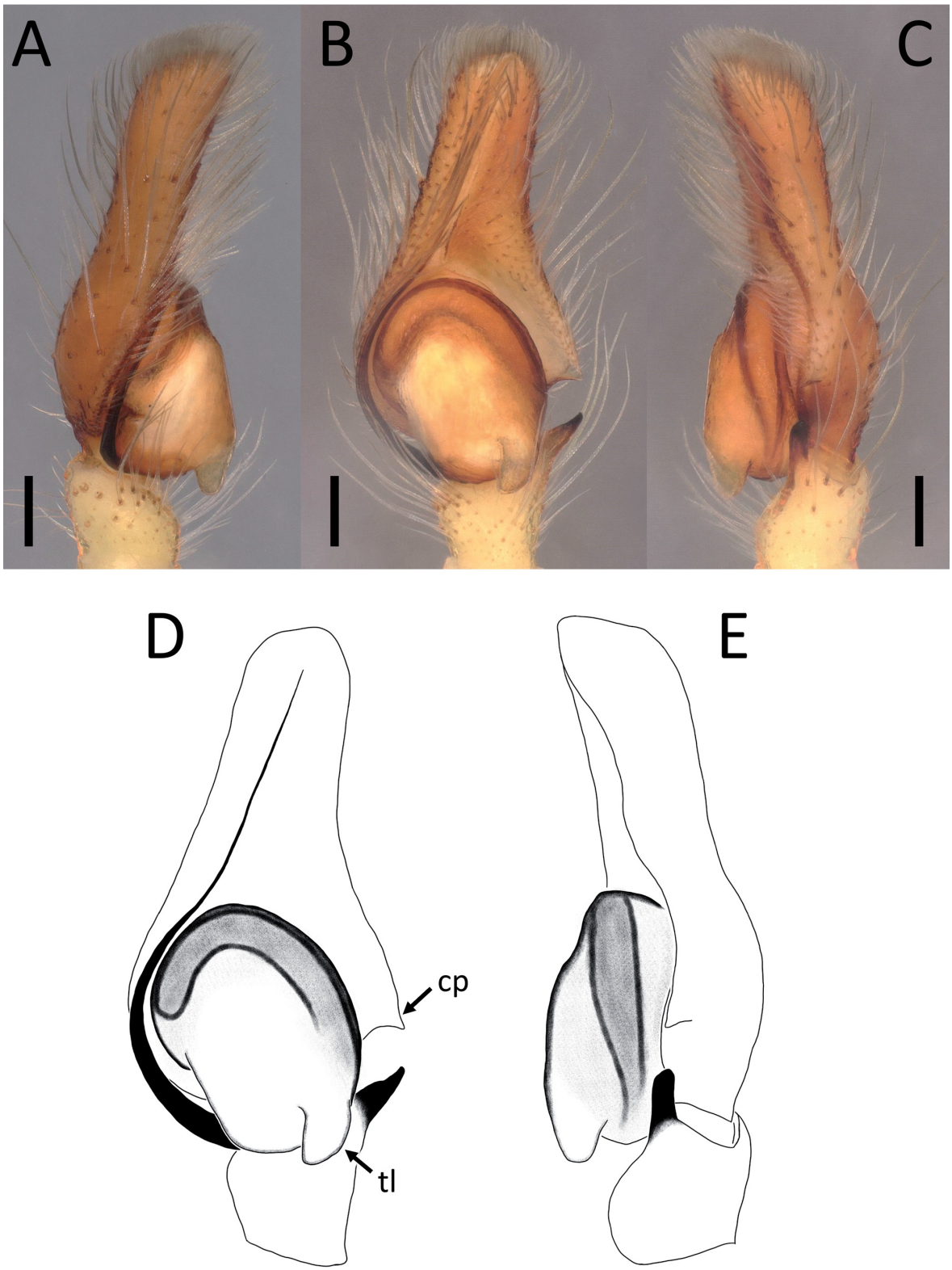

Fig. 11. *Epeus kepayang* Dhiya'ulhaq sp. nov., holotype, ♂ (AraSalt101N_BF4.2_001), left palp. **A**. Prolateral view. **B**, **D**. Ventral view. **C**, **E**. Retrolateral view. Abbreviations: cp = cymbial process; tl = tegular lobe. Scale bars = 0.2 mm.

position in *E. hawigalboguttatus* [see illustration of holotype in Prószyński 2016]); additionally from *E. hawigalboguttatus* by a triangular cymbial process (vs curved, claw-shaped). Females of *E. kepayang* are very similar to those of *E. phamtri* but can be distinguished by a longer than wide atrium (Fig. 13A–D vs wider than long in *E. phamtri* [Żabka 1985: figs 116–117, 119]); rather straight anterior (uncoiled) part of copulatory ducts (vs curved); proportionally smaller posterior (coiled) part of copulatory ducts, approximately one-third length of anterior part (vs half length of anterior part in *E. phamtri*); and spermathecae not dorsally covered by copulatory ducts (vs covered).

Etymology

The specific epithet is taken from the local word '*kepayang*', a local name for the tree *Pangium edule* Reinw. The seeds of *kepayang* trees are poisonous, but are used as spice for local dishes. The dark-brown face of the male *Epeus kepayang* sp. nov. resembles the inside of *kepayang* seeds. Noun in apposition.

Material examined

Holotype

INDONESIA – **Jambi Province** • ♂; Sarolangun, Bukit Duabelas National Park; 1°56′30.8″ S, 102°34′50.6″ E; elev. 91 m; 4 Oct. 2013; J. Drescher leg.; canopy fogging in rainforest; GOET 2013_BF4.2_AraSalt101N_001 (to be transferred to MZB).

Paratypes

INDONESIA – **Jambi Province** • 1 ♂; same data as for holotype; GOET 2013_BF4.2_AraSalt101N_001 (to be deposited at MZB) • 1 ♀; Sarolangun, Pauh, Semaran; 2°08′35.9″ S, 102°51′04.5″ E; elev. 45 m; 16 Jul. 2013; J. Drescher leg.; canopy fogging in jungle rubber plantation; GOET 2013_BJ5.1_AraSalt101N_001 (to be transferred to MZB) • 2 ♂♂; Batang Hari, Hutan Harapan Conservation Area; 2°09′09.3″ S, 103°21′41.8″ E; elev. 65 m; 19 Jul. 2013; J. Drescher leg.; canopy fogging in rainforest; ZMH ZMH-A0031813, ZMH-A0031814 • 2 ♀♀; Batang Hari, Hutan Harapan Conservation Area; 2°11′15.3″ S, 103°20′36.0″ E; elev. 69 m; 12 Sep. 2013; J. Drescher leg.; canopy fogging in rainforest; ZMH ZMH-A0031815, ZMH-A0031816.

Description

Male (Figs 10–11)

Measurements. Total length 7.54. Carapace length 3.42; width 2.86. Opisthosoma length 4.12; width 1.74. Diameter of eyes: AME 0.87; ALE 0.35; PLE 0.34. Interdistances between eyes: AME–AME 0.04; AME–ALE 0.06; ALE–ALE 1.46; ALE–PLE 0.94; PLE–PLE 1.58. Clypeus height 0.22. Leg measurements: leg I 9.13 (2.63, 1.00, 2.67, 1.86, 0.97); leg II 9.45 (3.07, 0.86, 2.17, 2.38, 0.97); leg III 8.94 (2.76, 1.07, 2.35, 1.79, 0.97); leg IV 8.72 (2.60, 0.76, 2.21, 2.30, 0.85).

Habitus and coloration. Carapace with high cephalic region; thoracic region yellow, gently sloping, posteriorly rounded; frontal side dark-brown; clypeus covered by white setae; eye region reddish-brown, posteriorly with erect red setae as well as white setae between ALE and PLE. Chelicerae dark-brown with purple-blue iridescence; dentition: promarginal absent, one retromarginal. Opisthosoma elongated, uniformly yellow; spinnerets black. Legs I and II predominantly dark-brown except yellow dorsal side of tibia, patella and basal half of femora; lateral side of tibia additionally with purple-blue iridescence; distal of metatarsus with dense brush of black setae, as well as along ventral side of femora. Spinnerets black, tips pale.

Palp (Fig. 11). Tibia length-to-width ratio 1.30. RTA tapering, directed retrolaterally, apex slightly curved. Cymbium elongated, distally narrowed; cymbial process triangular. Tegulum oval, slightly oblique; tegular lobe thumb-shaped, arising at 4.30 position. Embolus long filiform, almost reaching apex of cymbium, arising at 7:00 position.

Female (Figs 12–13)

Measurements. Total length 7.34. Carapace length 2.93; width 2.37. Opisthosoma length 4.41; width 2.48. Diameter of eyes: AME 0.78; ALE 0.29; PLE 0.29. Interdistances between eyes: AME–AME 0.03; AME–ALE 0.05; ALE–ALE 1.51; ALE–PLE 0.81; PLE–PLE 1.38. Clypeus height 0.14. Leg measurements: leg I 6.75 (1.99, 0.76, 2.03, 1.26, 0.71); leg II 6.89 (2.14, 0.76, 1.90, 1.31, 0.78); leg III 7.74 (2.53, 0.76, 1.68, 1.82, 0.95); leg IV 7.37 (2.26, 0.63, 1.88, 1.85, 0.75).

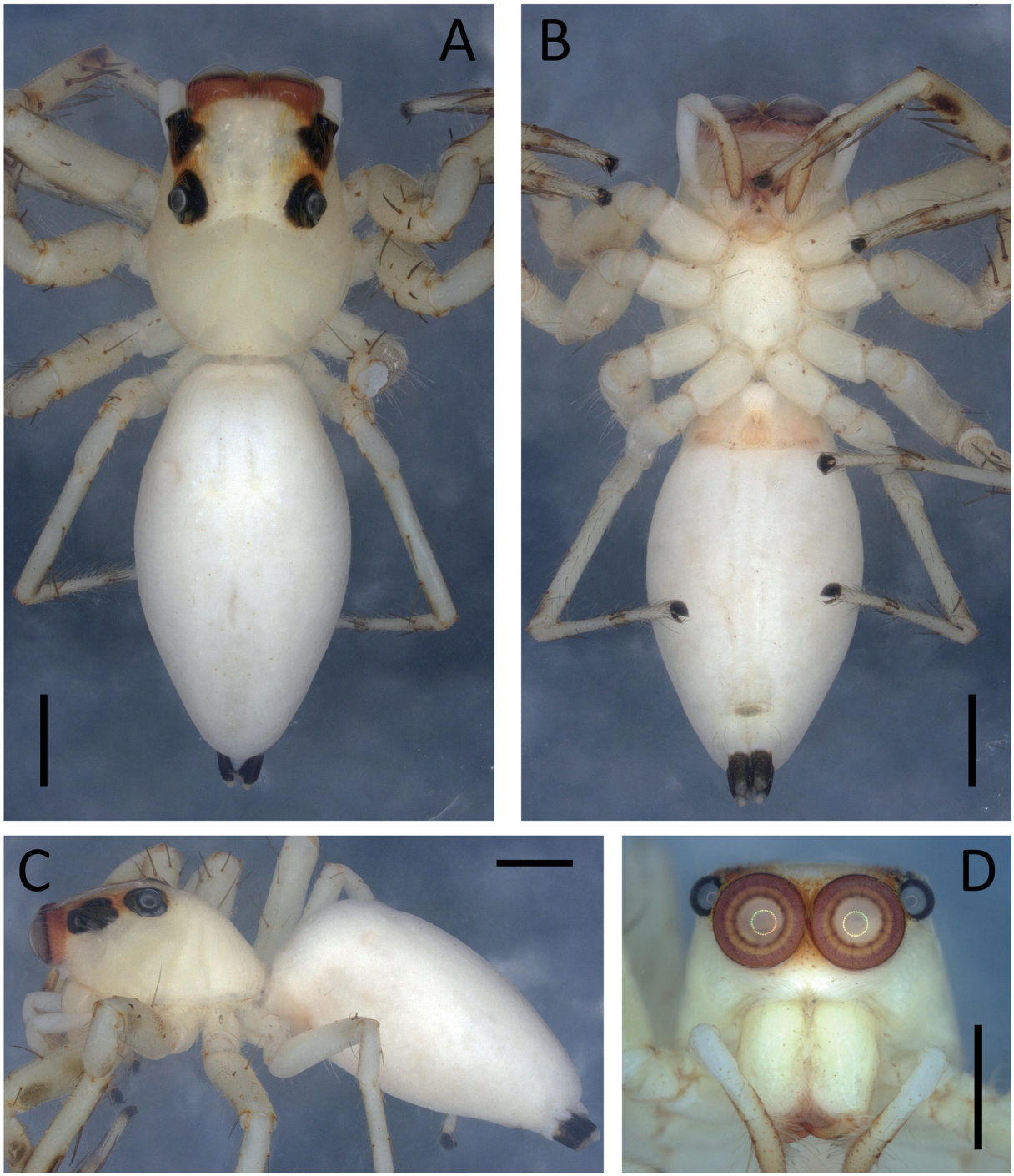

Fig. 12. *Epeus kepayang* Dhiya'ulhaq sp. nov., paratype, ♀ (AraSalt101N_HF4.2_001). **A–C**. Habitus. **A**. Dorsal view. **B**. Ventral view. **C**. Lateral view. **D**. Prosoma, frontal view. Scale bars = 1 mm.

Habitus and coloration. Female habitus as in male, except following: base color of carapace and chelicerae uniformly yellow, erect hairs absent; cheliceral dentition: one promarginal, two retromarginal; legs all yellow, with small brown patches on tibiae-femora of leg I and II.

Epigynum (Fig. 13). Epigynal plate triangular. Copulatory openings facing each other, creating narrow, longer than wide atrium. Copulatory ducts long and convoluted; anterior part rather straight and oblique, ending in a u-turn posterior part consisting of three loops, ending in u-turn towards spermathecae. Spermathecae thumb-shaped, not dorsally covered by copulatory ducts, medially positioned. Fertilization ducts arising from anterior region of spermathecae, laterally oriented.

Distribution

Sumatra: Jambi Province.

Natural history

All specimens were collected by canopy fogging in rainforests and jungle rubber plantations and are considered arboreal.

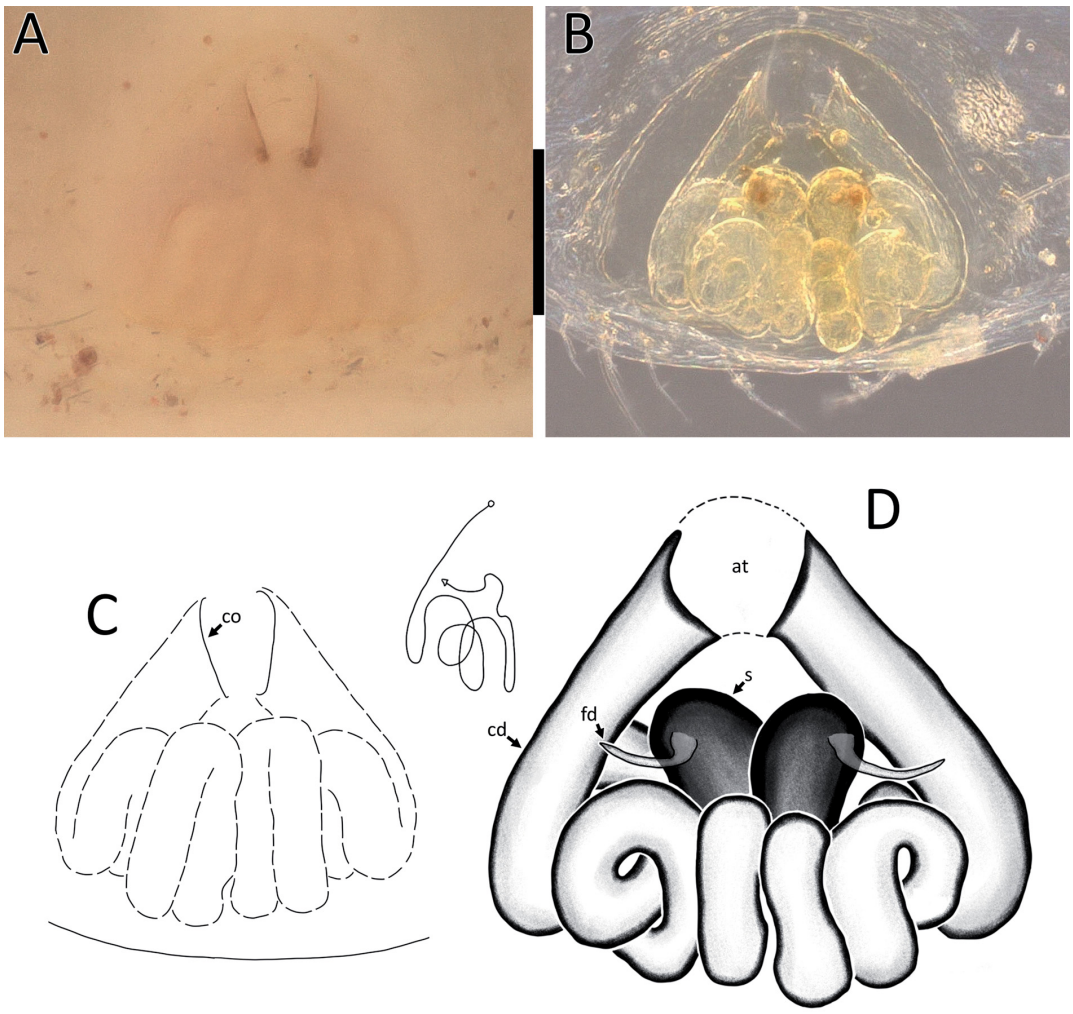

Fig. 13. *Epeus kepayang* Dhiya'ulhaq sp. nov., paratype, ♀ (AraSalt101N_HF4.2_001). **A, C**. Epigynum, ventral view. **B**, **D**. Vulva, cleared, dorsal view. Schematic between C and D corresponds to the hypothised course of the internal duct system. Abbreviations: at = atrium; cd = copulatory duct; co = copulatory opening; fd = fertilization duct; s = spermatheca. Scale bar = 0.2 mm.

Epeus sumatranus Prószyński & Deeleman-Reinhold, 2012
Figs 14–16

Epeus sumatranus Prószyński & Deeleman-Reinhold, 2012: 37, figs 34–37, 41–42 (♂♀).

Diagnosis and description

See Prószyński & Deeleman-Reinhold (2012).

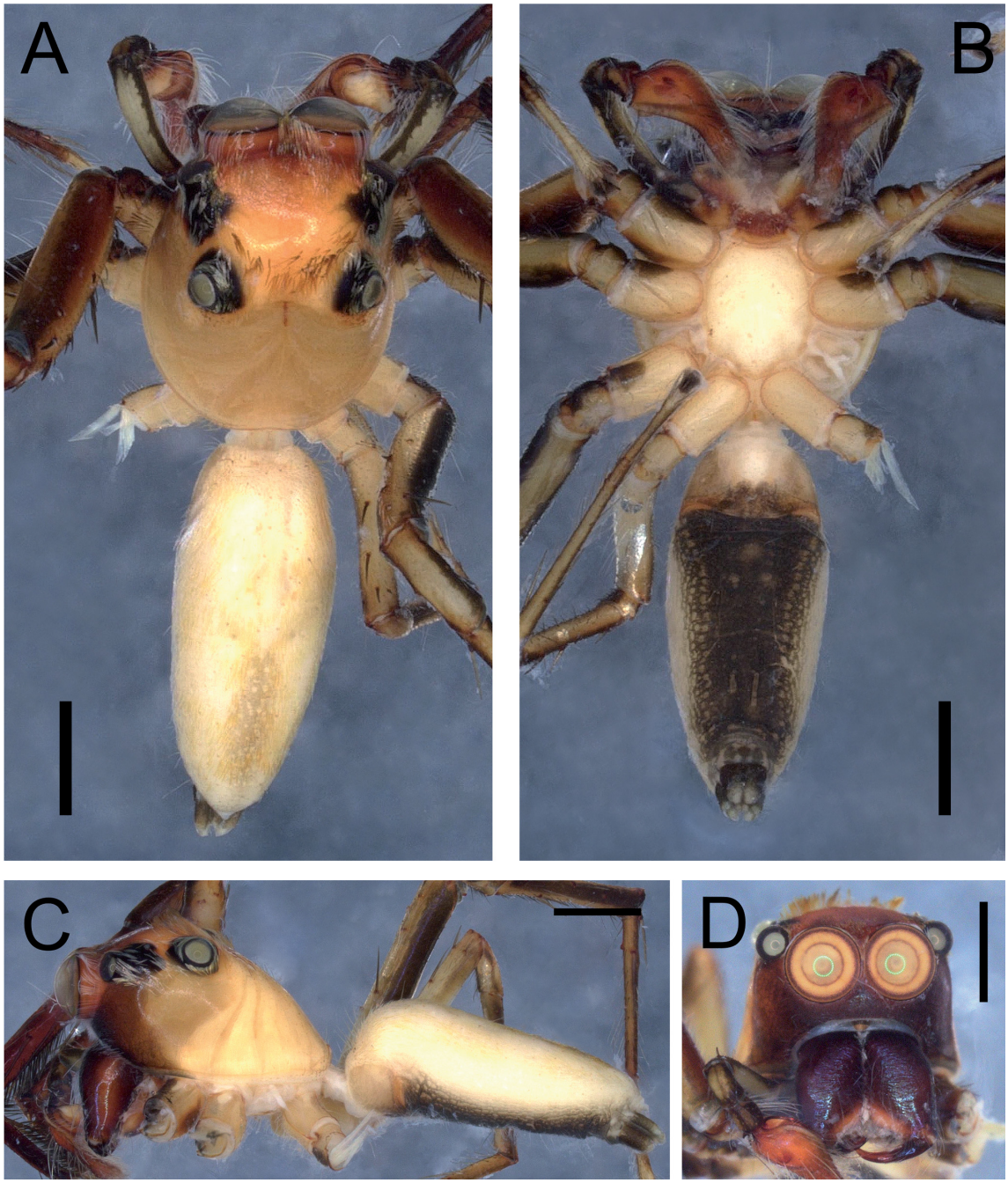

Fig. 14. *Epeus sumatranus* Prószyński & Deeleman-Reinhold, 2012, ♂ (AraSalt010N_BF4.1_001). **A–C**. Habitus. **A**. Dorsal view. **B**. Ventral view. **C**. Lateral view. **D**. Prosoma, frontal view. Scale bars = 1 mm.

Material examined

INDONESIA – **Jambi Province** • 1 ♀; Sarolangun, Bukit Duabelas National Park; 1°59′42.6″ S, 102°45′08.0″ E; elev. 69 m; 8 Oct. 2013; J. Drescher leg.; canopy fogging in rainforest; GOET 2013_BF1.1_AraSalt010N_001 (to be transferred to MZB) • 1 ♀; Sarolangun, Bukit Duabelas National Park; 1°58′55.2″ S, 102°45′02.6″ E; elev. 73 m; 7 Oct. 2013; J. Drescher leg.; canopy fogging in rainforest; GOET 2013_BF2.1_AraSalt010N_001 (to be transferred to MZB) • 1 ♂, 2 ♀♀; Sarolangun, Bukit

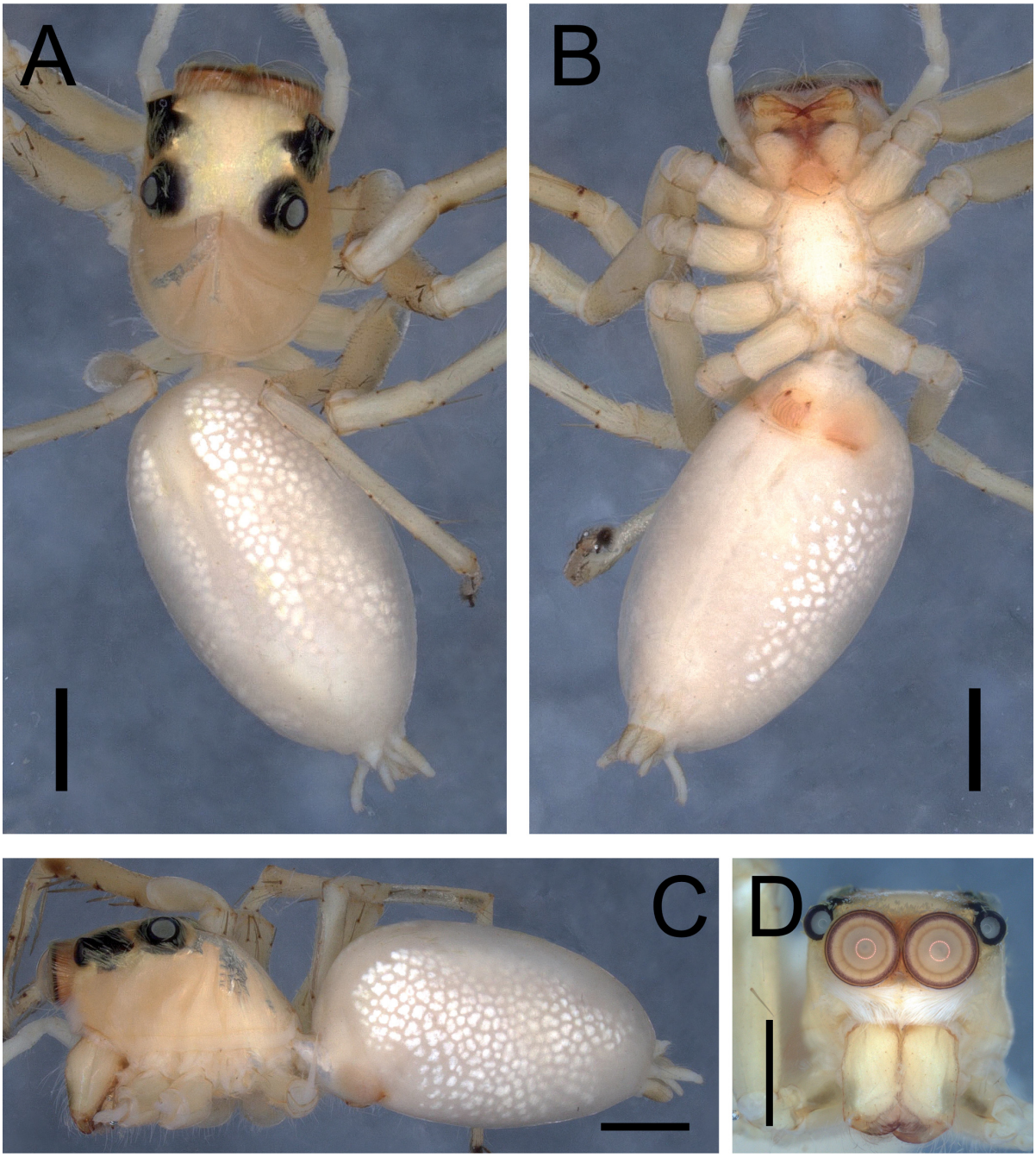

Fig. 15. *Epeus sumatranus* Prószyński & Deeleman-Reinhold, 2012, ♀ (AraSalt010N_BF4.1_002). **A–C**. Habitus. **A**. Dorsal view. **B**. Ventral view. **C**. Lateral view. **D**. Prosoma, frontal view. Scale bars = 1 mm.

