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Monograph

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New data on zodariid spiders (Arachnida, Araneae) in the Middle East and Eastern Mediterranean

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Abstract. Although taxonomic research on zodariid spiders has a long history, the identification of many species has remained challenging due to insufficient documentation. In this study, we revisit 50 zodariid species from the Middle East and Eastern Mediterranean. For each taxon examined, we provide detailed photographic documentation of somatic and copulatory structures to facilitate future taxonomic investigations. Seven new species from three different genera are described: *Lachesana gavishae* Shafaie & Pekár sp. nov. (♂♀, Israel), *L. lubinae* Shafaie & Pekár sp. nov. (♂♀, Israel), *Pax akilae* Shafaie & Pekár sp. nov. (♂♀, Syria), *Zodarion jakubi* Shafaie & Pekár sp. nov. (♂♀, Oman), *Z. levyi* Shafaie & Pekár sp. nov. (♂♀, Israel and Syria), *Z. milani* Shafaie & Pekár sp. nov. (♂, Syria), and *Z. zonsteini* Shafaie & Pekár sp. nov. (♂, Cyprus and Israel). Re-examination of the *Z. nicki* type specimen confirms its distinction from *Z. nitidum*, and we provide redescriptions of both sexes of *Z. nitidum*. Additionally, the male of *Z. nicki* and the female of *Z. namrun* are described here for the first time. We revalidate *Z. tunetiacum* and designate a neotype based on newly examined material. Two new synonymies are also proposed: *Acanthinozodium crateriferum* syn. nov. is synonymized with *A. tibesti*, and *Z. kunti* syn. nov. is synonymized with *A. odem*. Furthermore, we report ten new country records: *A. odem* (Syria), *A. tibesti* (Egypt), *Z. abantense* (Greece), *Z. granulatum* (Syria), *Z. karpathos* (Turkey), *Z. morosum* (Syria), *Z. reticulatum* (Turkey), *Z. rhodiense* (Cyprus, Syria), *Z. thoni* (Iran, Greece), and *Z. tunetiacum* (Egypt).

Keywords. Ant-eating spiders, Central Asia, North Africa, new species.

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Introduction

Zodariidae Thorell, 1881, with a total number of 1307 species, including extant (World Spider Catalog 2025) and fossil (Dunlop *et al*. 2023) representatives, is amongst the most speciose spider families. The family has a wide distribution, with the highest species diversity occurring in tropical and subtropical regions of the Palearctic, Australian, African, and Neotropical realms. Despite remarkable progress in revealing the biodiversity of zodariids over the past decade (Jocqué & Henrard 2015; Bosmans *et al.* 2019; Coşar & Danişman 2021; Coşar *et al*. 2021, 2022; Lecigne & Henrard, 2022; Zamani & Marusik 2021, 2022), a large number of species remain poorly documented. For instance, over 41% of currently described species are known only from a single sex or juvenile specimens. In addition, 10 of the 90 recognized genera are monotypic (World Spider Catalog 2025).

The Middle East and Eastern Mediterranean lie at the intersection of five major biodiversity hotspots (Myers *et al.* 2000), suggesting a high potential for species richness (Krupp *et al*. 2009). Despite this, current records document only 113 species from 10 genera across four subfamilies – Cryptothelinae C.L. Koch, 1872; Lachesaninae Jocqué, 1991; Storeninae Simon, 1893; Zodariinae Simon, 1890 – in this vast region (World Spider Catalog 2025), suggesting that the actual biodiversity may be significantly underestimated. Notably, a considerable number of zodariid species have been reported from countries such as Greece, Turkey, Iran, and Israel. In contrast, many other countries in the region – including Lebanon, Egypt and Yemen – report fewer than nine species, while some – such as Oman and Kuwait – lack any formal occurrence records. This disparity highlights significant gaps in our understanding of zodariid distribution and emphasizes the need for intensified sampling and taxonomic research throughout the region.

While species-level identification in zodariid spiders traditionally relies on differences in the copulatory organ of both sexes, comparative examinations and habitus-based illustrations remain largely unavailable for most described species. This gap underscores a fundamental obstacle in zodariid taxonomy. For instance, *Zodarion extraneum* Denis, 1935, originally described from a single female specimen, was synonymized by Bosmans (1994) due to the absence of distinct copulatory organ differences between its holotype and specimens of *Z. styliferum* (Simon, 1870). Later, Pekár *et al*. (2003) elevated it to a subspecies, *Z. styliferum extraneum*, based on differences in chromosome number, chromosome systems and body coloration. In subsequent work, Pekár *et al*. (2012) noted that, despite partial reproductive isolation and the absence of mitochondrial DNA divergence between *Z. s. extraneum* (with the lightest coloration) and *Z. s. styliferum* (with the darkest coloration), the two populations displayed distinct ecological preferences, including differences in microhabitat and diet. Ortiz *et al*. (2021) expanded on these findings by conducting a large-scale phylogeographic study of the *Z. styliferum* complex across the Iberian Peninsula, revealing two allopatric species – one primarily in Portugal and the other in Spain. They explained the previously observed lack of mitochondrial divergence by identifying both lighter and darker morphs within each species. Most recently, Shafaie *et al*. (2025), after examining a large number of specimens, confirmed that the two species identified by Ortiz *et al*. (2021) could be distinguished by coloration of femora III and differences in male palp, thereby reinstating *Z. extraneum* as a valid species, predominantly distributed in western Iberia, especially in central-southern Portugal.