Duabelas National Park; 1°56′34.3″ S, 102°34′52.6″ E; elev. 85 m; 5 Oct. 2013; J. Drescher leg.; canopy fogging in rainforest; GOET 2013_BF3.1_AraSalt010N_001, 2013_BF3.1_AraSalt010N_002, 2013_BF3.2_AraSalt010N_001 (to be transferred to MZB) • 1 ♂, 2 ♀♀; Sarolangun, Bukit Duabelas National Park; 1°56′30.8″ S, 102°34′50.6″ E; elev. 91 m; 4 Oct. 2013; J. Drescher leg.; canopy fogging in rainforest; ZMH ZMH-A0031817–9 • 1 ♂; Sarolangun, Pauh, Semaran; 2°08′35.9″ S, 102°51′04.5″ E; elev. 45 m;

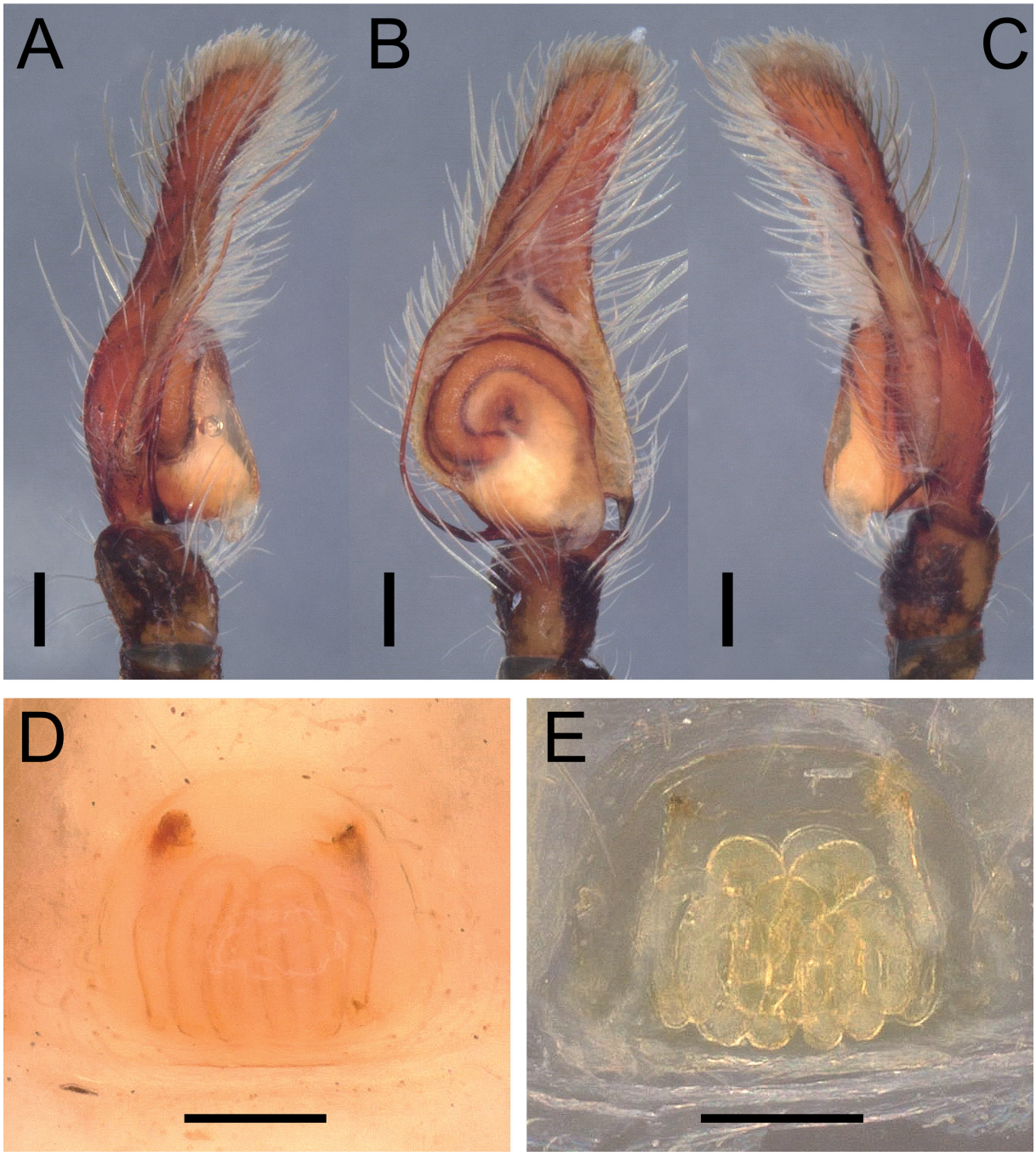

Fig. 16. *Epeus sumatranus* Prószyński & Deeleman-Reinhold, 2012. **A–C**. Male (AraSalt010N_BF4.1_001), left palp. **A**. Prolateral view. **B**. Ventral view. **C**. Retrolateral view. **D–E**. Female (AraSalt010N_BF4.1_002). **D**. Epigynum, ventral view. **E**. Vulva, cleared, dorsal view. Scale bars = 0.2 mm.

16 Jul. 2013; J. Drescher leg.; canopy fogging in jungle rubber plantation; ZMH ZMH-A0031820 • 1 ♂; Batang Hari, Hutan Harapan Conservation Area; 2°09′09.3″ S, 103°21′41.8″ E; elev. 65 m; 19 Jul. 2013; J. Drescher leg.; canopy fogging in rainforest; GOET 2013_HF1.1_AraSalt010N_001 (deposited at SMF) • 1 ♂; Batang Hari, Hutan Harapan Conservation Area; 2°10′42.4″ S, 103°19′58.2″ E; elev. 54 m; 21 Jul. 2013; J. Drescher leg.; canopy fogging in rainforest; GOET 2013_HF3.1_AraSalt010N_001 (deposited at SMF).

Distribution

Sumatra: Jambi Province, West Sumatra Province.

Natural history

All specimens were collected by canopy fogging in rainforests and jungle rubber plantations and are considered arboreal.

Genus *Indomarengo* Benjamin, 2004

Indomarengo likaliku Dhiya'ulhaq sp. nov.
urn:lsid:zoobank.org:act:4E42492E-827B-492F-950C-B1F9A9EBCF97
Figs 17–20

Diagnosis

Indomarengo likaliku Dhiya'ulhaq sp. nov. is most similar to *Indomarengo chandra* Benjamin, 2004 and *Indomarengo sarawakensis* Benjamin, 2004, but males can be distinguished from those of *I. chandra* by an indistinct velum (vs pronounced in *I. chandra* [Benjamin 2004: fig. 42a–b]), more coiled embolus (2.5× vs 1.5×), broader palpal bulb, and tight sperm duct arrangement on retrolateral side of tegulum, touching each other (Fig. 18B–C, D–E vs sperm duct rather loose); and from those of *I. sarawakensis* by a ventrally bent RTA (Fig. 18C, E vs dorsally tilted in *I. sarawakensis* [Benjamin 2004: fig. 38e]). Females can be distinguished from those of *I. sarawakensis* by a shorter epigynal atrium; distinct, pea-shaped spermathecae (vs rather indistinct, hardly discernible from copulatory ducts); and differences in posterior region of copulatory ducts, with more prominent horizontal coils (Fig. 20B, D vs coils more prominently vertical [Benjamin 2004: fig. 39b–c]).

Etymology

The specific epithet is taken from the Indonesian word '*lika-liku*', roughly meaning 'twists and turns', referring to the complex twists and turns of the copulatory and sperm ducts.

Material examined

Holotype

INDONESIA – **Jambi Province** • ♂; Sarolangun, Pauh, Semaran; 2°08′35.9″ S, 102°51′04.5″ E; elev. 45 m; 16 Jul. 2013; J. Drescher leg.; canopy fogging in jungle rubber plantation; GOET 2013_BJ5.1_AraSalt004N_001 (to be transferred to MZB).

Paratypes

INDONESIA – **Jambi Province** • 1 ♀; same data as for holotype; GOET 2013_BJ5.1_AraSalt004N_002 (to be transferred to MZB) • 2 ♂♂ , 1 ♀; Sarolangun, Bukit Duabelas National Park; 1°59′42.6″ S, 102°45′08.0″ E; elev. 69 m; 8 Oct. 2013; J. Drescher leg.; canopy fogging in rainforest; ZMH ZMH-A0031821 to ZMH-A0031823 • 1 ♂; Sarolangun, Bukit Duabelas National Park; 1°56′30.8″ S, 102°34′50.6″ E; elev. 91 m; 4 Oct. 2013; J. Drescher leg.; canopy fogging in rainforest; GOET 2013_BF4.2_AraSalt004N_001 (deposited at SMF).

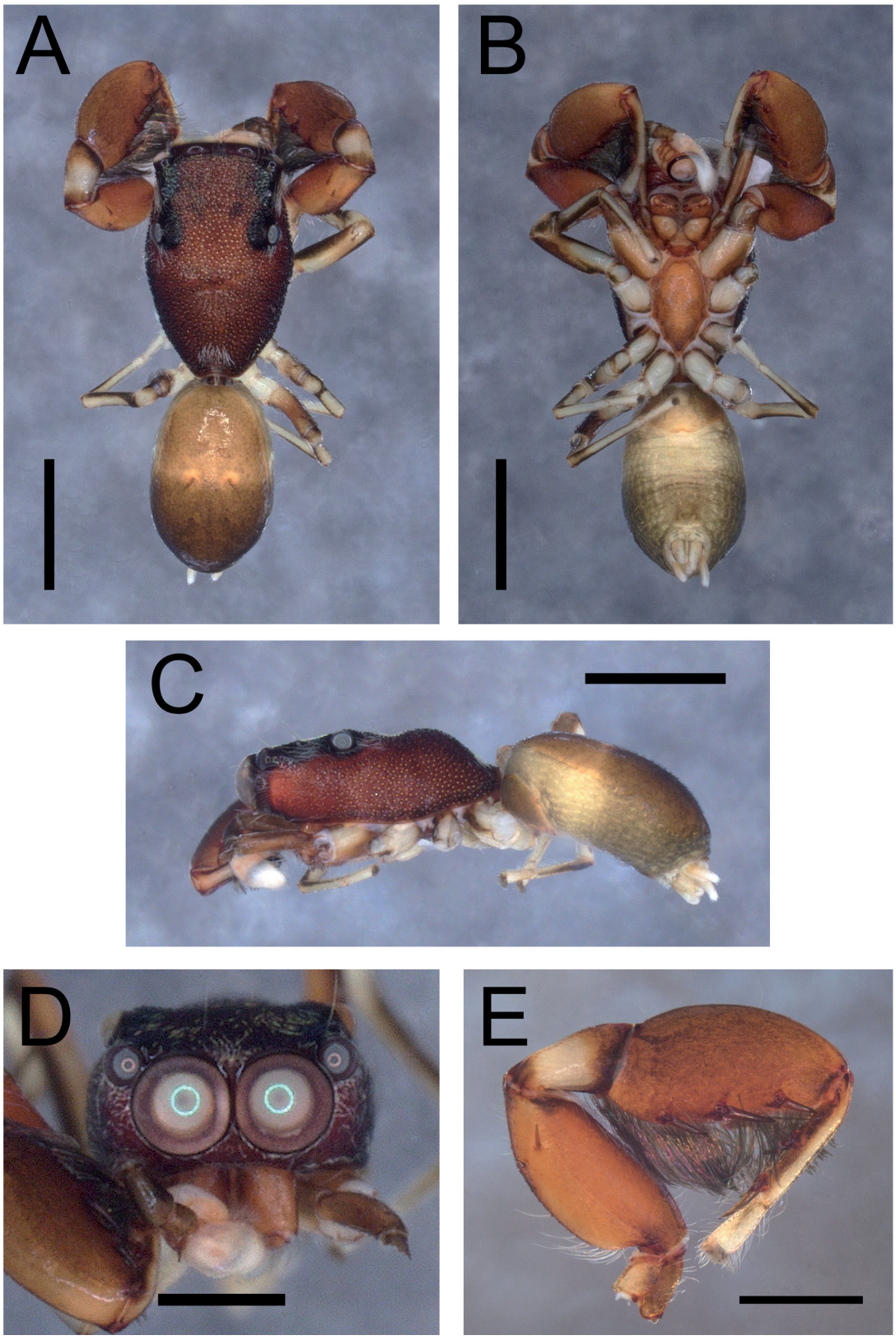

Fig. 17. *Indomarengo likaliku* Dhiya'ulhaq sp. nov., holotype, ♂ (AraSalt004N_BJ5.1_001). **A–C**. Habitus. **A**. Dorsal view. **B**. Ventral view. **C**. Lateral view. **D**. Prosoma, frontal view. **E**. Left leg I, prolateral view. Scale bars: A–C = 1 mm; D–E = 0.5 mm.

Description

Male (Figs 17–18)

Measurements. Total length 3.22. Carapace length 1.77; width 1.16. Opisthosoma length 1.45; width 0.98. Diameter of eyes: AME 0.40; ALE 0.19; PLE 0.14. Interdistances between eyes: ALE–ALE 0.70;

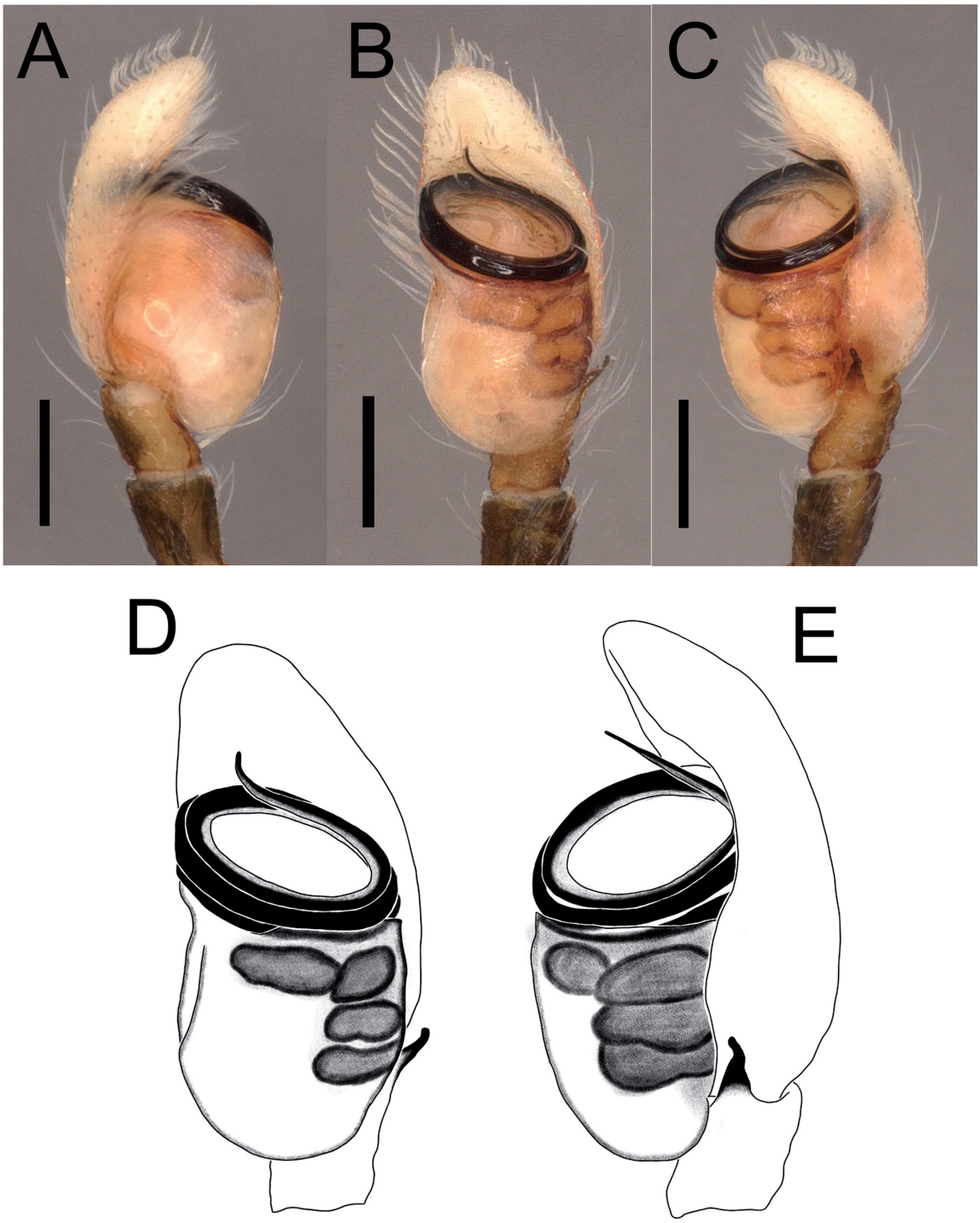

Fig. 18. *Indomarengo likaliku* Dhiya'ulhaq sp. nov., holotype, ♂ (AraSalt004N_BJ5.1_001), left palp. **A**. Prolateral view. **B**, **D**. Ventral view. **C**, **E**. Retrolateral view. Scale bars = 0.2 mm.

ALE–PLE 0.49; PLE–PLE 0.84. Clypeus height 0.09. Leg measurements: leg I 2.72 (0.80, 0.27, 0.89, 0.48, 0.28); leg II 2.04 (0.63, 0.23, 0.52, 0.40, 0.26); leg III 1.92 (0.61, 0.18, 0.42, 0.44, 0.27); leg IV 2.77 (0.94, 0.27, 0.70, 0.58, 0.28).

Habitus and coloration. Carapace reddish-brown, flat, with dorsal protuberance on posterior half; surface granulated; patches of white setae on posterior end as well as between eyes. Chelicerae red; dentition: promarginal absent, three retromarginal. Opisthosoma oval, reddish-brown, posterior half darker in color, with faint transverse light band in middle; dorsally almost wholly covered in scutum. Leg I much thicker than other legs, especially tibia and tarsus; predominantly reddish-brown; tibia I with

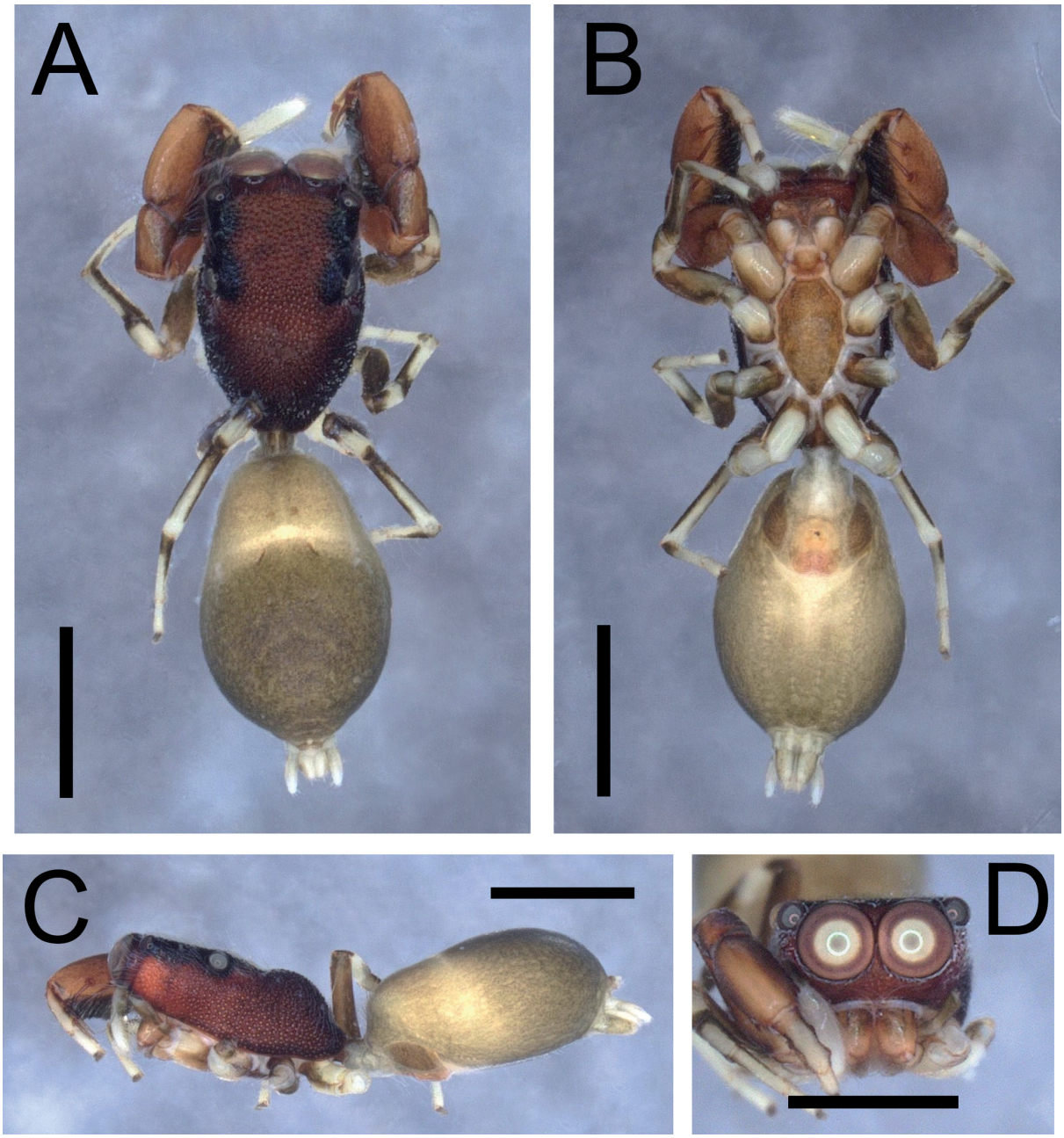

Fig. 19. *Indomarengo likaliku* Dhiya'ulhaq sp. nov., paratype, ♀ (AraSalt004N_BJ5.1_002). **A–C**. Habitus. **A**. Dorsal view. **B**. Ventral view. **C**. Lateral view. **D**. Prosoma, frontal view. Scale bars = 1 mm.

three pair of ventral spines and long tibial setae; metatarsus I with two pairs of ventral spines; rest of legs pale with lateral dark markings. Spinnerets basally light-brown, distally pale.

Palp (Fig. 18). Tibia length-to-width ratio 1.40. RTA laterally tapering to narrow, rounded tip; slightly ventrally bent at anterior third. Cymbium oval. Tegulum bullet-shaped. Sperm duct S-shaped, tightly arranged on retrolateral side. Embolus long and thin, coiled approximately 2.5 times; apex slightly raised.

Female (Figs 19–20)

Measurements. Total length 3.25. Carapace length 1.57; width 1.00. Opisthosoma length 1.68; width 1.18. Diameter of eyes: AME 0.37; ALE 0.14; PLE 0.15. Interdistances between eyes: ALE–ALE 0.68;

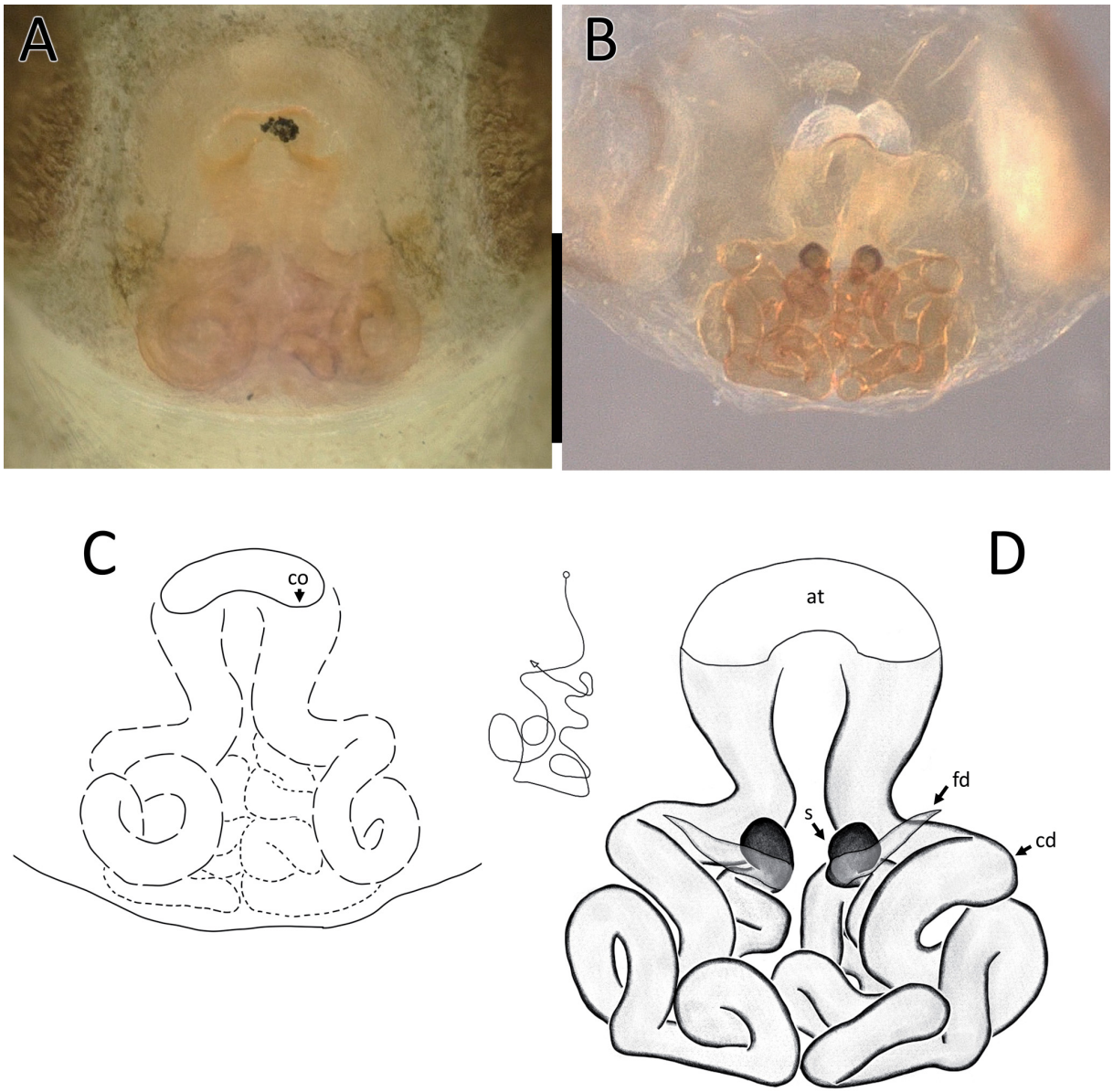

Fig. 20. *Indomarengo likaliku* Dhiya'ulhaq sp. nov., paratype, ♀ (AraSalt004N_BJ5.1_002). **A, C**. Epigynum, ventral view. **B, D**. Vulva, cleared, dorsal view. Schematic between C and D corresponds to the hypothised course of the internal duct system. Abbreviations: at = atrium; cd = copulatory duct; co = copulatory opening; fd = fertilization duct; s = spermatheca. Scale bar = 0.2 mm.

ALE–PLE 0.42; PLE–PLE 0.67. Clypeus height 0.09. Leg measurements: leg I 2.17 (0.66, 0.28, 0.65, 0.35, 0.23); leg II 1.69 (0.53, 0.23, 0.40, 0.31, 0.22); leg III 1.58 (0.48, 0.17, 0.35, 0.35, 0.23); leg IV 2.36 (0.77, 0.25, 0.59, 0.52, 0.23).

Habitus and coloration. Female habitus as in male, except following: opisthosoma without dorsal scutum; leg I less drastically thicker, with shorter tibial setae.

Epigynum (Fig. 20). Epigynal plate bell-shaped, longer than wide. Atrium semicircular. Copulatory openings facing anteriorly. Copulatory ducts very long and convoluted, with several bends and loops. Spermathecae small and pea-shaped. Fertilization ducts laterally oriented, twice length of spermathecae, arising from posterior region of latter.

Distribution

Sumatra: Jambi Province.

Natural history

All specimens were collected by canopy fogging in rainforests and jungle rubber plantations and are considered arboreal.

Genus *Pengmarengo* Wang & Li, 2022

Pengmarengo gepeng Dhiya'ulhaq sp. nov.
urn:lsid:zoobank.org:act:88022A02-9043-4F4F-8F01-FB2416BF0D5E
Figs 21–24

Diagnosis

Pengmarengo gepeng Dhiya'ulhaq sp. nov. is most similar to *Pengmarengo chelifer* (Simon, 1900) and *Pengmarengo yui* (Wang & Li, 2020), but males can be distinguished from those of *P. chelifer* by the presence of an anterior-lateral process on tegulum (Fig. 22B–E vs absent in *P. chelifer* [Benjamin 2004: fig. 25a; Wanless 1978: fig. 9b, e]); from those of *P. yui* by a rhombic-shaped tegulum (Fig. 22B, D vs oval in *P. yui* [Wang & Li 2020: fig. 5b–d]). Females can be distinguished from those of *P. chelifer* by having two small coils on the posterior part of copulatory ducts (Fig. 24B, D vs one coil in *P. chelifer* [Benjamin 2004: fig. 26b–c]) and circular copulatory openings (vs oval in *P. chelifer*); from those of *P. yui* by spermathecae having rounded bend (Fig. 24B–C vs sharp bend in *P. yui* [Wang & Li 2022: fig. 11b–c]) and oval copulatory openings (vs almost semi-circular in *P. yui*). Additionally, both males and females of *P. gepeng* lack paired white spots on the opisthosoma vs present in *P. chelifer* (Benjamin 2004: fig. 25d) and *P. yui* (Wang & Li 2020: fig 6a–b; 2022: fig. 11d–f), as well as paired spots of white setae and distinct thoracic protuberance on carapace of *P. yui*.

Etymology

The specific epithet is taken from the Indonesian word '*gepeng*', which can be translated to 'sprawl' or 'flat', referring to the flat body of this species. Noun in apposition.

Material examined

Holotype

INDONESIA – **Jambi Province** • ♂; Sarolangun, Bukit Duabelas National Park; 1°59′42.6″ S, 102°45′08.0″ E; elev. 69 m; 8 Oct. 2013; J. Drescher leg.; canopy fogging in rainforest; GOET 2013_BF1.1_AraSalt007N_001 (to be transferred to MZB).

Paratype

INDONESIA – **Jambi Province** • 1 ♀; Sarolangun, Bukit Duabelas National Park; 1°56′30.8″ S, 102°34′50.6″ E; elev. 91 m; 4 Oct. 2013; J. Drescher leg.; canopy fogging in rainforest; GOET 2013_BF4.1_AraSalt007N_001 (to be transferred to MZB).

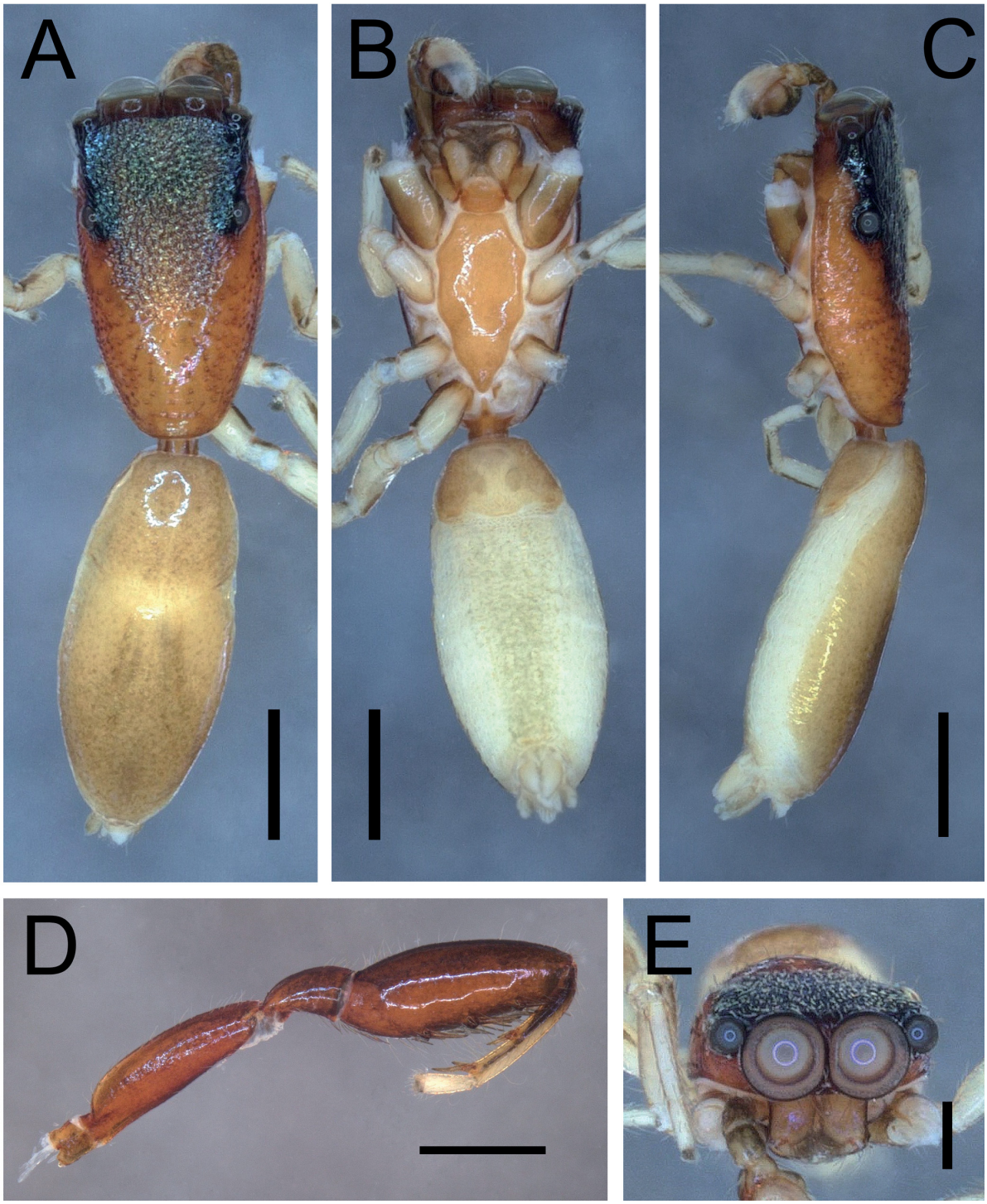

Fig. 21. *Pengmarengo gepeng* Dhiya'ulhaq sp. nov., holotype, ♂ (AraSalt007N_BF1.1_001). **A–C**. Habitus. **A**. Dorsal view. **B**. Ventral view. **C**. Lateral view. **D**. Left leg I, prolateral. **E**. Prosoma, frontal view. Scale bars: A–D = 0.5 mm; E = 0.2 mm.

Description

Male (Figs 21–22)

Measurements. Total length 2.79. Carapace length 1.29; width 0.74. Opisthosoma length 1.50; width 0.67. Diameter of eyes: AME 0.26; ALE 0.10; PLE 0.09. Interdistances between eyes: ALE–ALE 0.50; ALE–PLE 0.33; PLE–PLE 0.53. Leg measurements: leg I 2.95 (0.83, 0.33, 0.96, 0.59, 0.24); leg II 1.32 (0.39, 0.16, 0.33, 0.28, 0.16); leg III 1.24 (0.38, 0.12, 0.28, 0.27, 0.19); leg IV 1.62 (0.50, 0.19, 0.38, 0.33, 0.22).

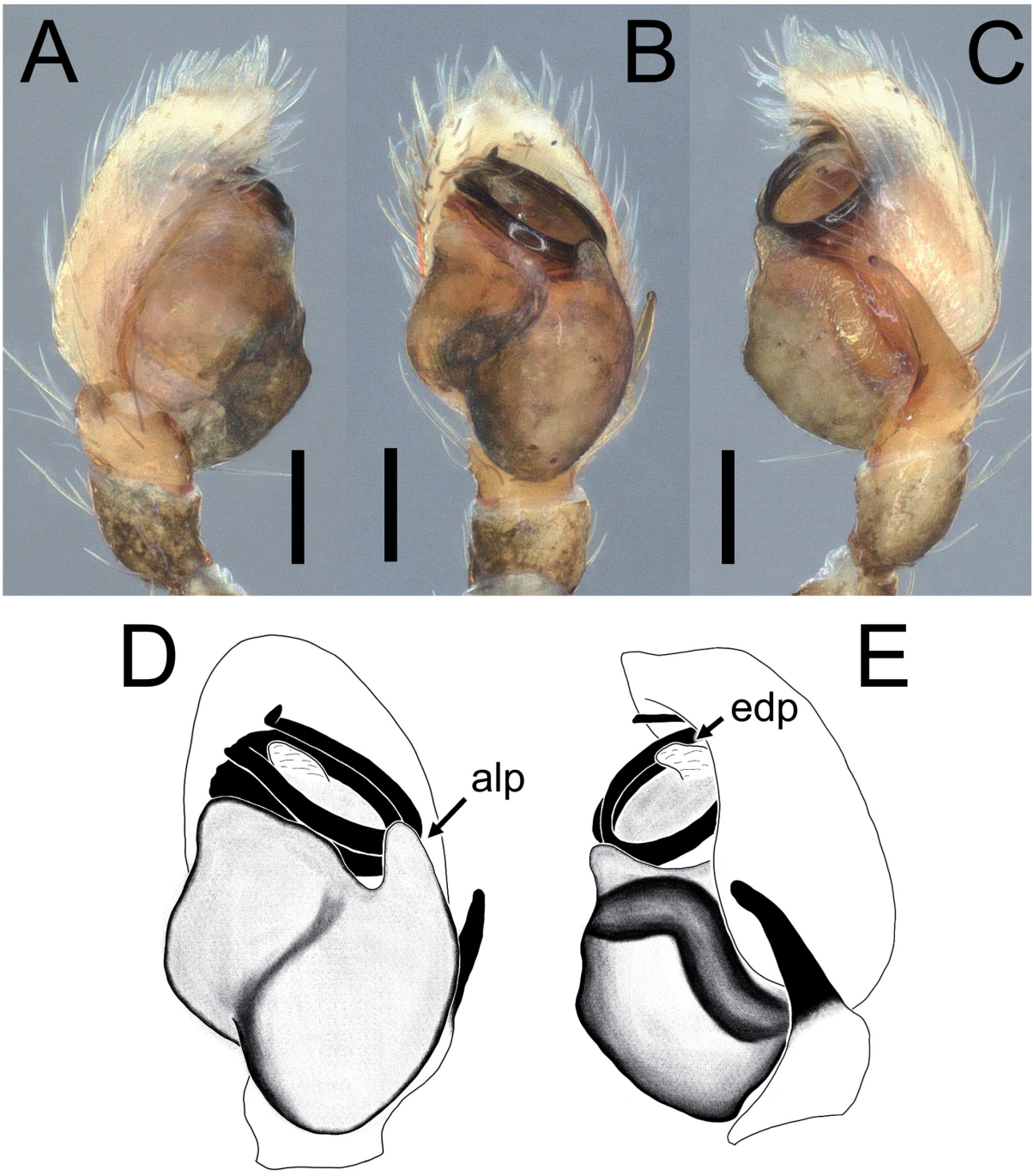

Fig. 22. *Pengmarengo gepeng* Dhiya'ulhaq sp. nov., holotype, ♂ (AraSalt007N_BF1.1_001), left palp. **A**. Prolateral view. **B**, **D**. Ventral view. **C**, **E**. Retrolateral view. Abbreviations: alp = anterior-lateral process of tegulum; edp = embolic disc process. Scale bars = 0.2 mm.

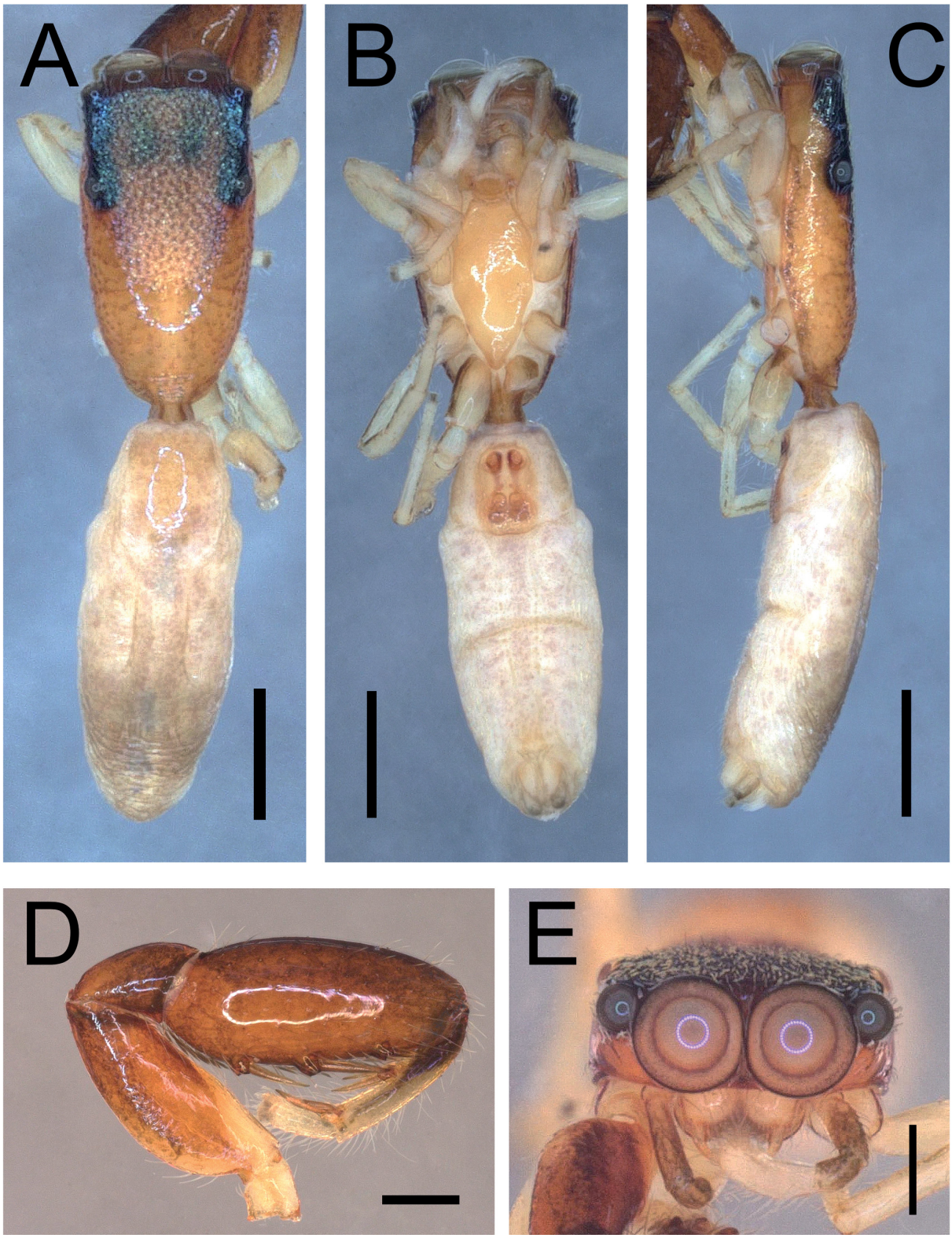

Fig. 23. *Pengmarengo gepeng* Dhiya'ulhaq sp. nov., paratype, ♀ (AraSalt007N_BF4.1_001). **A–C**. Habitus. **A**. Dorsal view. **B**. Ventral view. **C**. Lateral view. **D**. Left leg I. **E**. Prosoma, frontal view. Scale bars: A–C = 0.5 mm; D–E = 0.2 mm.

Habitus and coloration. Carapace reddish-brown, elongated, flat surface pitted. Chelicerae red; dentition: two promarginal, three retromarginal. Opisthosoma slender oval, light brown; dorsally almost wholly covered in scutum. Leg I much thicker than other legs, especially tibia and tarsus; predominantly reddish-brown; tibia I with three pairs of ventral spines and flat tibial scales; metatarsus I with two pairs of ventral spines; rest of legs pale with dark lateral markings. Spinnerets basally light-brown, distally pale.

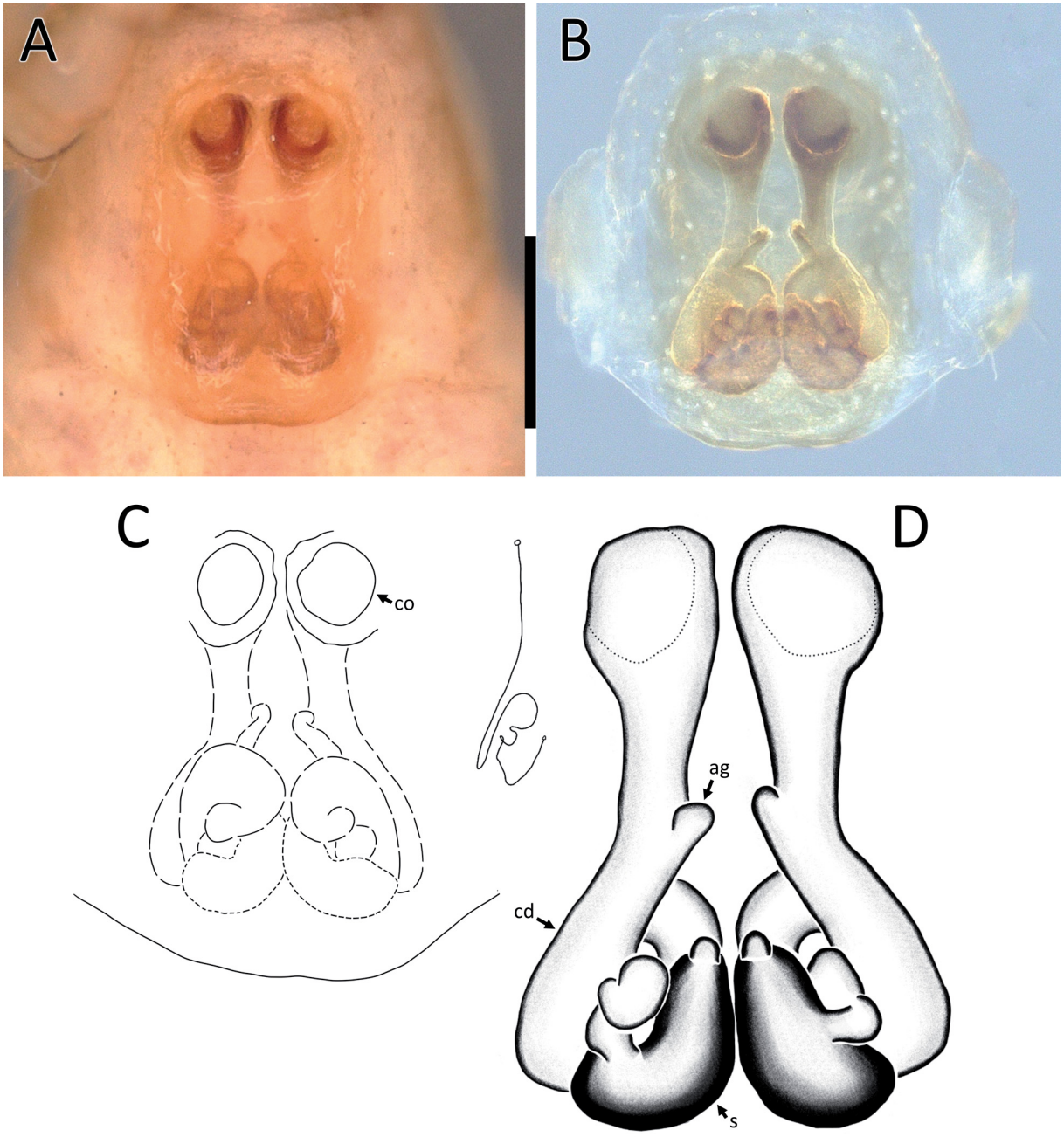

Fig. 24. *Pengmarengo gepeng* Dhiya'ulhaq sp. nov., paratype, ♀ (AraSalt007N_BF4.1_001). **A, C**. Epigynum, ventral view. **B**, **D**. Vulva, cleared, dorsal view. Schematic between C and D corresponds to the hypothised course of the internal duct system. Abbreviations: ag = accessory gland; cd = copulatory duct; co = copulatory opening; s = spermatheca. Scale bar = 0.5 mm.

Palp (Fig. 22). Tibia length-to-width ratio 0.95. RTA twice as long as tibia, tapering, distally slightly curved ventrally into rounded tip. Cymbium oval. Tegulum swollen, rhombic-shaped, divided by oblique cleft; short, rounded anterior-lateral process present. Embolus coiled approximately two times, coil width approximately two-thirds width of bulb; process of embolic disc membranous with blunt tip. Sperm duct thick, following retrolateral edge of tegulum.

Female (Figs 23–24)

Measurements. Total length 2.87. Carapace length 1.27; width 0.69. Opisthosoma length 1.60; width 0.62. Diameter of eyes: AME 0.27; ALE 0.08; PLE 0.09. Interdistances between eyes: ALE–ALE 0.51; ALE–PLE 0.31; PLE–PLE 0.53. Leg measurements: leg I 2.14 (0.60, 0.22, 0.71, 0.41, 0.20); leg II 1.16 (0.31, 0.14, 0.29, 0.26, 0.16); leg III 1.09 (0.27, 0.12, 0.27, 0.24, 0.19); leg IV 1.61 (0.45, 0.15, 0.43, 0.39, 0.19).

Habitus and coloration. Female habitus as in male, except following: opisthosoma with dorsal scutum covering only anterior third; leg I slightly less robust, especially femur; lateral markings on legs II–IV less distinct.

Epigynum (Fig. 24). Epigynal plate rectangular, much longer than wide. Copulatory opening large, located anteriorly. Copulatory ducts long, initially rather straight before turning into 2 large U-turns, followed by two small coils. Spermatheca large, kidney-shaped. Fertilization ducts broken off during dissection.

Distribution

Sumatra: Jambi Province.

Natural history

All specimens were collected by canopy fogging in rainforests and are considered arboreal.

Genus *Phintella* Strand, 1906

Phintella candramawa Dhiya'ulhaq sp. nov.
urn:lsid:zoobank.org:act:76D95165-AF27-404A-B7B8-14F76E02A1F1
Figs 25–28

Diagnosis

Body coloration of both males and females of *Phintella candramawa* Dhiya'ulhaq sp. nov. is identical to that of *Phintella liui* Wang, Mi & Peng, 2023 but is easily distinguished by the genitalia. Males have RTA with a long dorsal keel (Fig. 25C, E vs absent in *P. liui* [Wang *et al.* 2023: fig. 20b]); much longer embolus, approximately one fifth length of tegulum (Fig. 25B, D vs embolus $^{1}/_{25}$ length of tegulum in *P. liui* [Wang *et al.* 2023: fig. 20a]); and trapezoid lamellar process, twice as long as wide (vs elongated, four times as long as wide). Females lack basal protrusion and atrial ridge present in *P. liui* (Fig. 28A; Wang *et al.* 2023: fig. 21a). In addition, female genitalia are very similar to those of *Phintella accentifera* (Simon, 1901), *Phintella handersoni* Sen, Sudhin & Caleb, 2024 and *Phintella nilgirica* Prószyński, 1992 but can be distinguished by vertical, slit-shaped copulatory openings (vs diagonal, oval-shaped in *P. accentifera* [Asima *et al.* 2024: figs 54, 61] and *P. nilgirica* [Prószyński 1992a: figs 62–63]; circular in *P. handersoni* [Sudhin *et al.* 2024b: fig. 4g]).

Etymology

The specific epithet is taken from the Indonesian word '*candramawa*' which refers to the black-and-white pattern of certain cats, alluding to the male coloration of *Phintella candramawa* sp. nov. Noun in apposition.

Material examined

Holotype

INDONESIA – **Jambi Province** • ♂; Batang Hari, Muara Bulian, Singkawang; 1°47′13.8″ S, 103°16′14.7″ E; elev. 46 m; 7 Jun. 2013; J. Drescher leg.; canopy fogging in oil palm plantation; GOET 2013_HO4.2_AraSalt104N_001 (to be transferred to MZB).

Paratypes

INDONESIA – **Jambi Province** • 1 ♀; same data as for holotype; GOET 2013_HO4.2_AraSalt104N_002 (to be transferred to MZB) • 1 ♂; same data as for holotype; ZMH ZMH-A0031826 • 2 ♀♀; Sarolangun,

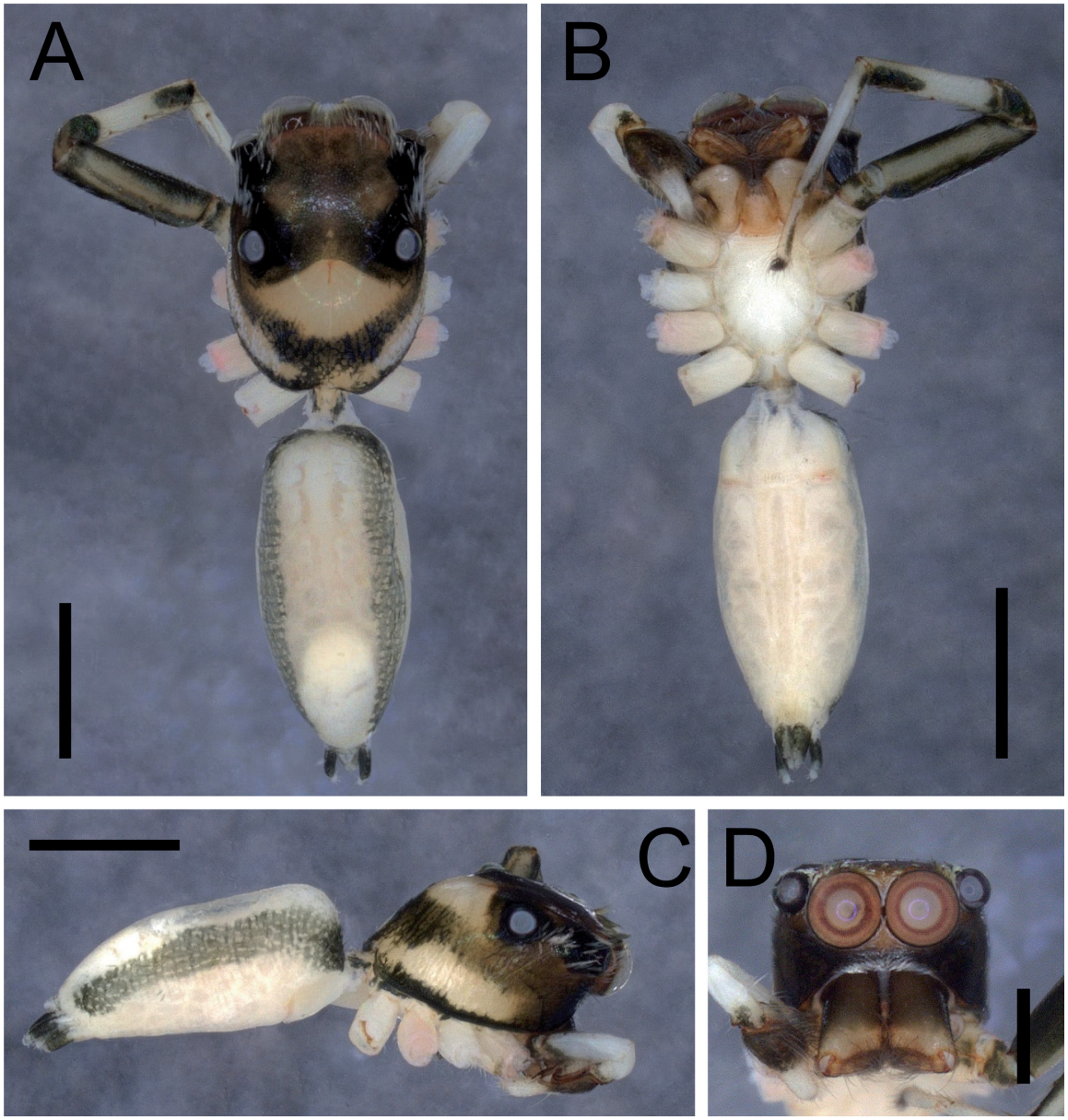

Fig. 25. *Phintella candramawa* Dhiya'ulhaq sp. nov., holotype, ♂ (AraSalt104N_HO4.2_001). **A–C**. Habitus. **A**. Dorsal view. **B**. Ventral view. **C**. Lateral view. **D**. Prosoma, frontal view. Scale bars: A–C = 1 mm; D = 0.5 mm.

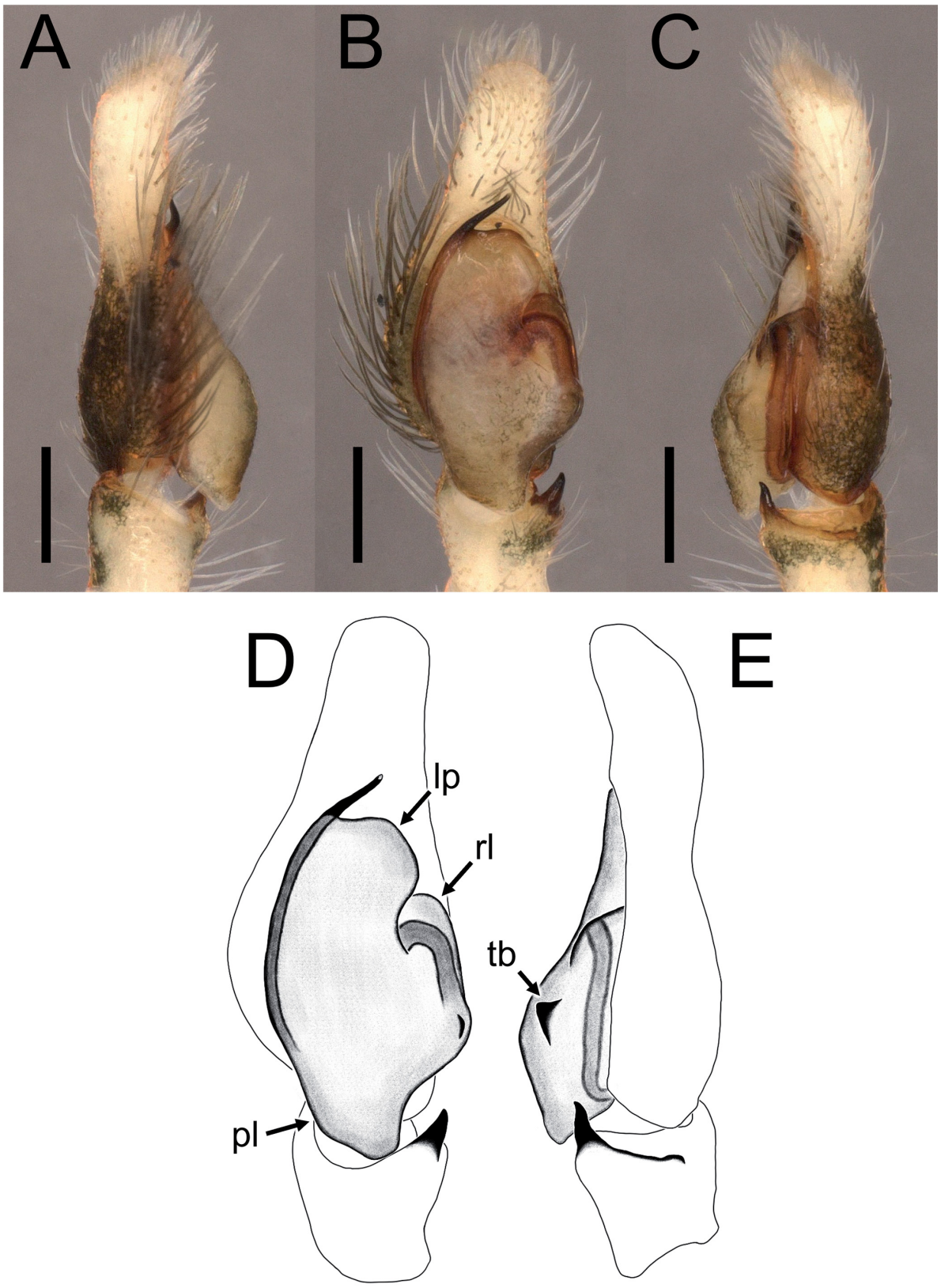

Fig. 26. *Phintella candramawa* Dhiya'ulhaq sp. nov., holotype, ♂ (AraSalt104N_HO4.2_001), left palp. **A**. Prolateral view. **B**, **D**. Ventral view. **C**, **E**. Retrolateral view. Abbreviations: lp = lamellar process; pl = posterior lobe of tegulum; rl = retrolateral lobe of tegulum; tb = tegular bump. Scale bars = 0.2 mm.

Air Hitam, Lubuk Kepayang; 2°04′32.1″ S, 102°47′30.7″ E; elev. 71 m; 24 Jun. 2013; J. Drescher leg.; canopy fogging in oil palm plantation; ZMH ZMH-A0031824, ZMH-A0031825.

Description

Male (Figs 25–26)

Measurements. Total length 3.86. Carapace length 1.75; width 1.30. Opisthosoma length 2.11; width 1.01. Diameter of eyes: AME 0.40; ALE 0.21; PLE 0.21. Interdistances between eyes: ALE–ALE 0.90; ALE–PLE 0.54; PLE–PLE 0.87. Clypeus height 0.09. Leg measurements: leg I 4.34 (1.28, 0.47, 1.21, 0.92, 0.46); leg II 3.45 (1.07, 0.37, 0.89, 0.66, 0.46); leg III missing; leg IV missing.

Habitus and coloration. Carapace anteriorly dark-brown, as well as along edges; middle of carapace with wedge-shaped pale marking, followed by dark-brown stripe that goes around it posteriorly, followed in turn by pale stripe; fringe of white setae on clypeal margin, as well as between eyes. Chelicerae basally black, distally pale; dentition: three promarginal, one retromarginal. Opisthosoma elongated, pale,

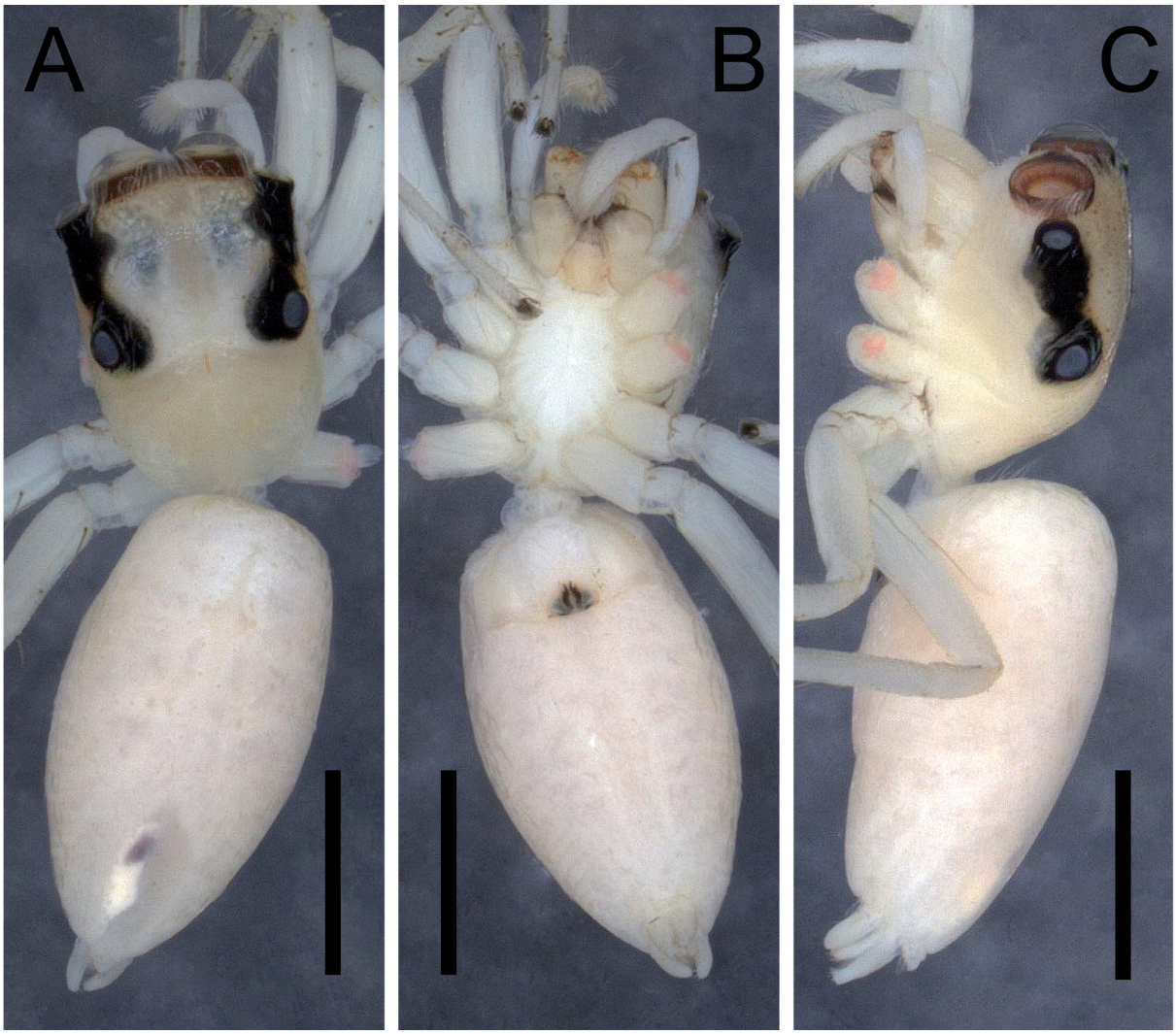

Fig. 27. *Phintella candramawa* Dhiya'ulhaq sp. nov., paratype, ♀ (AraSalt104N_HO4.2_002), habitus. **A**. Dorsal view. **B**. Ventral view. **C**. Lateral view. Scale bars = 1 mm.

with dark stripe on each side; spinnerets black. Leg I dark-brown on femur and patella; tibia to tarsus predominantly pale with dark blotches; leg II pale. Spinnerets black, tip pale.

Palp (Fig. 26). Tibia length-to-width ratio 1.40. RTA claw-shaped, gently curved, ventrally leaning, positioned at ventral edge of palpal tibia, followed by long, thin keel. Cymbium elongated, basal half

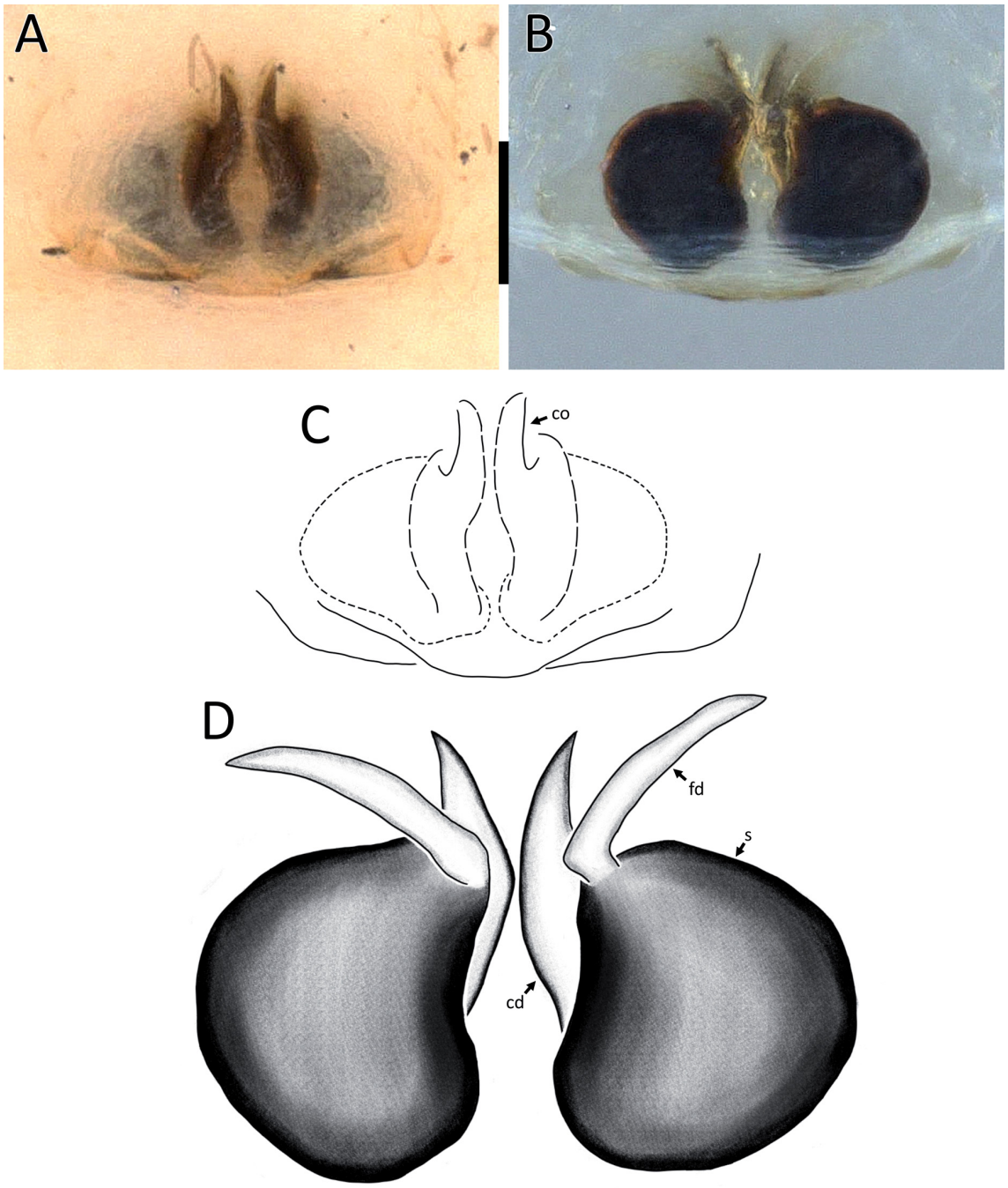

Fig. 28. *Phintella candramawa* Dhiya'ulhaq sp. nov., paratype, ♀ (AraSalt104N_HO4.2_002). **A, C**. Epigynum, ventral view. **B, D**. Vulva, cleared, dorsal view. Abbreviations: cd = copulatory duct; co = copulatory opening; fd = fertilization duct; s = spermatheca.

dark-brown, distally pale. Tegulum with large trapezoid posterior lobe and smaller, rounded retrolateral lobe; lamellar process trapezoid, about two times as long as wide; tegular bump subtriangular. Sperm duct inverted J-shaped retrolaterally; slightly curved prolaterally. Embolus needle-shaped, forming 45 degree angle towards tegulum.

Female (Figs 27–28)

Measurements. Total length 3.91. Carapace length 1.55; width 1.16. Opisthosoma length 2.36; width 1.29. Diameter of eyes: AME 0.42; ALE 0.21; PLE 0.20. Interdistances between eyes: ALE–ALE 0.82; ALE–PLE 0.53; PLE–PLE 0.84. Clypeus height 0.09. Leg measurements: leg I 3.03 (0.96, 0.37, 0.78, 0.58, 0.34); leg II 2.78 (0.87, 0.33, 0.70, 0.53, 0.35); leg III 3.21 (0.98, 0.41, 0.77, 0.71, 0.34); leg IV 3.64 (1.14, 0.30, 0.92, 0.89, 0.39).

Habitus and coloration. Carapace pale; fringe of white setae on clypeal margin, as well as between eyes. Chelicerae pale; dentition: two promarginal, one retromarginal. Opisthosoma elongated, pale, without any markings; spinneret pale. Legs pale.

Epigynum (Fig. 28). Epigynal plate roughly triangular, wider than long. Copulatory openings vertical slit-shaped, positioned anteriorly. Copulatory ducts thick, as long as spermatheca, slightly curved. Spermathecae large, kidney-shaped. Fertilization ducts as long as spermatheca, arising from anterior end of spermatheca, oriented diagonally.

Distribution

Sumatra: Jambi Province.

Natural history

All specimens were collected by canopy fogging in oil palm plantations and are considered arboreal.

Phintella castor Dhiya'ulhaq sp. nov.
urn:lsid:zoobank.org:act:91DB34AF-CDB7-4F73-9563-42F2E383D41F
Figs 29–32

Diagnosis

Males of *Phintella castor* Dhiya'ulhaq sp. nov. resembles those of *Phintella australis* (Simon, 1902) and *Phintella rajbharathi* Caleb, Sudhin & Sen, 2024 by a wide, lobed base of RTA but can be distinguished from the latter two species by an extremely short, needle-shaped embolus (Fig. 30B, D vs claw-shaped in *P. australis* [Wesołowska 2012: fig. 25] and *P. rajbharathi* [Sudhin *et al.* 2024b: figs 6c–d, 8f–g]); additionally from those of *P. australis* by distinct, triangular, retrolateral lobe (vs retrolateral lobe indistinct anterior to sperm duct) and from those of *P. rajbharathi* by an oblique, tapering ventral lobe of RTA, much longer than dorsal lobe (vs ventral lobe barely longer than dorsal lobe). Females can be distinguished from those of all congeners by having copulatory openings positioned medially in between spermathecae (Fig. 32A–D), whereas in all other species with known females they are located either anterior or posterior to spermathecae.

Etymology

The specific epithet is taken from the celestial object which is the second-brightest component of the Gemini constellation. Castor is made up of six individual stars, which alludes to the six white spots on the opisthosoma of male *Phintella castor* sp. nov. Noun in apposition.

Material examined

Holotype

INDONESIA – **Jambi Province** • ♂; Sarolangun, Air Hitam, Lubuk Kepayang; 2°04′15.2″ S, 102°47′30.8″ E; elev. 54 m; 25 Jun. 2013; J. Drescher leg.; canopy fogging in oil palm plantation; GOET 2013_BO3.1_AraSalt053N_001 (deposited at SMF).

Paratypes

INDONESIA – **Jambi Province** • 1 ♂, 6 ♀♀; same data as for holotype; GOET 2013_BO3.1_AraSalt053N_002 to GOET 2013_BO3.1_AraSalt053N_006, 2013_BO3.2_AraSalt053N_001 (to be transferred to MZB) • 1 ♀; Sarolangun, Air Hitam, Desa Baru; 2°03′01.4″ S, 102°45′12.1″ E; elev. 48 m; 11 Jul. 2013; J. Drescher leg.; canopy fogging in oil palm plantation; GOET 2013_BO4.1_AraSalt053N_001 (to be transferred to ZHM) • 1 ♀; Sarolangun, Pauh; 2°06′49.6″ S, 102°47′43.5″ E; elev. 57 m; 19 Jun. 2013; J. Drescher leg.; canopy fogging in oil palm plantation; ZMH ZMH-A0031827 • 1 ♀; Sarolangun, Air Hitam, Lubuk Kepayang; 2°04′36.0″ S, 102°46′22.4″ E; elev. 54 m; 27 Jun. 2013; J. Drescher leg.; canopy fogging in rubber plantation; ZMH ZMH-A0031828 • 1 ♂; Batang Hari, Bajubang, Sungkai; 1°51′28.4″ S, 103°18′27.5″ E; elev. 53 m; 3 Jun. 2013; J. Drescher leg.; canopy fogging in oil palm plantation; ZMH ZMH-A0031829.

Description

Male (Figs 29–30)

Measurements. Total length 4.27. Carapace length 1.96; width 2.13. Opisthosoma length 2.31; width 1.24. Diameter of eyes: AME 0.52; ALE 0.29; PLE 0.27. Interdistances between eyes: ALE–ALE 1.18; ALE–PLE 0.75; PLE–PLE 1.18. Clypeus height 0.06. Leg measurements: leg I 6.74 (1.92, 0.75, 1.90, 1.49, 0.68); leg II 4.69 (1.26, 0.54, 1.19, 1.17, 0.53); leg III 5.52 (1.62, 0.66, 1.18, 1.48, 0.58); leg IV 6.01 (1.80, 0.45, 1.46, 1.67, 0.63).

Habitus and coloration. Carapace posteriorly rounded; dark-brown anteriorly, as well as around margins; posteriorly with large butterfly-shaped black marking surrounded by pale lines; ALE and PME surrounded by black patches; anterior half of carapace covered dorsally in iridescent scales; margin of clypeus with fringe of white setae. Chelicerae dark brown; dentition: two promarginal, one retomarginal. Opisthosoma yellow, covered in six white spots arranged in two rows (2–4), each spot followed by black spot; posterior end of opisthosoma with additional black spot. Leg I slightly more robust than other legs, predominantly dark brown; rest of legs mostly pale. Spinnerets light brown, tip pale.

Palp (Fig. 30). Tibia length-to-width ratio 1.35. RTA bilobed with very wide base; dorsal lobe hump-shaped curved into rounded corner; ventral lobe oblique, ventrally leaning, tapering into small, claw-shaped apex. Cymbium longer than wide. Tegulum with large triangular posterior lobe and smaller, triangular retrolateral lobe; lamellar process light curve, about three times as long as wide; tegular bump small and rounded. Sperm duct inverted J-shaped retrolaterally; long and slightly curved prolaterally. Embolus very short, barely distinct, needle-shaped with rounded tip.

Female (Figs 31–32)

Measurements. Total length 3.09. Carapace length 1.69; width 1.41. Opisthosoma length 1.40; width 1.23. Diameter of eyes: AME 0.40; ALE 0.20; PLE 0.23. Interdistances between eyes: ALE–ALE 0.97; ALE–PLE 0.62; PLE–PLE 0.95. Clypeus height 0.08. Leg measurements: leg I 2.91 (0.95, 0.37, 0.72, 0.55, 0.32); leg II 2.94 (0.94, 0.36, 0.68, 0.58, 0.38); leg III 3.61 (1.22, 0.31, 0.78, 0.88, 0.42); leg IV 4.04 (1.39, 0.41, 0.94, 0.86, 0.44).

Habitus and coloration. Carapace posteriorly rounded, slightly longer than wide; pale-colored with black spots around ALE and PME as well as large butterfly-shaped black marking posteriorly. Chelicerae

white; dentition: two promarginal, one retomarginal. Opisthosoma yellow, with 4 white rectangular patches, each followed by black patch; posterior end of opisthosoma with additional black spot. Legs pale. Spinnerets pale.

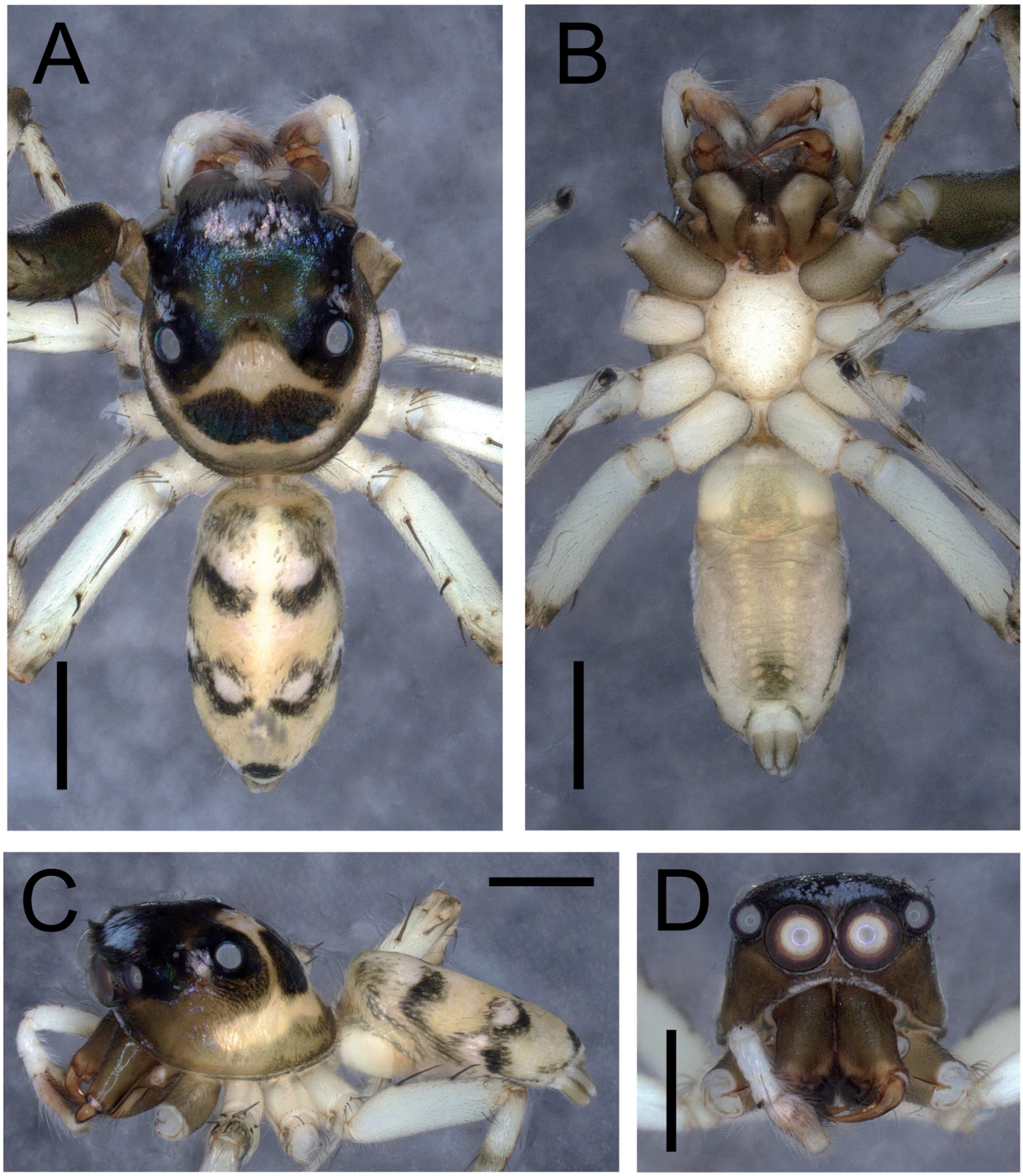

Fig. 29. *Phintella castor* Dhiya'ulhaq sp. nov., holotype, ♂ (AraSalt53N_BO3.1_001). **A–C**. Habitus. **A**. Dorsal view. **B**. Ventral view. **C**. Lateral view. **D**. Prosoma, frontal view. Scale bars = 1 mm.

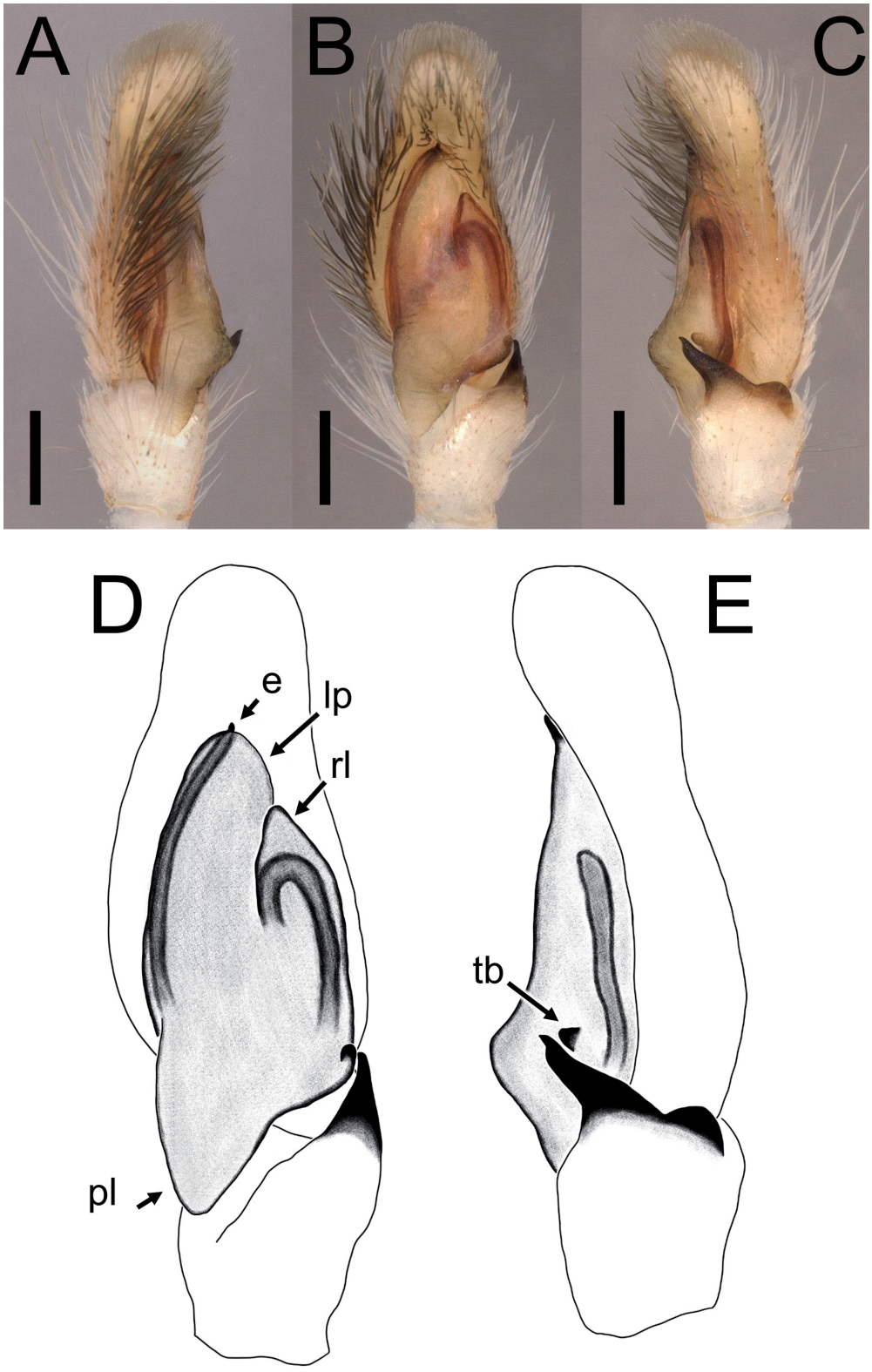

Fig. 30. *Phintella castor* Dhiya'ulhaq sp. nov., holotype, ♂ (AraSalt53N_BO3.1_001), left palp. **A**. Prolateral view. **B**, **D**. Ventral view. **C**, **E**. Retrolateral view. Abbreviations: e = embolus; lp = lamellar process; pl = posterior lobe of tegulum; rl = retrolateral lobe of tegulum; tb = tegular bump. Scale bars = 0.2 mm.

Epigynum (Fig. 32). Epigynal plate oval, much wider than long. Copulatory openings small, medially positioned in between spermathecae. Copulatory ducts as long as spermatheca, bending at right angle. Spermatheca large, egg-shaped, diagonally oriented. Fertilization ducts as long as spermatheca, arising from anterior end of spermatheca, bending at right angle towards laterally.

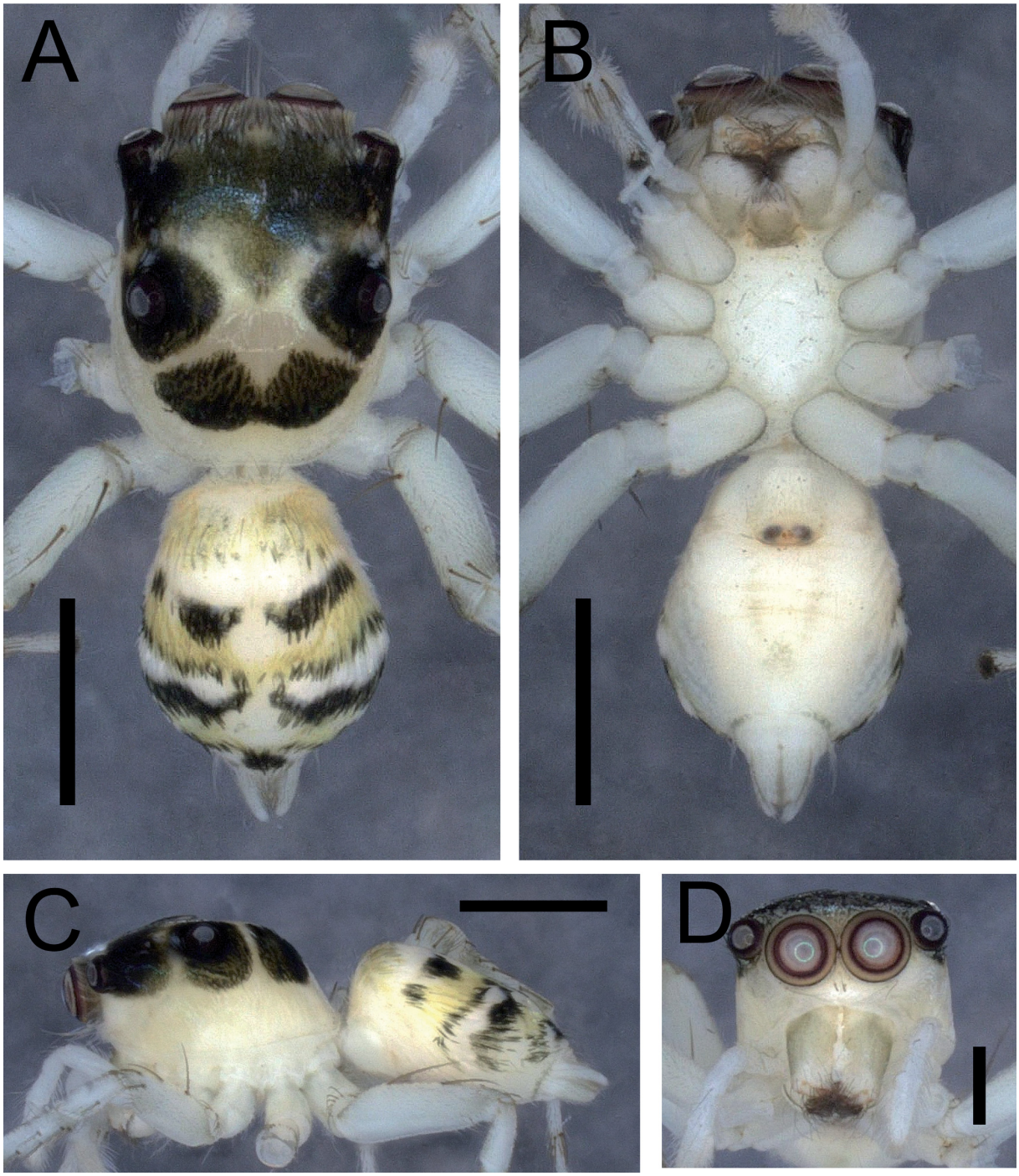

Fig. 31. *Phintella castor* Dhiya'ulhaq sp. nov., paratype, ♀ (AraSalt53N_BO3.1_003). **A–C**. Habitus. **A**. Dorsal view. **B**. Ventral view. **C**. Lateral view. **D**. Prosoma, frontal view. Scale bars: A–C = 1 mm; D = 0.5 mm.

Distribution

Sumatra: Jambi Province.

Natural history

All specimens were collected by canopy fogging in oil palm and rubber monoculture plantations and are considered arboreal.

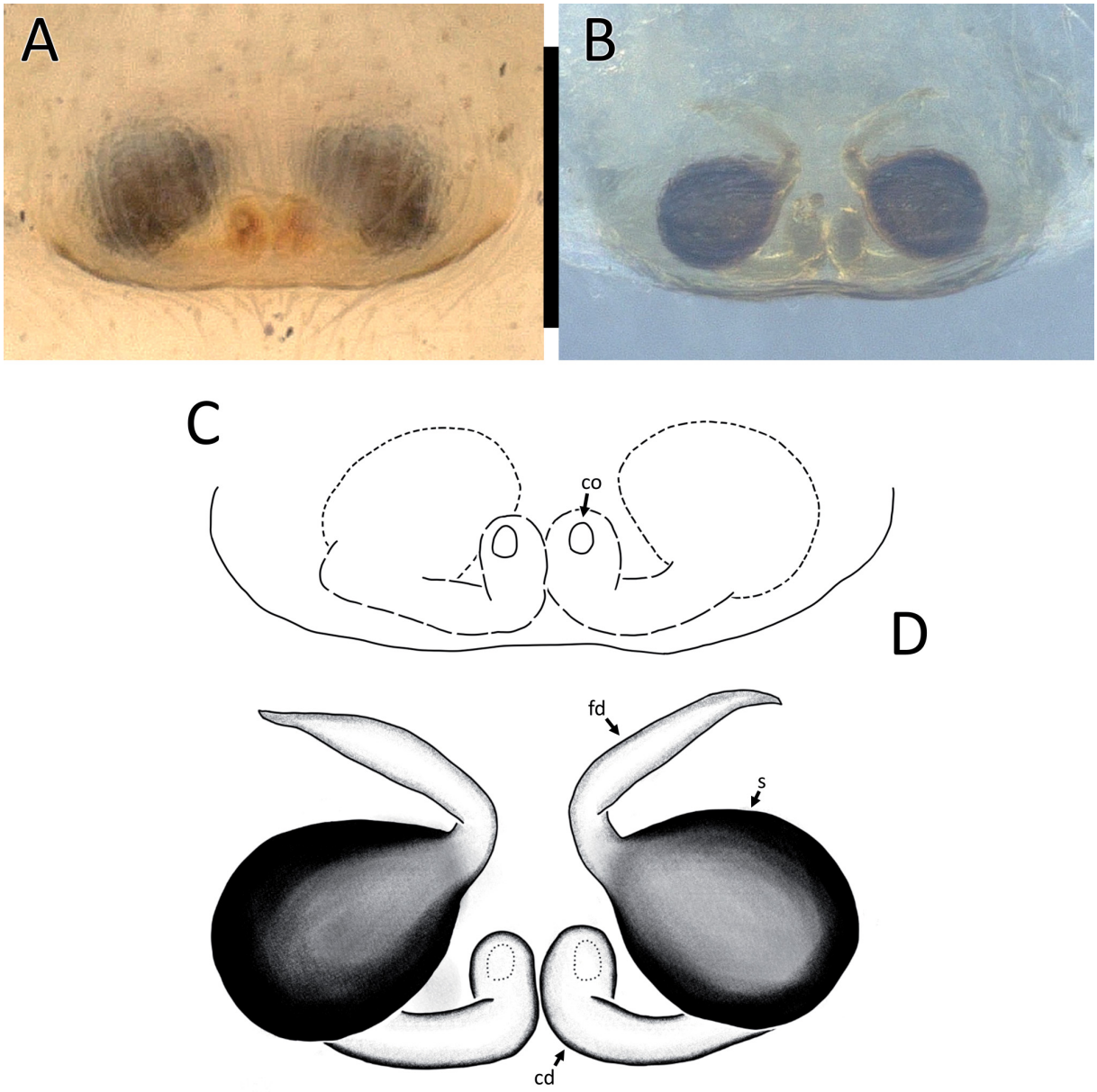

Fig. 32. *Phintella castor* Dhiya'ulhaq sp. nov., paratype, ♀ (AraSalt53N_BO3.1_003). **A, C**. Epigynum, ventral view. **B, D**. Vulva, cleared, dorsal view. Abbreviations: cd = copulatory duct; co = copulatory opening; fd = fertilization duct; s = spermatheca. Scale bar = 0.2 mm.

Phintella siginjai Dhiya'ulhaq sp. nov.
urn:lsid:zoobank.org:act:9D64923D-C179-4AE3-811C-C568F8F829E5
Figs 33–34

Diagnosis

Males of *Phintella siginjai* Dhiya'ulhaq sp. nov. are most similar to those of *Phintella fodingensis* Wang, Mi & Peng, 2023 by the claw-shaped RTA but can be easily distinguished (as well as from those of all other congeners) by the presence of VTA and needle-shaped embolus with median bump (Fig. 34A–E).

Etymology

The specific epithet refers to Keris Siginjai, a legendary keris (traditional dagger) which is the symbol of Jambi City. Noun in apposition.

Material examined

Holotype

INDONESIA – **Jambi Province** • ♂; Sarolangun, Air Hitam, Lubuk Kepayang; 2°04′36.0″ S, 102°46′22.4″ E; elev. 54 m; 27 Jun. 2013; J. Drescher leg.; canopy fogging in rubber plantation; GOET 2013_BR4.1_AraSalt115N_001 (to be transferred to MZB).

Paratype

INDONESIA – **Jambi Province** • 1 ♂; Sarolangun, Air Hitam, Desa Baru; 2°01′49.5″ S, 102°46′14.8″ E; elev. 57 m; 12 Jul. 2013; J. Drescher leg.; canopy fogging in jungle rubber plantation; ZMH ZMH-A0031830.

Description

Male (Figs 33–34)

Measurements. Total length 3.67. Carapace length 1.70; width 1.60. Opisthosoma length 1.97; width 1.13. Diameter of eyes: AME 0.51; ALE 0.23; PLE 0.22. Interdistances between eyes: ALE–ALE 1.00; ALE–PLE 0.62; PLE–PLE 1.11. Clypeus height 0.10. Leg measurements: leg I 5.05 (1.46, 0.57, 1.36, 1.08, 0.58); leg II 3.71 (1.15, 0.39, 0.90, 0.85, 0.42); leg III 4.51 (1.34, 0.36, 1.05, 1.18, 0.58); leg IV 4.66 (1.30, 0.36, 1.17, 1.26, 0.57).

Habitus and coloration. Carapace light-brown with dark margins; middle of carapace with wedge-shaped white marking, surrounded by brown setae; white setae covering clypeus, sides of carapace, as well as between eyes. Chelicerae light-brown; dentition: two promarginal, one retromarginal. Opisthosoma elongated, pale; each side of opisthosoma with stripe of black setae, and dorsally with four black spots; spinnerets light brown. Leg I predominantly dark-brown from femur to tibia; tibia dorsally with patch of white setae; leg IV femur laterally with two black patches on each side; rest of legs pale. Spinnerets pale.

Palp (Fig. 34). Tibia length-to-width ratio 0.80. RTA claw shaped, tip curved, slightly leaning dorsally, positioned in middle of palpal tibia. VTA acutely triangular. Cymbium elongated, pale. Tegulum with rounded, subtriangular posterior lobe and rounded retrolateral lobe; lamellar process subtriangular, about two times as long as wide; tegular bump subtriangular. Sperm duct inverted J-shaped retrolaterally; long and slightly curved prolaterally. Embolus needle-shaped, with bump in middle.

Distribution

Sumatra: Jambi Province.

Natural history

All specimens were collected by canopy fogging in jungle rubber and rubber monoculture plantations and are considered arboreal.

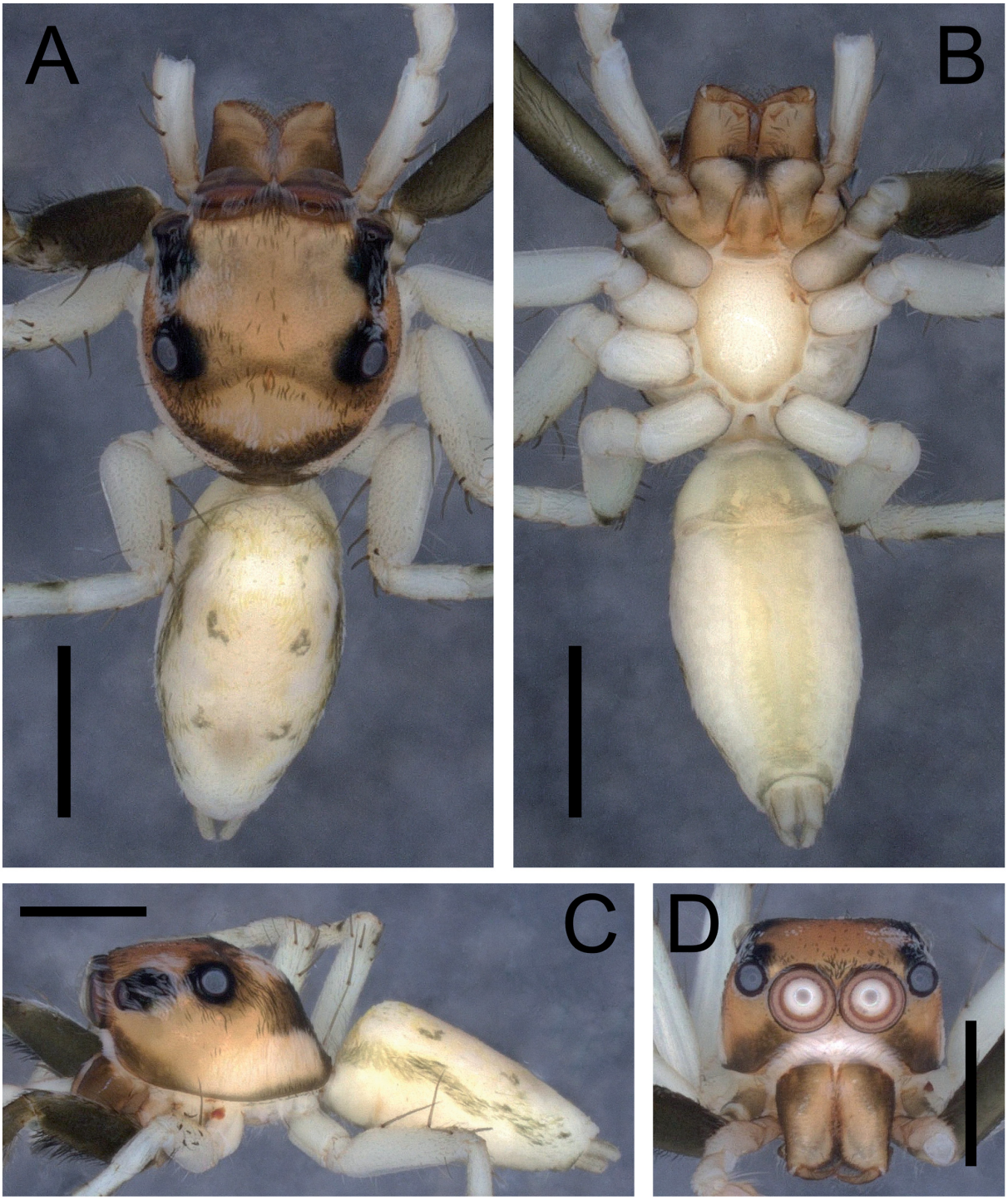

Fig. 33. *Phintella siginjai* Dhiya'ulhaq sp. nov., holotype, ♂ (AraSalt115N_BR4.1_001). **A–C**. Habitus. **A**. Dorsal view. **B**. Ventral view. **C**. Lateral view. **D**. Prosoma, frontal view. Scale bars = 1 mm.

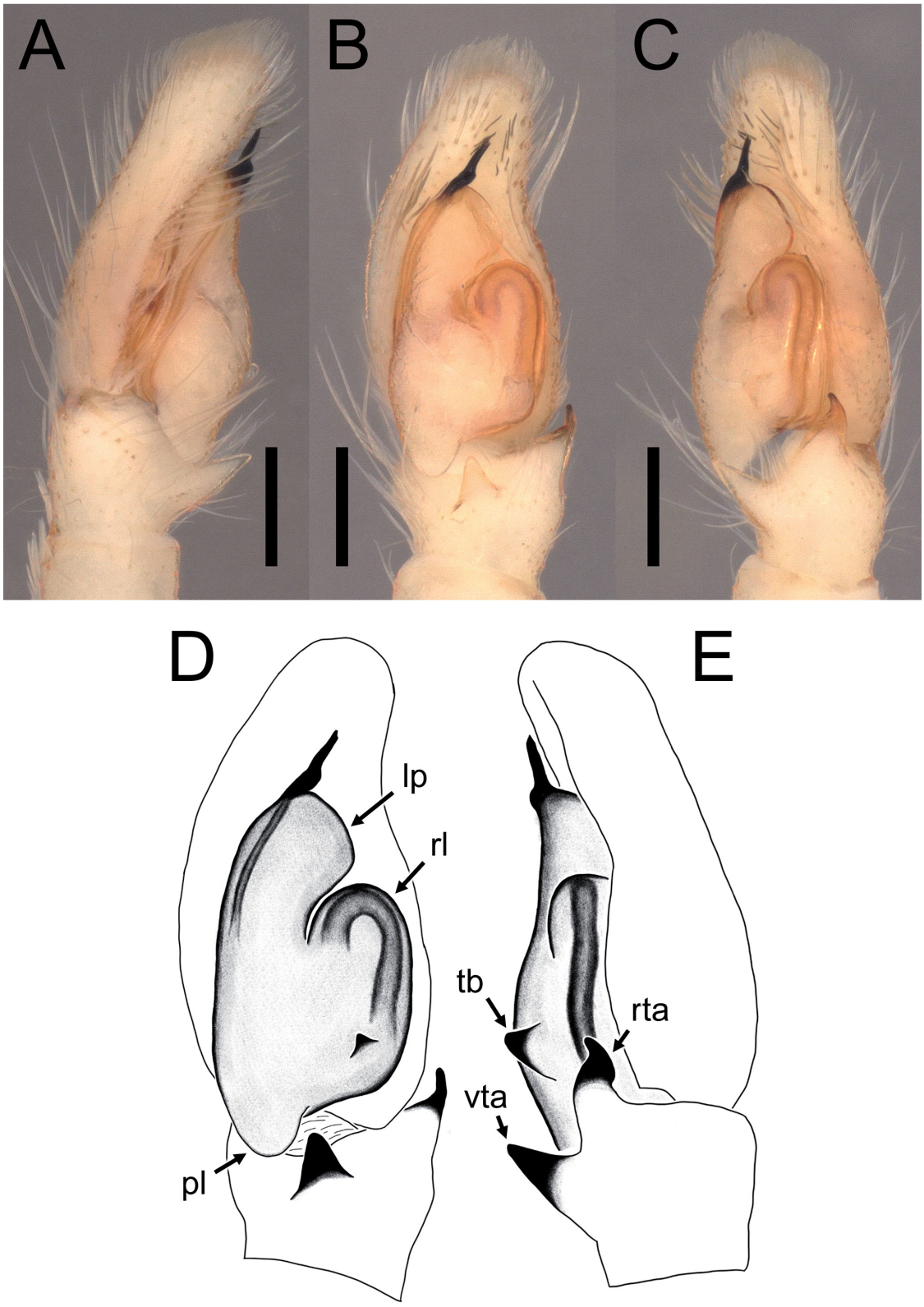

Fig. 34. *Phintella siginjai* Dhiya'ulhaq sp. nov., holotype, ♂ (AraSalt115N_BR4.1_001), left palp. **A**. Prolateral view. **B**, **D**. Ventral view. **C**, **E**. Retrolateral view. Abbreviations: lp = lamellar process; pl = posterior lobe of tegulum; rl = retrolateral lobe of tegulum; rta = retrolateral tibial apophysis; tb = tegular bump; vta = ventral tibial apophysis. Scale bars = 0.2 mm.

Genus *Poecilorchestes* Simon, 1901

Poecilorchestes keciknyo Dhiya'ulhaq sp. nov.
urn:lsid:zoobank.org:act:429FBB94-628D-47F3-9F4F-E11FD4896E09
Figs 35–38

Diagnosis

Males of *Poecilorchestes keciknyo* Dhiya'ulhaq sp. nov. can be distinguished from all those of other congeners by a bullet-shaped tegulum (Fig. 36B, E). Females can be distinguished from those of *Poecilorchestes decoratus* Simon, 1901 by posterior chambers of spermathecae positioned posterior to anterior chambers (Fig. 38A, C vs posterior chambers parallel to anterior chambers [Chrysanthus 1968: fig. 77]) and from those of *Poecilorchestes zhengi* Wang & Li, 2021 by having an epigynal hood anterior to spermathecae (Fig. 38A–C vs in between anterior and posterior chamber of spermathecae in *P. zhengi* [Wang & Li 2021: fig. 15a]) and anterior chambers of spermathecae slightly smaller than posterior chambers (vs anterior chamber much larger than posterior chamber in *P. zhengi*).

Etymology

The specific epithet is taken from the Jambi Malay word '*keciknyo*' meaning 'so small', referring to the minute size of this species. Noun in apposition.

Material examined

Holotype
INDONESIA – **Jambi Province** • ♂; Sarolangun, Pauh, Semaran; 2°08′35.9″ S, 102°51′04.5″ E; elev. 45 m; 16 Jul. 2013; J. Drescher leg.; canopy fogging in jungle rubber plantation; GOET 2013_BJ5.1_AraSalt005N_001 (to be transferred to MZB).

Paratypes
INDONESIA – **Jambi Province** • 1 ♂, 2 ♀♀; same data as for holotype; GOET 2013_BJ5.1_AraSalt005N_002 to GOET 2013_BJ5.1_AraSalt005N_004 (to be transferred to MZB) • 1 ♂, 1 ♀; Sarolangun, Bukit Duabelas National Park; 1°59′42.6″ S, 102°45′08.0″ E; elev. 69 m; 8 Oct. 2013; J. Drescher leg.; canopy fogging in rainforest; ZMH ZMH-A0031831, ZMH-A0031832 • 1 ♂; Sarolangun, Air Hitam, Desa Baru; 2°00′56.8″ S, 102°45′12.6″ E; elev. 64 m; 14 Jul. 2013; J. Drescher leg.; canopy fogging in jungle rubber plantation; ZMH ZMH-A0031833.

Description

Male (Figs 35–36)
Measurements. Total length 1.48. Carapace length 0.72; width 0.68. Opisthosoma length 0.76; width 0.74. Diameter of eyes: AME 0.19; ALE 0.10; PLE 0.07. Interdistances between eyes: ALE–ALE 0.43; ALE–PLE 0.17; PLE–PLE 0.58. Clypeus height 0.02. Leg measurements: leg I 1.11 (0.37, 0.21, 0.24, 0.15, 0.14); leg II 0.79 (0.28, 0.15, 0.13, 0.10, 0.13); leg III 0.69 (0.25, 0.09, 0.11, 0.09, 0.15); leg IV 0.84 (0.32, 0.09, 0.14, 0.11, 0.18).

Habitus and coloration. Carapace box-shaped, reddish-brown. Chelicerae red; dentition: two promarginal, one bicuspid retromarginal. Opisthosoma round, slightly flattened dorso-ventrally; covered in light-brown scutum over whole dorsal surface; rest of opisthosoma and spinnerets pale. Legs rather short and thick; leg I stouter than other legs; most of legs dark-brown except tarsi, metatarsi II–IV and tibiae III–IV. Flattened, iridescent scales covering dorsal and frontal surface of carapace, dorsal and posterior-lateral surface of opisthosoma, as well as anterior legs and pedipalp. Spinnerets light brown, tip pale.

Palp (Fig. 36). Tibia length-to-width ratio 1.30, dorsally covered in iridescent scales. Cymbium subtriangular. Tegulum bullet-shaped with slightly oblique, truncated base. Sperm duct following margins of tegulum, starting out broad, becoming narrow starting from posterior margin of bulb. Embolus curved, starting out from broad base, approximately half as long as tegulum. RTA absent.

Female (Figs 37–38)

Measurements. Total length 1.54. Carapace length 0.72; width 0.65. Opisthosoma length 0.82; width 0.73. Diameter of eyes: AME 0.20; ALE 0.10; PLE 0.07. Interdistances between eyes: ALE–ALE 0.42; ALE–PLE 0.20; PLE–PLE 0.58. Clypeus height 0.01. Leg measurements: leg I 0.99 (0.32, 0.19, 0.21,

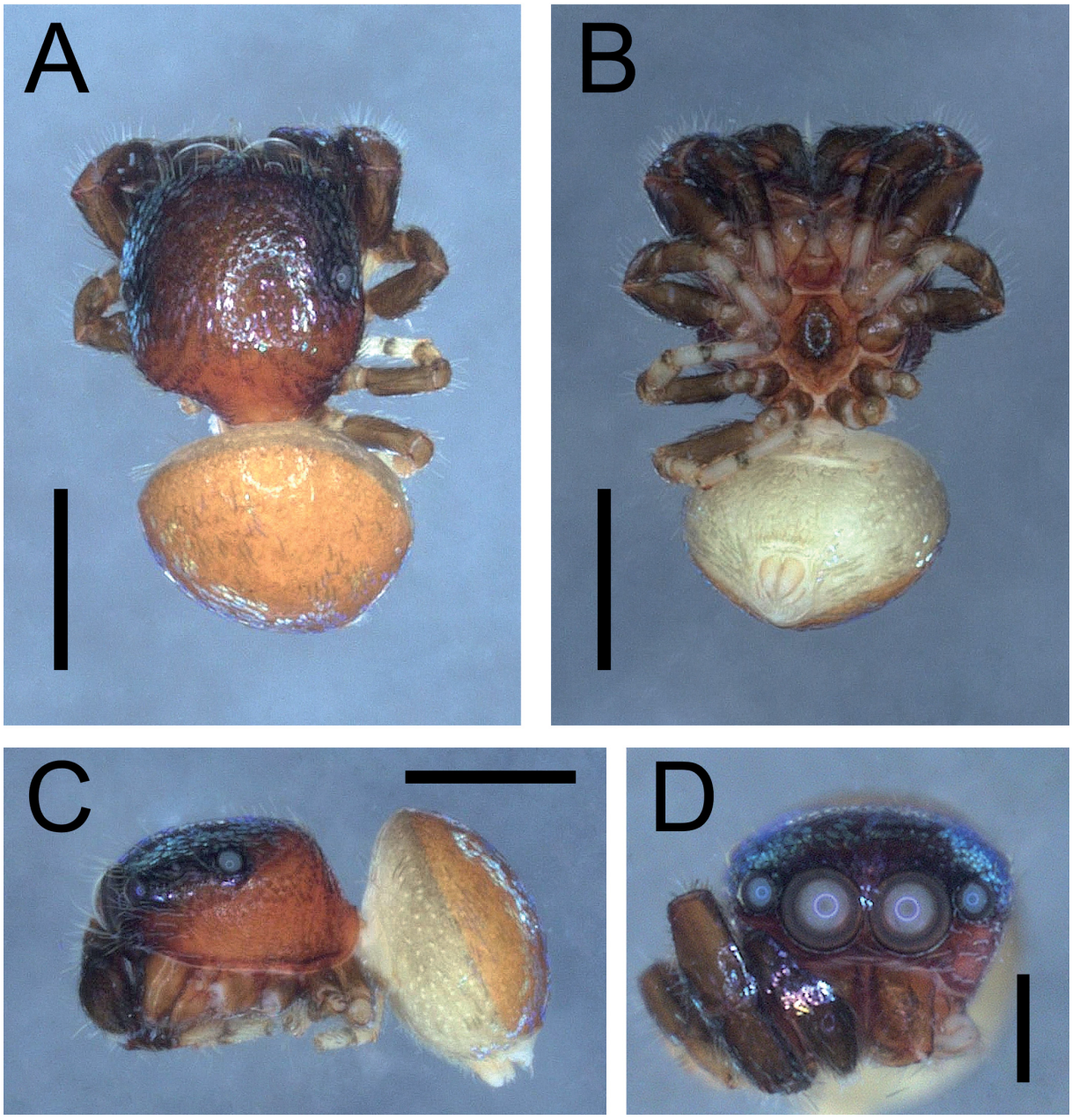

Fig. 35. *Poecilorchestes keciknyo* Dhiya'ulhaq sp. nov., holotype, ♂ (AraSalt005N_BJ5.1). **A–C**. Habitus. **A**. Dorsal view. **B**. Ventral view. **C**. Lateral view. **D**. Prosoma, frontal view. Scale bars: A–C = 0.5 mm; D = 0.2 mm.

0.11, 0.16); leg II 0.81 (0.27, 0.15, 0.15, 0.10, 0.14); leg III 0.71 (0.25, 0.09, 0.12, 0.10, 0.15); leg IV 0.88 (0.34, 0.09, 0.15, 0.12, 0.18).

Habitus and coloration. Female habitus as in male, except part of opisthosoma not covered in scutum dark-gray.

Epigynum (Fig. 38). Epigynal plate oval, wider than long. Copulatory openings small, separated from each other by approximately width of posterior spermathecal chambers. Copulatory ducts, as long as

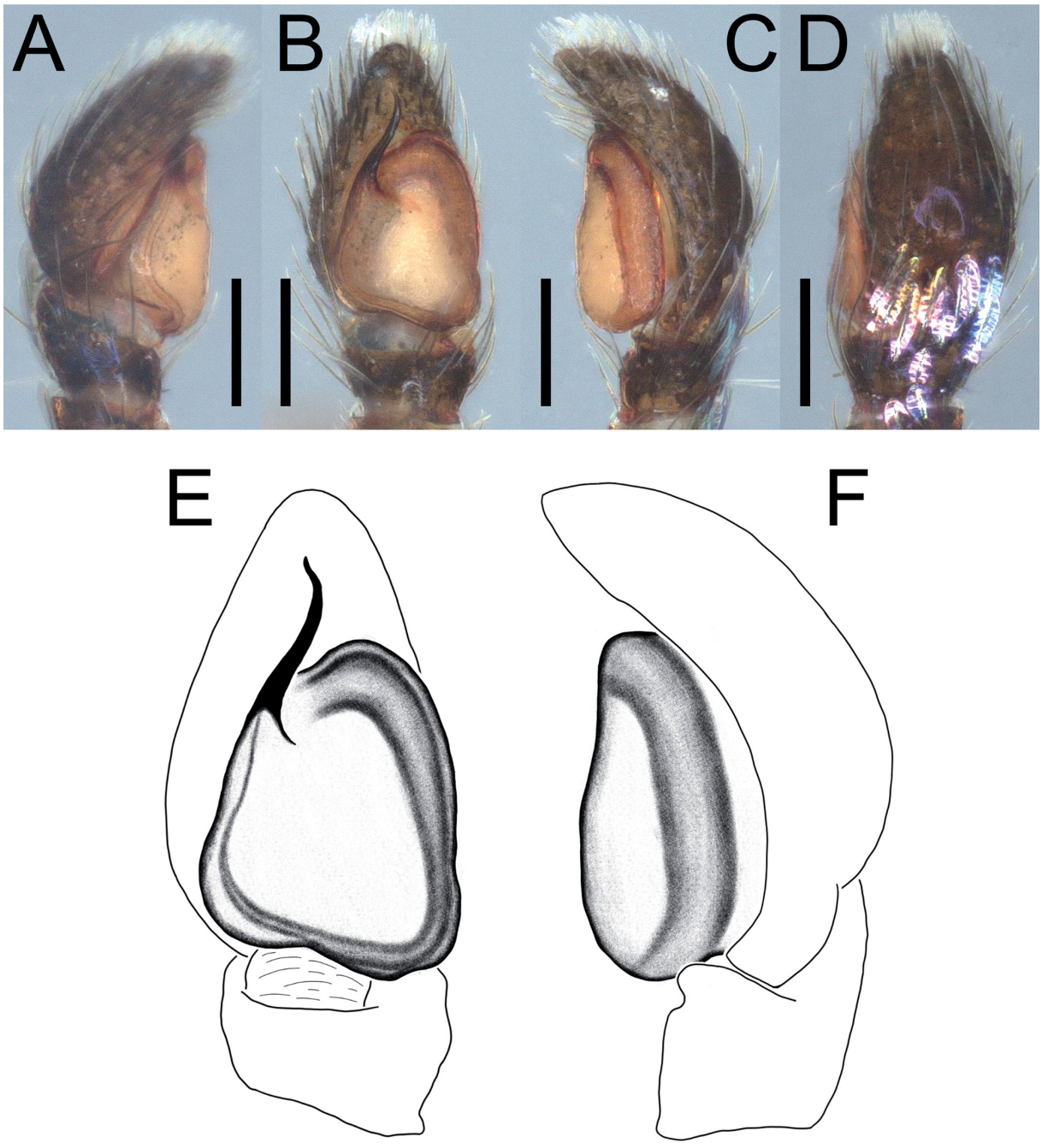

Fig. 36. *Poecilorchestes keciknyo* Dhiya'ulhaq sp. nov., holotype, ♂ (AraSalt005N_BJ5.1), **l**eft palp. **A**. Prolateral view. **B**, **E**. Ventral view. **C**, **F**. Retrolateral view. **D**. Dorsal view. Scale bars = 0.1 mm.

anterior spermathecal chambers. Epigynal hood located anteriorly. Spermatheca two-chambered; anterior chambers oval; posterior chambers oval, slightly larger than anterior chambers and positioned posterior to them; distance between anterior chambers larger than distance between posterior chambers. Fertilization ducts arising from anterior end of posterior spermatheca, diagonally oriented.

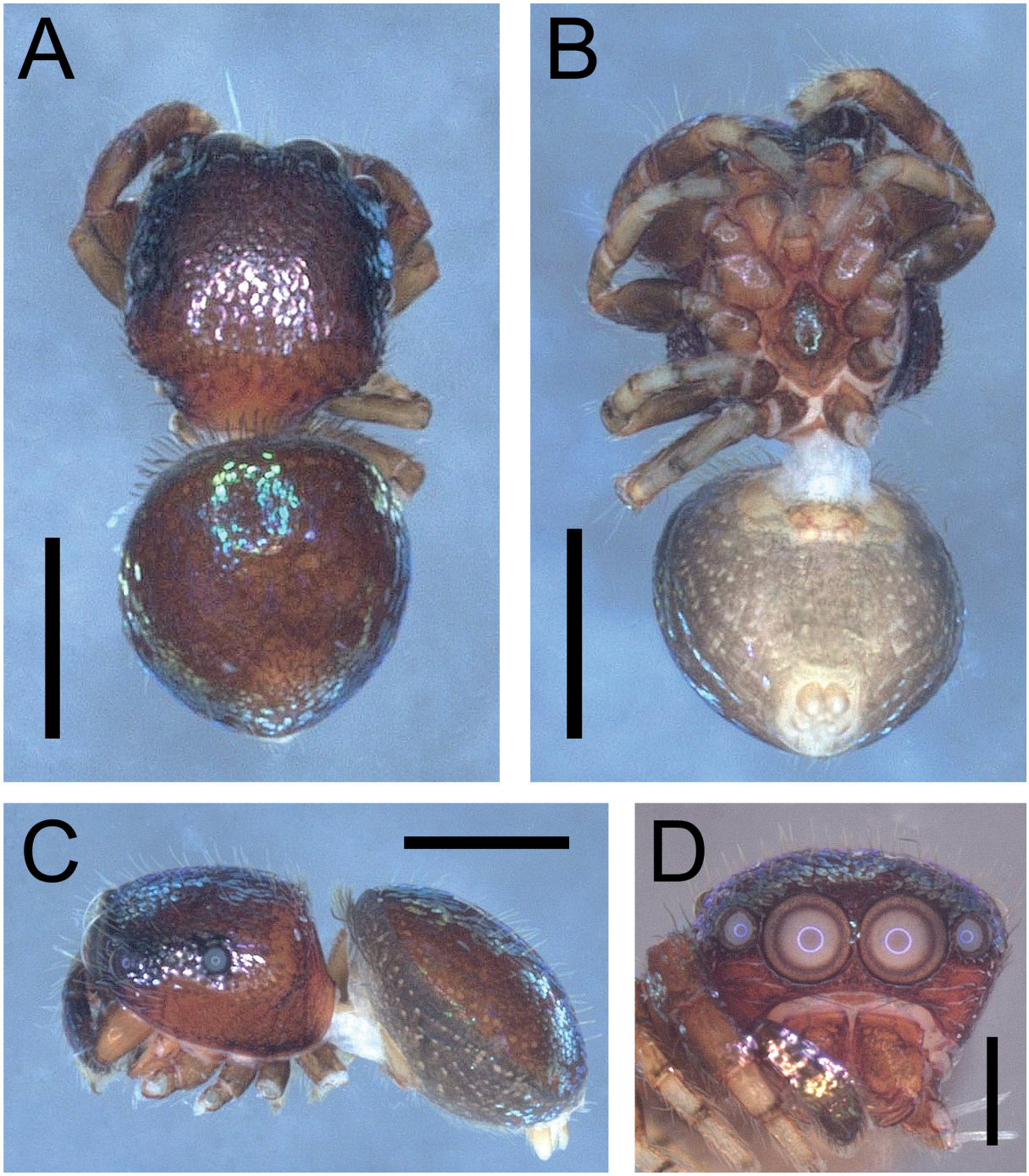

Fig. 37. *Poecilorchestes keciknyo* Dhiya'ulhaq sp. nov., paratype, ♀ (AraSalt005N_BJ5.1). **A–C**. Habitus. **A**. Dorsal view. **B**. Ventral view. **C**. Lateral view. **D**. Prosoma, frontal view. Scale bars: A–C = 0.5 mm; D = 0.2 mm.

Distribution

Sumatra: Jambi Province.

Natural history

All specimens were collected by canopy fogging in rainforests and jungle rubber plantations and are considered arboreal.

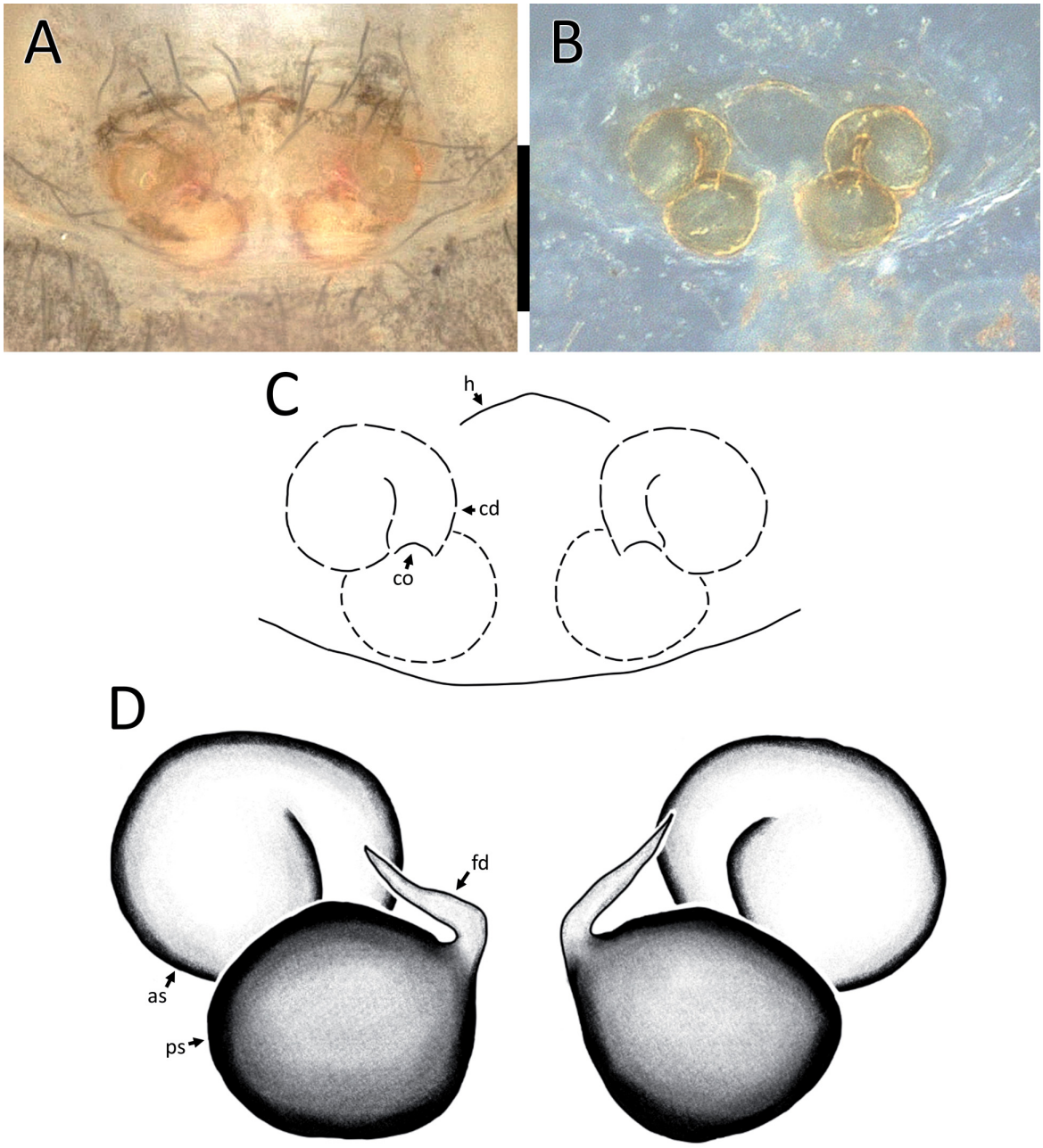

Fig. 38. *Poecilorchestes keciknyo* Dhiya'ulhaq sp. nov., paratype, ♀ (AraSalt005N_BJ5.1). **A, C**. Epigynum, ventral view. **B**, **D**. Vulva, cleared, dorsal view. Abbreviations: as = anterior chamber of spermatheca; cd = copulatory duct; co = copulatory opening; fd = fertilization duct; h = epigynal hood; ps = posterior chamber of spermatheca. Scale bar = 0.1 mm.

Genus *Psenuc* Prószyński, 2016

Psenuc lalawa Dhiya'ulhaq sp. nov.
urn:lsid:zoobank.org:act:9425E541-9CED-4126-9807-E89C404977D3
Figs 39–42

Diagnosis

Males of *Psenuc lalawa* Dhiya'ulhaq sp. nov. resemble those of *Psenuc manillaensis* (Prószyński, 1992), *Psenuc nuclearis* (Prószyński, 1992), and *Psenuc vesporum* (Prószyński, 1992) in having an RTA with wide, trapezoid base extending into tapering ventral lobe but can be differentiated from those of the latter three species by a sharp dorsal corner of RTA (Fig. 40E vs rounded/curved in *P. manillaensis* **[**Prószyński 1992a: fig. 84]; *P. nuclearis* [Prószyński 1992a: fig. 86]; and *P. vesporum* [Prószyński 1992a: fig. 89]) and position of tegular bump, approximately at mid-length of tegulum (vs anterior third of tegulum in latter three species). Females resemble those of *Psenuc solomonensis* (Prószyński, 1992) in having large, thumb-shaped spermathecae but can be distinguished by almost vertical final part of copulatory ducts (Fig. 42B–C vs almost horizontal in *P. solomonensis* **[**Prószyński 1992a: fig. 102]) and longer accessory glands, three-quarters length of spermathecae (vs half length of spermathecae in *P. solomonensis*).

Etymology

The specific epithet is taken from the word '*lalawa*' which is used to refer to spiders in the town of Lubuk Kepayang (Jambi Province, Sumatra, Indonesia). Noun in apposition.

Material examined

Holotype

INDONESIA – **Jambi Province** • ♂; Sarolangun, Air Hitam, Lubuk Kepayang; 2°05′43.0″ S, 102°46′59.7″ E; elev. 73 m; 22 Jun. 2013; J. Drescher leg.; canopy fogging in rubber plantation; GOET 2013_BR3.1_AraSalt045N_001 (to be transferred to MZB).

Paratypes

INDONESIA – **Jambi Province** • 1 ♂; same data as for holotype; ZMH ZMH-A0031834 • 1 ♀; Sarolangun, Air Hitam, Lubuk Kepayang; 2°04′36.0″ S, 102°46′22.4″ E; elev. 54 m; 27 Jun. 2013; J. Drescher leg.; canopy fogging in rubber plantation; GOET 2013_BR4.1_AraSalt045N_001 (to be transferred to MZB) • 1 ♀; Sarolangun, Pauh, Semaran; 2°08′35.9″ S, 102°51′04.5″ E; elev. 45 m; 16 Jul. 2013; J. Drescher leg.; canopy fogging in jungle rubber plantation; ZMH ZMH-A0031835.

Description

Male (Figs 39–40)

Measurements. Total length 3.23. Carapace length 1.47; width 1.10. Opisthosoma length 1.76; width 1.00. Diameter of eyes: AME 0.29; ALE 0.16; PLE 0.13. Interdistances between eyes: ALE–ALE 0.62; ALE–PLE 0.41; PLE–PLE 0.71. Clypeus height 0.02. Leg measurements: leg I 2.73 (0.82, 0.45, 0.78, 0.42, 0.26); leg II 2.04 (0.68, 0.24, 0.44, 0.41, 0.27); leg III 1.21 (0.61, 0.22, 0.37, 0.36, 0.26); leg IV 2.47 (0.82, 0.32, 0.65, 0.39, 0.29).

Habitus and coloration. Carapace elongated, dark-brown; frontal and lateral margins covered in thin stripe of white setae; row of stridulatory setae present under posterior eyes. Chelicerae dark-brown; dentition: one promarginal, two retromarginal. Opisthosoma oval; dorsally with a gray cardiac mark and alternating pale and gray curved stripes, as well as a pale, divided, heart-shaped mark in middle; dark-gray ventrally as well as spinnerets. Leg I much stouter than other legs, tibia especially broadened, colored same as carapace; rest of legs light-brown. Spinnerets brown.

Palp (Fig. 40). Dorsal surface of palp covered in flat, white setae. Tibia length-to-width ratio 0.95, dorsally covered in flat, white scales. RTA with wide, rectangular base; dorsal and anterior ramus straight, joining at almost right angle and creating sharp corner; ventral lobe as long as RTA base, tapering to pointed apex. Tegulum oval, slightly oblique. Tegular lobe rounded, approximately half width of bulb;

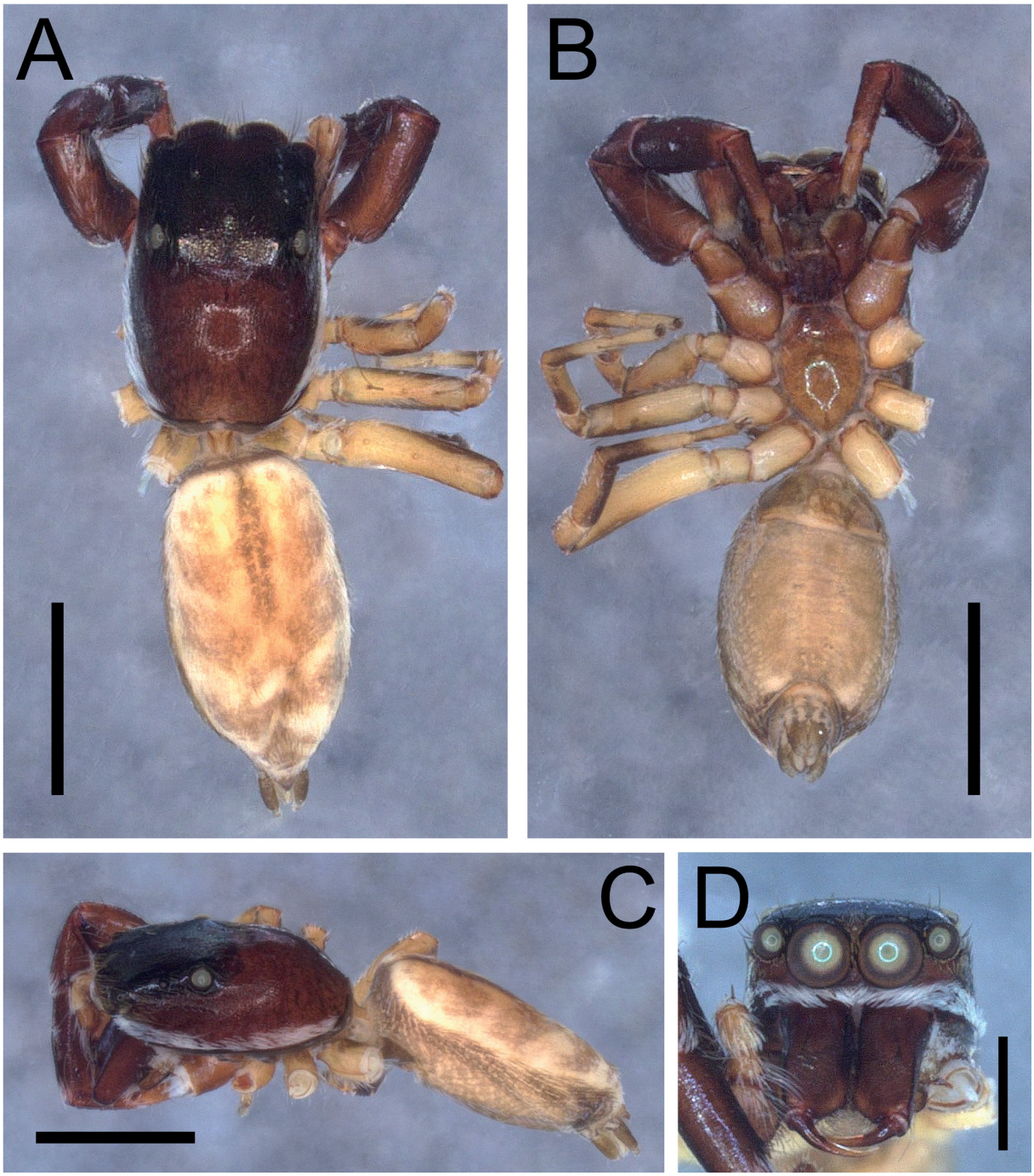

Fig. 39. *Psenuc lalawa* Dhiya'ulhaq sp. nov., holotype, ♂ (AraSalt045N_BR3.1_001). **A–C**. Habitus. **A**. Dorsal view. **B**. Ventral view. **C**. Lateral view. **D**. Prosoma, frontal view. Scale bars: A–C = 1 mm; D = 0.5 mm.

tegular bump with curved apex and small membranous part beneath apex. Embolus arising at 8:00 position, long and curved, following prolateral margin of cymbium.

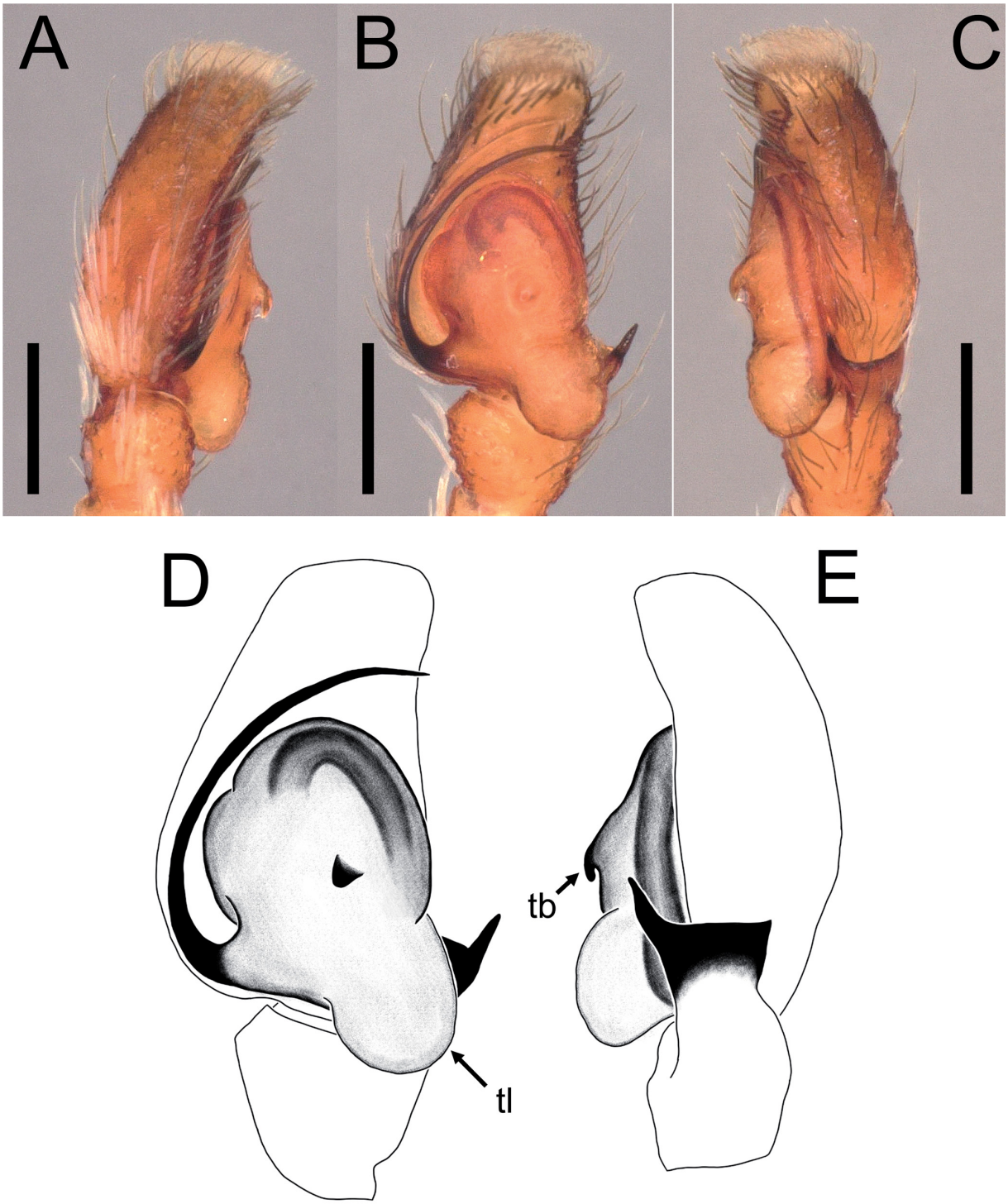

Fig. 40. *Psenuc lalawa* Dhiya'ulhaq sp. nov., holotype, ♂ (AraSalt045N_BR3.1_001), left palp. **A**. Prolateral view. **B**, **D**. Ventral view. **C**, **E**. Retrolateral view. Abbreviations: tb = tegular bump; tl = tegular lobe. Scale bars = 0.2 mm.

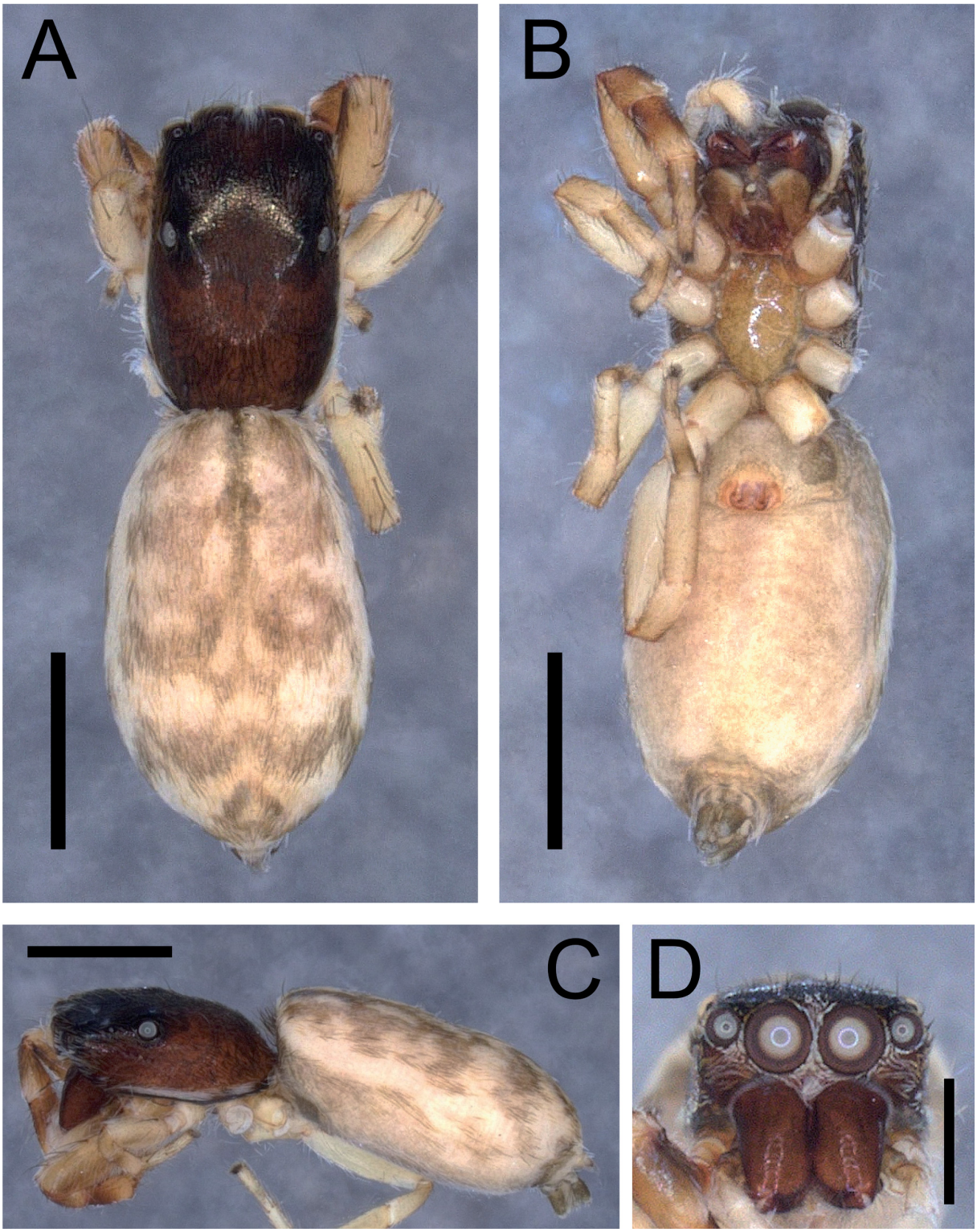

Fig. 41. *Psenuc lalawa* Dhiya'ulhaq sp. nov., paratype, ♀ (AraSalt045N_BR4.1_001). **A–C**. Habitus. **A**. Dorsal view. **B**. Ventral view. **C**. Lateral view. **D**. Prosoma, frontal view. Scale bars: A–C = 1 mm; D = 0.5 mm.

Female (Figs 41–42)

Measurements. Total length 3.75. Carapace length 1.53; width 1.01. Opisthosoma length 2.22; width 1.42. Diameter of eyes: AME 0.29; ALE 0.16; PLE 0.12. Interdistances between eyes: ALE–ALE 0.60; ALE–PLE 0.50; PLE–PLE 0.74. Clypeus height 0.02. Leg measurements: leg I 1.80 (0.58, 0.27, 0.48,

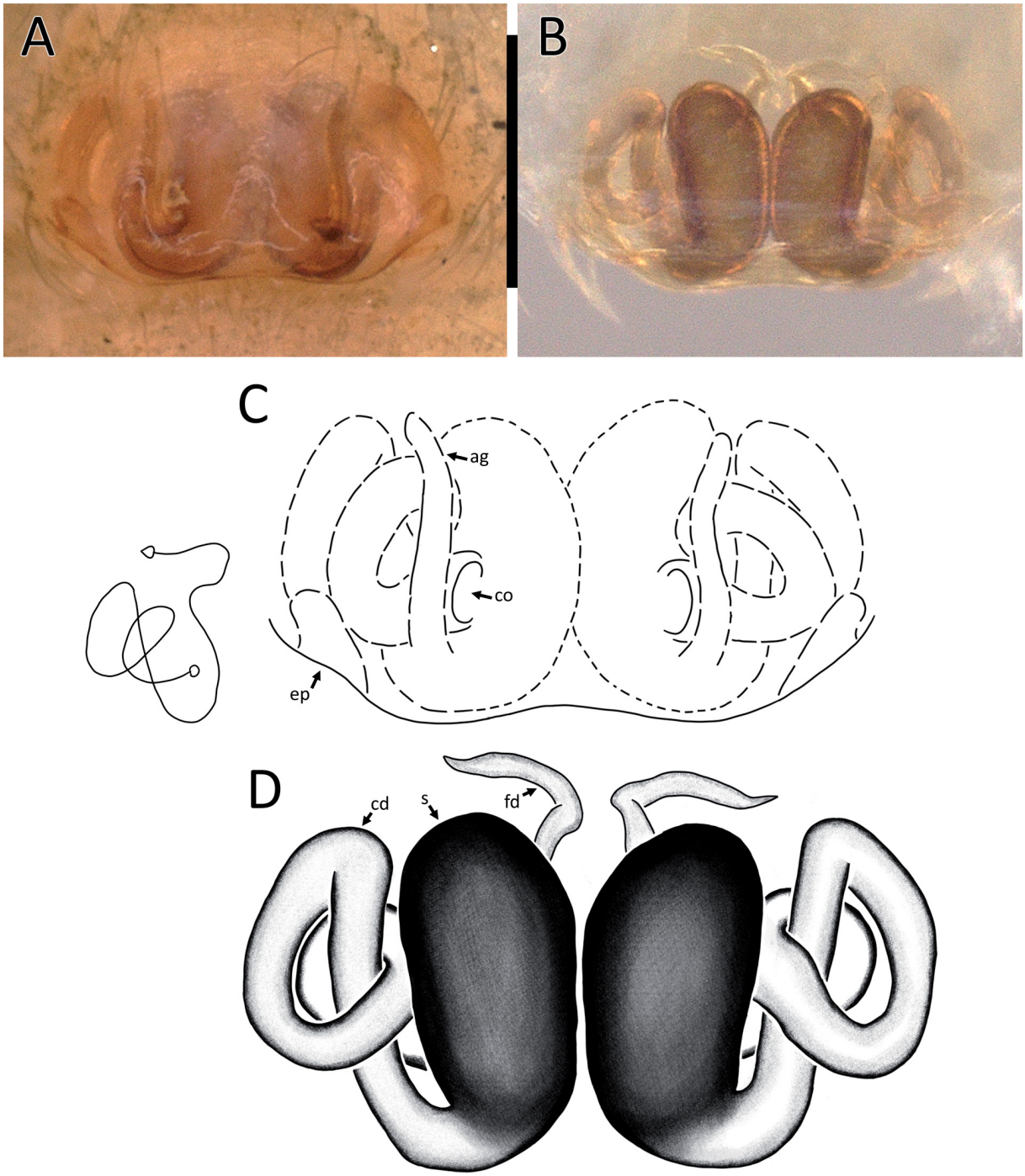

Fig. 42. *Psenuc lalawa* Dhiya'ulhaq sp. nov., paratype, ♀ (AraSalt045N_BR4.1_001). **A, C**. Epigynum, ventral view, with schematic corresponding to the hypothised course of the internal duct system.. **B**, **D**. Vulva, cleared, dorsal view. Abbreviations: ag = accessory gland; cd = copulatory duct; co = copulatory opening; ep = **add!** fd = fertilization duct; s = spermatheca. Scale bar: 0.2 mm.

0.26, 0.21); leg II 1.55 (0.50, 0.28, 0.34, 0.25, 0.18); leg III 1.49 (0.53, 0.20, 0.38, 0.21, 0.17); leg IV 2.44 (0.79, 0.33, 0.62, 0.47, 0.23).

Habitus and coloration. Female habitus as in male, except following: white setae of carapace only on lateral margins; leg I only slightly stouter than other legs, colored lighter than carapace.

Epigynum (Fig. 42). Epigynal plate oval, wider than long. Epigynal pockets thumb-shaped, located at posterior corner of epigynal plate. Copulatory openings narrow, located just anterior to inlet of spermatheca. Copulatory ducts looping twice, followed by very sharp turn, finishing into almost vertical straight tube. Spermathecae large, thumb-shaped. Fertilization ducts arising from anterior region of spermathecae, bent at right angle at basal third.

Distribution

Sumatra: Jambi Province.

Natural history

All specimens were collected by canopy fogging in jungle rubber and rubber monoculture plantations and are considered arboreal.

Genus *Simaetha* Thorell, 1881

Simaetha cheni Wang & Li, 2021
Figs 43–46

Simaetha cheni Wang & Li, 2021: 151, figs 18a–c, 19a–h (♂♀).

Diagnosis and description

See Wang & Li (2021).

Material examined

INDONESIA – **Jambi Province** • 1 ♂; Sarolangun, Air Hitam, Desa Baru; 2°03′01.4″ S, 102°45′12.1″ E; elev. 48 m; 11 Jul. 2013; J. Drescher leg.; canopy fogging in oil palm plantation; GOET 2013_BO4.1_AraSalt011N_001 (deposited at MZB) • 1 ♂; Sarolangun, Pauh, Semaran; 2°05′30.5″ S, 102°48′08.4″ E; elev. 75 m; 20 Jun. 2013; J. Drescher leg.; canopy fogging in rubber plantation; GOET 2013_BR1.1_AraSalt011N_001 (deposited at MZB) • 1 ♂; Sarolangun, Air Hitam, Lubuk Kepayang; 2°04′36.0″ S, 102°46′22.4″ E; elev. 54 m; 27 Jun. 2013; J. Drescher leg.; canopy fogging in rubber plantation; ZMH ZMH-A0031836 • 2 ♂♂; Batang Hari, Hutan Harapan Conservation Area; 2°11′15.3″ S, 103°20′36.0″ E; elev. 69 m; 12 Sep. 2013; J. Drescher leg.; canopy fogging in rainforest; ZMH ZMH-A0031837, ZMH-A0031838 • 1 ♂; Batang Hari, Bajubang, Sungkai; 1°50′58.7″ S, 103°18′00.5″ E; elev. 56 m; 5 Jun. 2013; J. Drescher leg.; canopy fogging in jungle rubber plantation; GOET 2013_HJ3.1_AraSalt011N_001 (deposited at SMF) • 2 ♂♂; Batang Hari, Muara Bulian, Singkawang; 1°47′07.9″ S, 103°16′37.4″ E; elev. 56 m; 18 Jun. 2013; J. Drescher leg.; canopy fogging in jungle rubber plantation; GOET 2013_HJ4.1_AraSalt011N_001, 2013_HJ4.1_AraSalt011N_002 (to be transferred to MZB) • 1 ♂; same data as for preceding; GOET 2013_HJ4.2_AraSalt011N_001 (deposited at SMF) • 1 ♀; Batang Hari, Bajubang, Pompa Air; 1°52′44.6″ S, 103°16′28.4″ E; elev. 68 m; 17 May 2013; J. Drescher leg.; canopy fogging in rubber plantation; GOET 2013_HR2.1_AraSalt011N_001 (to be transferred to MZB).

Distribution

China, Sumatra: Jambi Province (new record).

Natural history

All specimens were collected by canopy fogging in oil palm, rubber monocultures, and jungle rubber plantations and are considered arboreal.

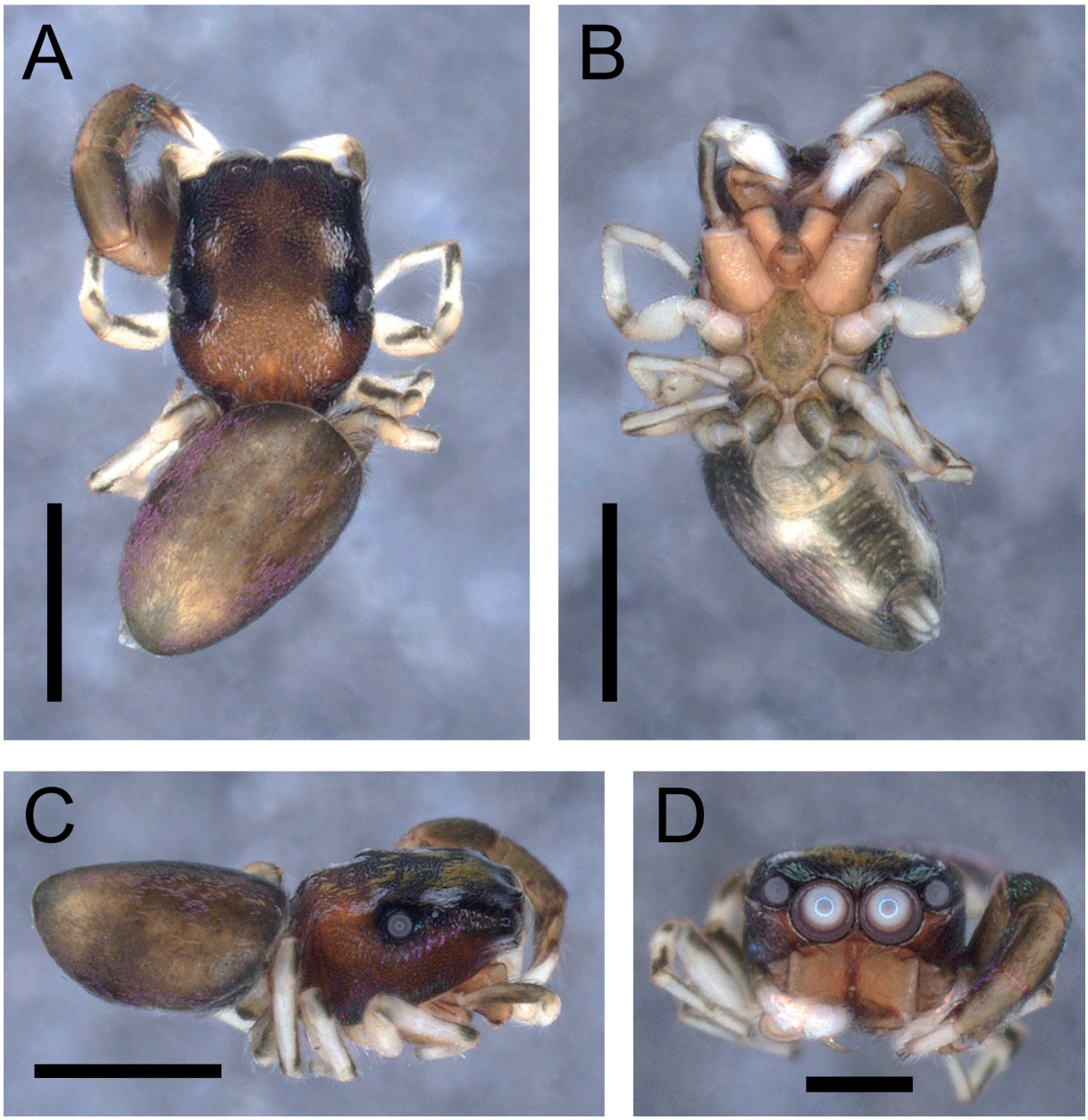

Fig. 43. *Simaetha cheni* Wang & Li, 2021, ♂ (AraSalt011N_HJ3.1_001). **A–C**. Habitus. **A**. Dorsal view. **B**. Ventral view. **C**. Lateral view. **D**. Prosoma, frontal view. Scale bars: A–C = 1 mm; D = 0.5 mm.

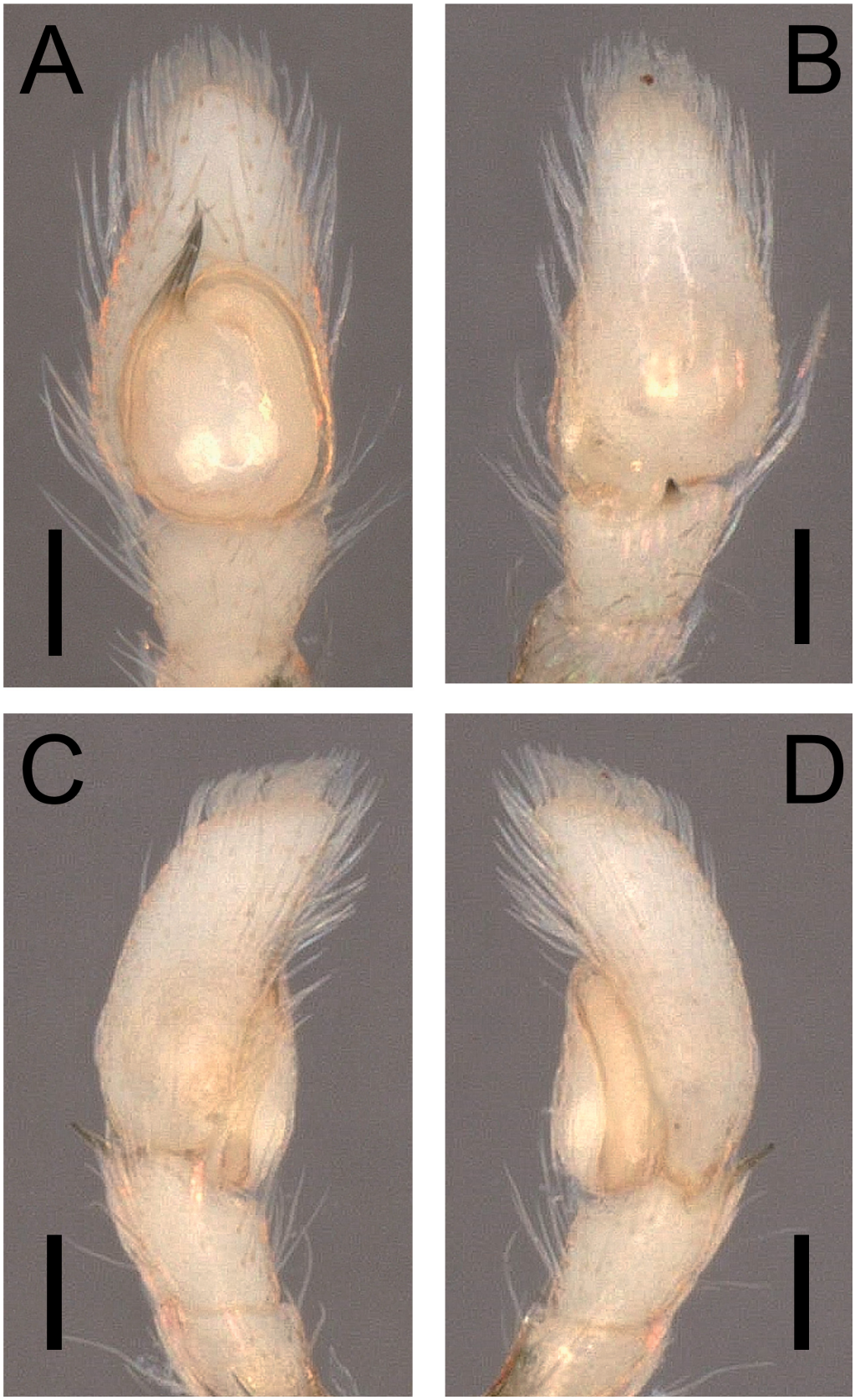

Fig. 44. *Simaetha cheni* Wang & Li, 2021, ♂ (AraSalt011N_HJ3.1_001), left palp. **A**. Ventral view. **B**. Dorsal view. **C**. Prolateral view. **D**. Retrolateral view. Scale bars = 0.1 mm.

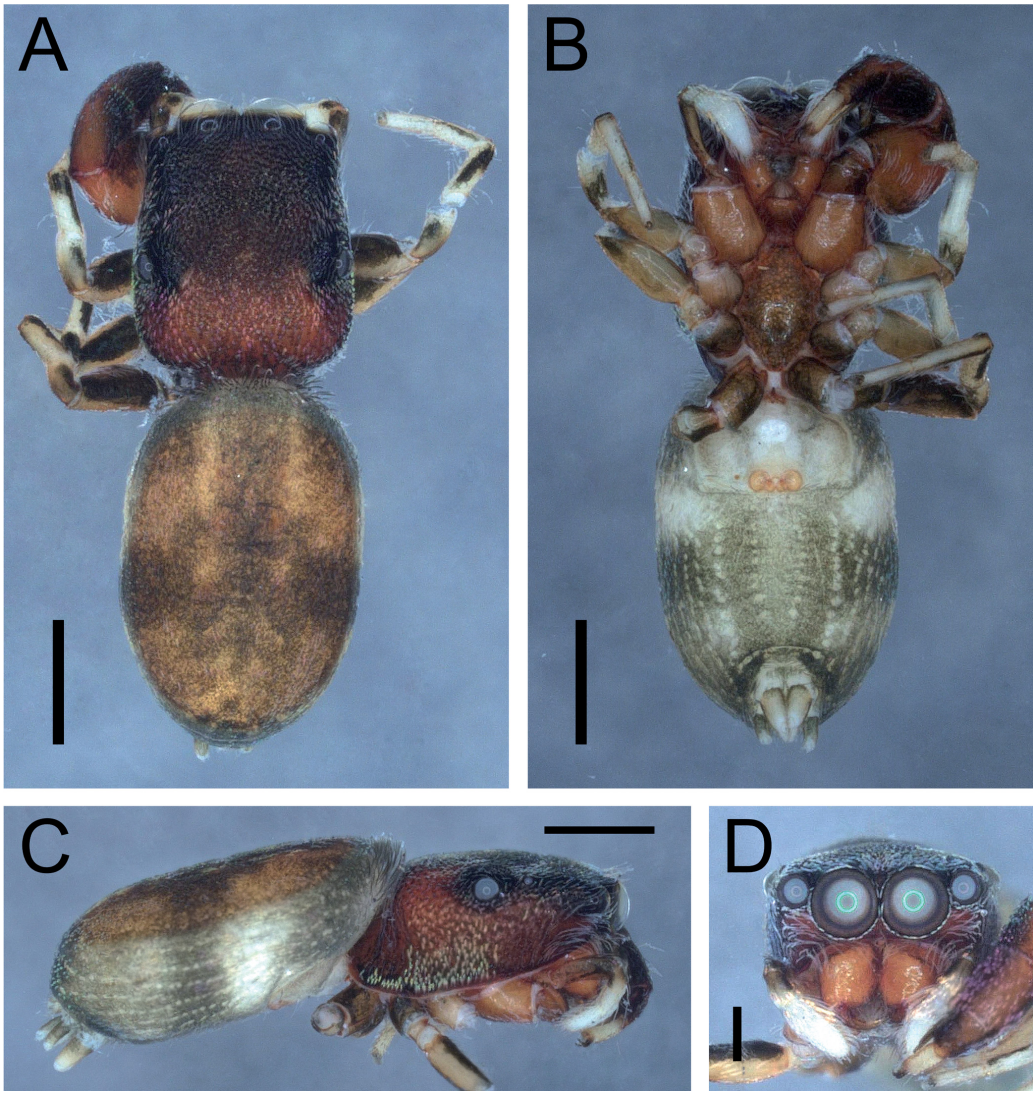

Fig. 45. *Simaetha cheni* Wang & Li, 2021, ♀ (AraSalt011N_HR2.1_001). **A–C**. Habitus. **A**. Dorsal view. **B**. Ventral view. **C**. Lateral view. **D**. Prosoma, frontal view. Scale bars: A–C = 0.5 mm; D = 0.2 mm.

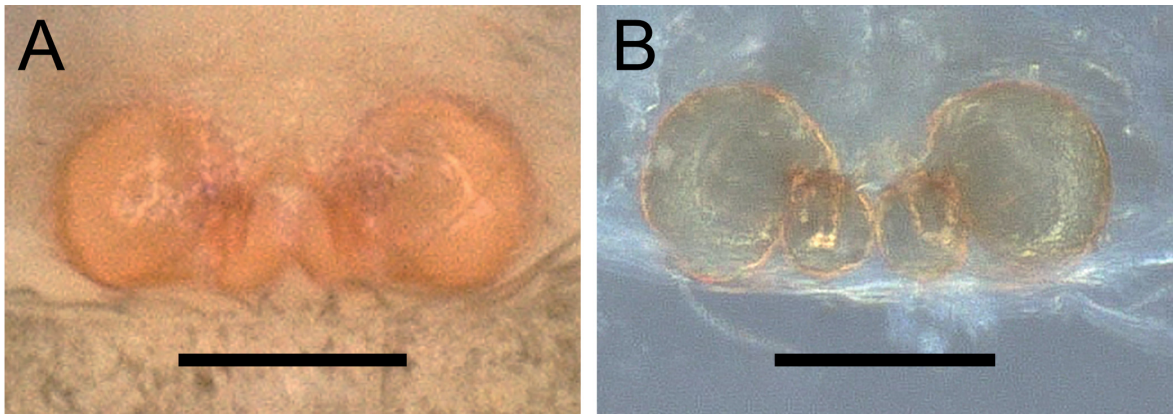

Fig. 46. *Simaetha cheni* Wang & Li, 2021, ♀ (AraSalt011N_HR2.1_001). **A**. Epigynum. Ventral view. **B**. Vulva, cleared, dorsal view. Scale bars = 0.1 mm.

Genus *Stertinius* Simon, 1890

Stertinius senja Dhiya'ulhaq sp. nov.
urn:lsid:zoobank.org:act:3A06AE45-DD90-4CBB-8FC3-7E535848C491
Figs 47–50

Diagnosis

Males of *Stertinius senja* Dhiya'ulhaq sp. nov. resemble those of *Stertinius nobilis* (Thorell, 1890) by short, relatively straight embolus and rounded cymbial process, but can be easily distinguished by having subtriangular, anterior tegular lobe (Fig. 48B, D vs absent in *S. nobilis* [Prószyński 1984: fig. 78]). Females resemble those of *Stertinius borneensis* Logunov, 2018 by genitalia but can be distinguished by posterior chambers of spermathecae bent at almost right angle in posterior view (Fig. 50D vs lightly curved in *S. borneensis* [Logunov 2018: fig. 3]); absence of central pocket (present in *S. borneensis*

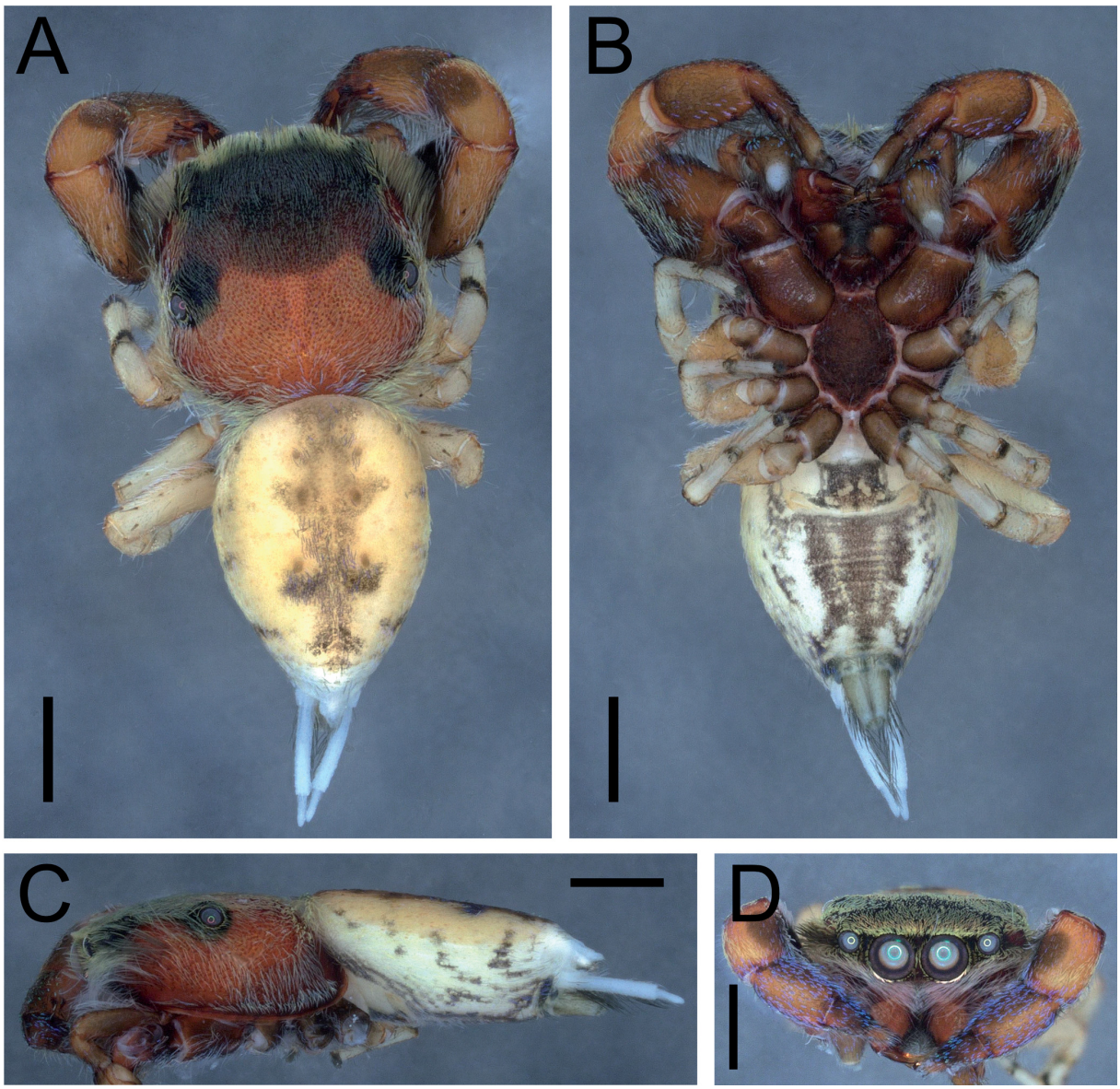

Fig. 47. *Stertinius senja* Dhiya'ulhaq sp. nov., holotype, ♂ (AraSalt69N_HJ2.1_011). **A–C**. Habitus. **A**. Dorsal view. **B**. Ventral view. **C**. Lateral view. **D**. Prosoma, frontal view. Scale bars = 0.5 mm.

[Logunov 2018: fig. 2]); and dark abdominal markings consisting of thick median stripe and five dark lateral stripes (Fig. 49A, C vs reticulate in anterior half and covering most of posterior half [Logunov 2018: fig. 5]).

Etymology

The specific epithet is taken from the Indonesian word '*senja*' meaning 'twilight' or 'sunset', as the yellow setae and iridescent scales of this species are reminiscent of the twilight during sunset. Noun in apposition.

Material examined

Holotype

INDONESIA – **Jambi Province** • ♂; Batang Hari, Bajubang, Pompa Air; 1°49′33.3″ S, 103°17′38.1″ E; elev. 51 m; 14 May 2013; J. Drescher leg.; canopy fogging in jungle rubber plantation; GOET 2013_HJ2.1_AraSalt069N_011 (to be transferred to MZB).

Paratypes

INDONESIA – **Jambi Province** • 1 ♀; same data as for holotype; GOET 2013_HJ2.1_AraSalt069N_012 (to be transferred to MZB) • 3 ♂♂, 7 ♀♀; same data as for holotype; ZMH ZMH-A0031839 to ZMH-A0031848 • 2 ♂♂, 3 ♀♀; same data as for holotype; GOET 2013_HJ2.2_AraSalt069N_001 to 2013_HJ2.2_AraSalt069N_005 (deposited at SMF) • 1 ♂, 2 ♀♀; Batang Hari, Bajubang, Sungkai; 1°50′8.7″ S, 103°18′00.5″ E; elev. 56 m; 5 Jun. 2013; J. Drescher leg.; canopy fogging in jungle rubber plantation; GOET 2013_HJ3.1_AraSalt069N_001, 2013_HJ3.1_AraSalt069N_002, 2013_HJ3.2_AraSalt069N_001 (deposited at SMF).

Description

Male (Figs 47–48)

Measurements. Total length 2.94. Carapace length 1.41; width 1.28. Opisthosoma length 1.53; width 1.13. Diameter of eyes: AME 0.36; ALE 0.16; PLE 0.14. Interdistances between eyes: ALE–ALE 0.81; ALE–PLE 0.62; PLE–PLE 1.08. Clypeus height 0.02. Leg measurements: leg I 2.11 (0.73, 0.35, 0.53, 0.27, 0.23); leg II 1.47 (0.50, 0.18, 0.31, 0.26, 0.22); leg III 1.38 (0.51, 0.20, 0.24, 0.24, 0.19); leg IV 1.80 (0.65, 0.26, 0.36, 0.28, 0.25).

Habitus and coloration. Carapace box-shaped, posteriorly wider, reddish-brown; covered in yellow setae dorsally and white setae on lateral margins and clypeus. Chelicerae reddish-brown, dentition: two promarginal, one retromarginal. Opisthosoma oval; dorsally covered in yellow scutum as well as long, lobed dark marking along middle; five pairs of faint dark stripes on lateral side; dark median area on ventral side; anterior spinnerets dark-gray; posterior lateral spinnerets pale with long median segment. Leg I much stouter than other legs, with very broad femora, colored as carapace, covered in flat, iridescent scales; rest of legs light-brown. Spinnerets: PLS elongated, pale; ALS half of PLS length, light-brown.

Palp (Fig. 48). Dorsal surface of palp covered in iridescent flat setae. Tibia length-to-width ratio 1.30. RTA as long as tibia, tapering to rounded apex, obliquely tilted dorsally. Cymbium rather broad, posterior margin oblique; cymbial process large, semicircular, partly hidden by RTA. Tegulum oval, possessing subtriangular anterior lobe. Sperm duct following margins of bulb, starting out broad on retrolateral margin, becoming thin on prolateral margin. Embolus arising at 11:00 position, thorn-shaped.

Female (Figs 49–50)

Measurements. Total length 2.81. Carapace length 1.24; width 1.06. Opisthosoma length 1.57; width 1.04. Diameter of eyes: AME 0.19; ALE 0.13; PLE 0.12. Interdistances between eyes: ALE–ALE 0.65; ALE–PLE 0.49; PLE–PLE 0.89. Clypeus height 0.02. Leg measurements: leg I 1.46 (0.55, 0.24, 0.34,

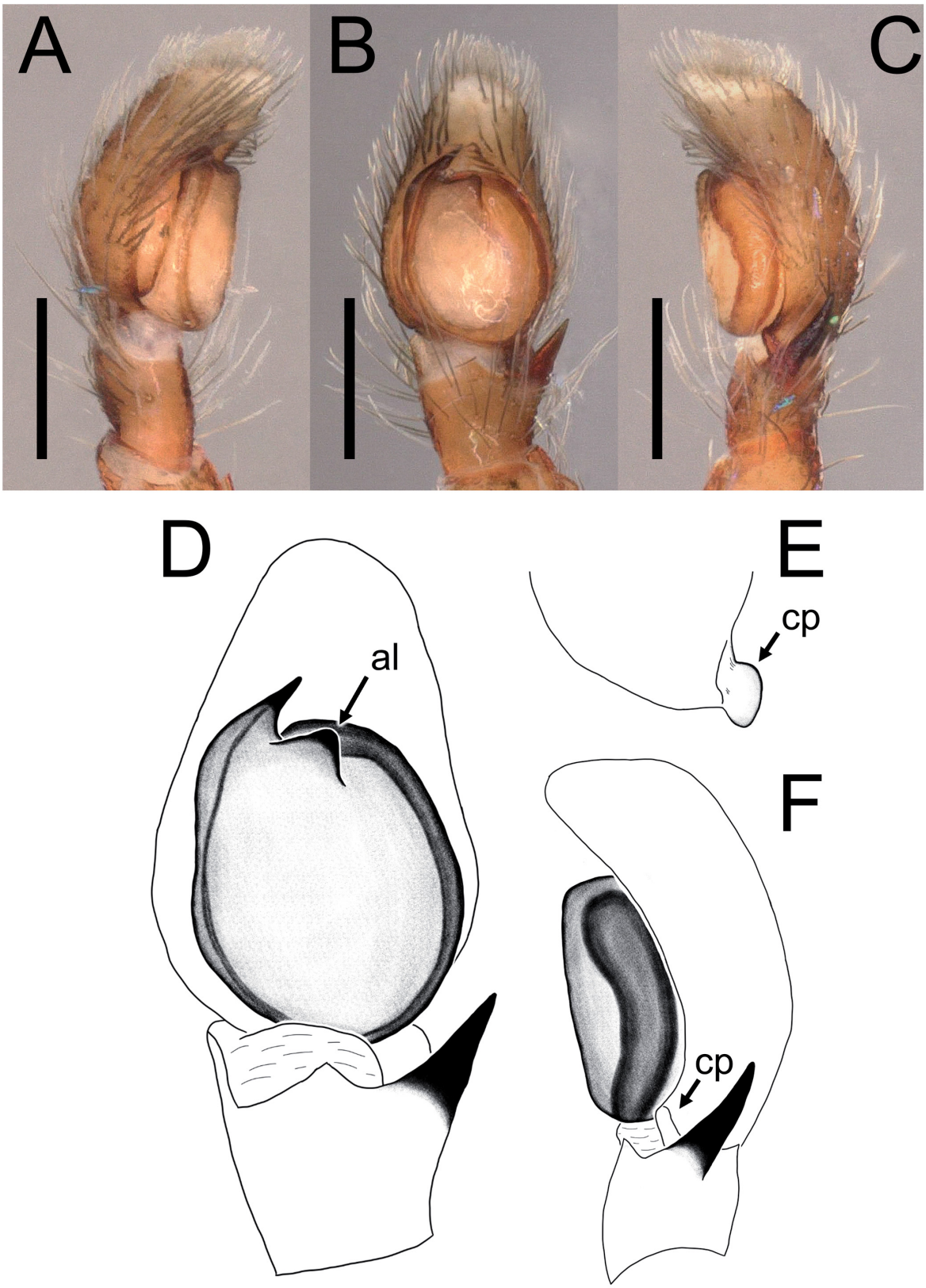

Fig. 48. *Stertinius senja* Dhiya'ulhaq sp. nov., holotype, ♂ (AraSalt69N_HJ2.1_011), left palp. **A**. Prolateral view. **B**, **D**. Ventral view. **C**, **F**. Retrolateral view. **E**. Base of cymbium, dorsal view. Abbreviations: al = anterior lobe of tegulum; cp = cymbial process. Scale bar = 0.2 mm.

0.14, 0.19); leg II 1.20 (0.38, 0.15, 0.27, 0.19, 0.21); leg III 1.02 (0.39, 0.10, 0.22, 0.14, 0.17); leg IV 1.56 (0.55, 0.18, 0.33, 0.25, 0.25).

Habitus and coloration. Female habitus as in male, except following: opisthosoma dorsally covered in six small scuta over sigillae; lateral dark markings on opisthosoma longer and more prominent; leg I not as stout as in male, colored lighter than carapace.

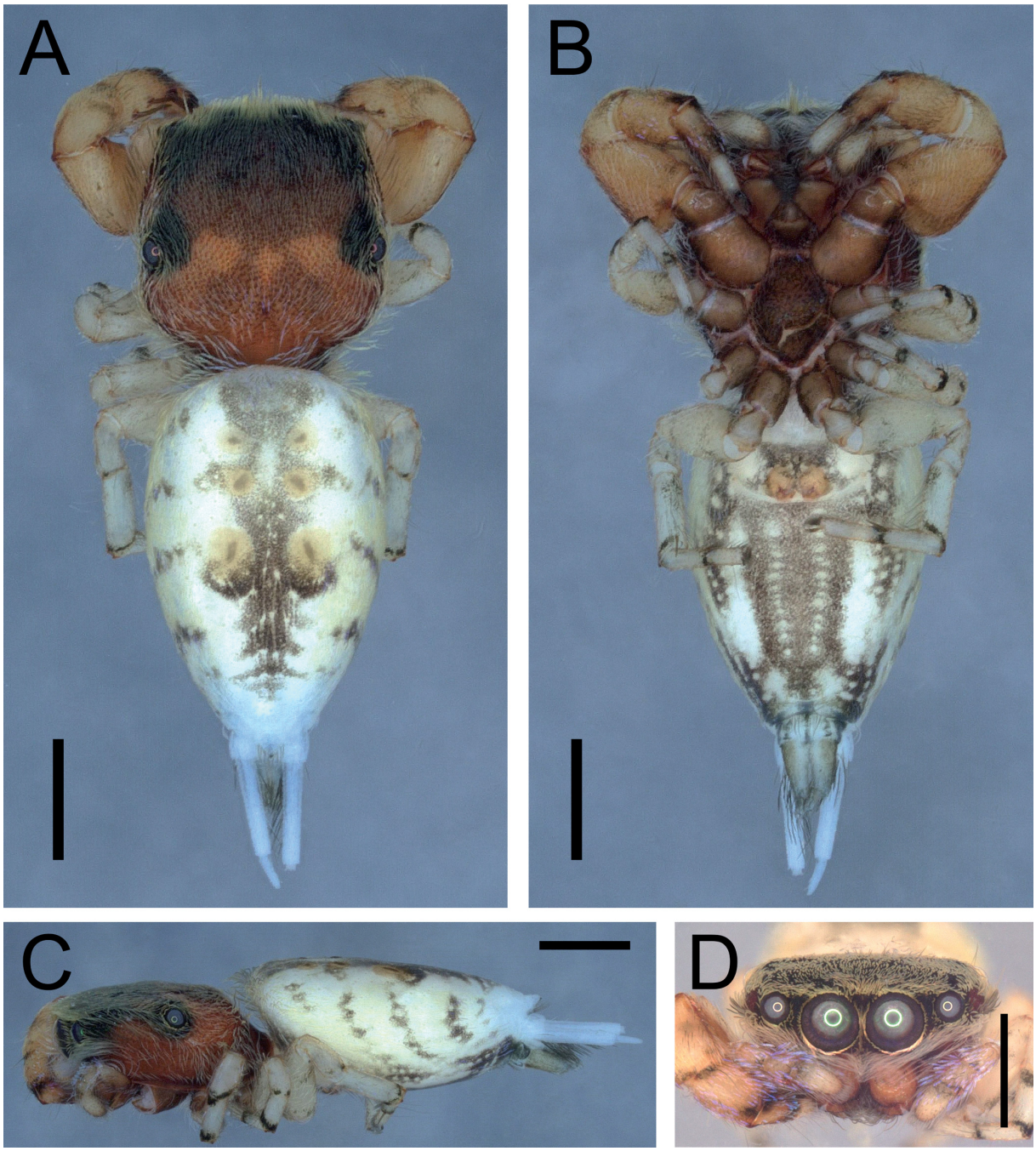

Fig. 49. *Stertinius senja* Dhiya'ulhaq sp. nov., paratype, ♀ (AraSalt69N_HJ2.1_012). **A–C**. Habitus. **A**. Dorsal view. **B**. Ventral view. **C**. Lateral view. **D**. Prosoma, frontal view. Scale bars = 0.5 mm.

Epigynum (Fig. 50). Epigynal plate oval, wider than long. Copulatory openings small, widely separated from each other. Copulatory ducts short. Spermatheca two-chambered; anterior chamber large, oval. Posterior spermatheca kidney-shaped, diameter approximately half diameter of anterior spermatheca, bent at almost right angle in posterior view; inlet of posterior spermatheca right next to inlet of anterior spermatheca. Central pocket absent. Fertilization ducts short, half length of posterior spermatheca and arising from ventral side of it, diagonally oriented.

Distribution

Sumatra: Jambi Province.

Natural history

All specimens were collected by canopy fogging in jungle rubber plantations and are considered arboreal.

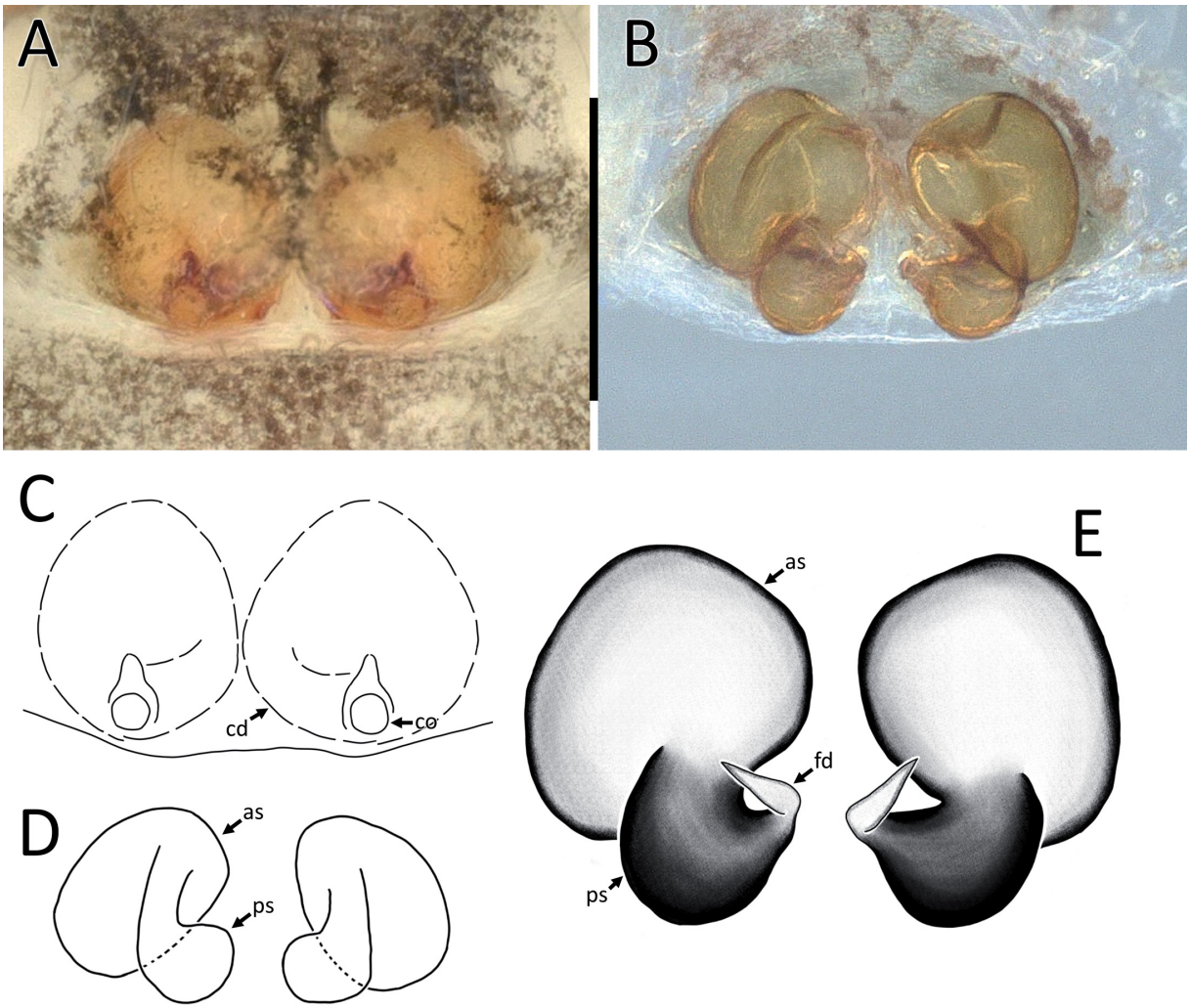

Fig. 50. *Stertinius senja* Dhiya'ulhaq sp. nov., paratype, ♀ (AraSalt69N_HJ2.1_012). **A, C**. Epigynum, ventral view. **B, E**. Vulva, cleared, dorsal. **D**. Posterior view. Abbreviations: as = anterior chamber of spermatheca; cd = copulatory duct; co = copulatory opening; fd = fertilization duct; ps = posterior chamber of spermatheca. Scale bars = 0.2 mm.

Discussion

The discovery of 11 new species from Sumatra, coupled with new records for two known jumping spider species, contributes significantly to the knowledge of the biodiversity within the region. The distribution of these species across different land-use systems emphasizes the importance of habitat diversity and conservation in support of spider diversity, especially with more natural habitats such as lowland rainforests and rubber agroforestry. Seven of these newly described species (*Chalcovietnamicus tikus* sp. nov., *Dendroicius garigi* sp. nov., *Epeus kepayang* sp. nov., *Indomarengo likaliku* sp. nov., *Pengmarengo gepeng* sp. nov., *Poecilorchestes keciknyo* sp. nov., and *Stertinius senja* sp. nov.) were found only within these more natural systems, underlining the vital contribution that such landscapes make towards maintaining biodiversity amidst widespread agricultural conversion.

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