Similarly, a comparative study of *Z. nitidum* Audouin, 1826 by Pekár *et al*. (2022) identified marked ecological and behavioral differences between the black and yellow morphotypes, including variation in circadian activity, prey preferences, and venom composition. These distinctions were further supported by evidence of partial to complete pre-reproductive isolation, suggesting a probable case of recent sympatric speciation. Complementing these findings, Ortiz *et al*. (2024) conducted a genomic analysis that strongly supports the interpretation that the yellow and black morphs represent distinct and evolutionarily independent lineages, with no detectable recent gene flow. Notably, phylogenetic

reconstructions indicate that the yellow lineage is more closely related to *Z. luctuosum* (O. Pickard-Cambridge, 1872), a morphologically distinct species, than to the black lineage.

These studies collectively support the hypothesis that additional species complexes may exist within the genus *Zodarion*, warranting detailed scrutiny of populations across the genus to detect consistent morphological differences. Such complexes often comprise taxa that exhibit pronounced genetic divergence yet display little morphological differentiation. Recognizing that coloration may hold taxonomic value comparable to other morphological traits – and considering that such features have often been insufficiently documented – we aim to expand the current taxonomic dataset by including habitus photographs where such information is lacking. Our objective is to provide a comprehensive taxonomic revision of zodariid species from the Middle East and Eastern Mediterranean regions. Given the high species richness of this family in the region, our findings will be presented across multiple volumes to support and facilitate future taxonomic work.

Material and methods

All descriptions were obtained from specimens immersed in ethanol. The vulva was dissected and treated for 5–11 min by gentle boiling in 20% KOH. The specimens were photographed using a KEYENCE VHX-5000 digital microscope, and the images were enhanced using Adobe Photoshop CS2 Extended. All measurements are in millimeters. The lengths of the palp and leg segments are measured on the dorsal side and are given as: total (femur, patella, tibia, metatarsus [not present in palp], and tarsus). The spination of legs I–IV is reported only for species of *Lachesana*. The terminology used follows that of Jocqué (1991), Levy (1992), and Bosmans (1994).

Institutional abbreviations and curators

CMU = Collection of Masaryk University, Brno, Czech Republic (S. Pekár)
HNHM = Hungarian Natural History Museum, Budapest, Hungary (W. Wins)
HUJ = Hebrew University of Jerusalem, Jerusalem, Israel (E. Gavish-Regev)
MMBC = Moravské Zemské Muzeum, Brno, Czech Republic (J. Mitáček)
MNHN = National Museum of Natural History, Paris, France (C. Rolland)
MSNB = Museo Civico di Scienze Naturali "E. Caffi", Bergamo, Italy (P. Pantini)
NMBE = Natural History Museum in Bern, Bern, Switzerland (C. Kropf)
NMP = National Museum in Prague, Prague, Czech Republic (P. Dolejš)
OUMNH = Oxford University Museum of Natural History, Oxford, United Kingdom (Z. Simmons)
SMF = Natural History Museum of Senckenberg, Frankfurt am Main, Germany (P. Jäger)
ZMFUM = Zoological Museum of the Ferdowsi University of Mashhad, Mashhad, Iran (O. Mirshamsi)
ZMH = Zoological Museum of Nature, Hamburg, Germany (D. Harms)
ZMMU = Zoological Museum of the Moscow State University, Moscow, Russia (K. G. Mikhailov)
ZMUT = Zoological Museum of the University of Turku, Turku, Finland (V. Vahtera)

Abbreviations for morphological terms

ALE = anterior lateral eye
AME = anterior median eye
Ap = anterior pocket
Br = base of retrolateral tibial apophysis
Co = conductor
Cp = conductoral prong
Cx = coxa
d = dorsal
Em = embolus
FD = fertilization duct

Fe = femur
juv. = juvenile(s)
MA = median apophysis
Ml = lamellar extension of the median apophysis
Mp = median platelet
Ms = median scape
Mt = metatarsus
p = prolateral
Pa = patella
PLE = posterior lateral eye
PMA = prolateral process of median apophysis
PME = posterior median eye
PVS = posterior ventral spines
r = retrolateral
RTA = retrolateral tibial apophysis
Sh = spermathecal head
Sm = spermathecal medial tube
Ss = spermathecal stalk
Ta = tarsus
Ti = tibia
Ts = tibial spur
v = ventral
Va = ventro-retrolateral apophysis
VTP = ventral transparent protrusion of the palpal tibia

Results

Class Arachnida Cuvier, 1812
Order Araneae Clerck, 1757
Family Zodariidae Thorell, 1881
Subfamily Lachesaninae Jocqué, 1991

Genus ***Lachesana*** Strand, 1932

Type species

Lachesis perversa Audouin, 1826.

Diagnosis

For genus diagnosis, refer to Jocqué (1991).

Lachesana gavishae Shafaie & Pekár sp. nov.
urn:lsid:zoobank.org:act:E314B50D-8742-4003-BC4B-13F516A87F71
Figs 1–3, 106; Tables 1–2

Diagnosis

The male of *L. gavishae* sp. nov. resembles those of *L. perseus* Zamani & Marusik, 2021 in the general shape of the retrolateral tibial apophysis, and *L. insensibilis* Jocqué, 1991 in the bulb details and the mesoproximal spines on the cymbium. However, the new species can be distinguished from the former species by (1) the presence of spines on the mesoproximal part of cymbium (vs absent, cf. Fig. 2A, D

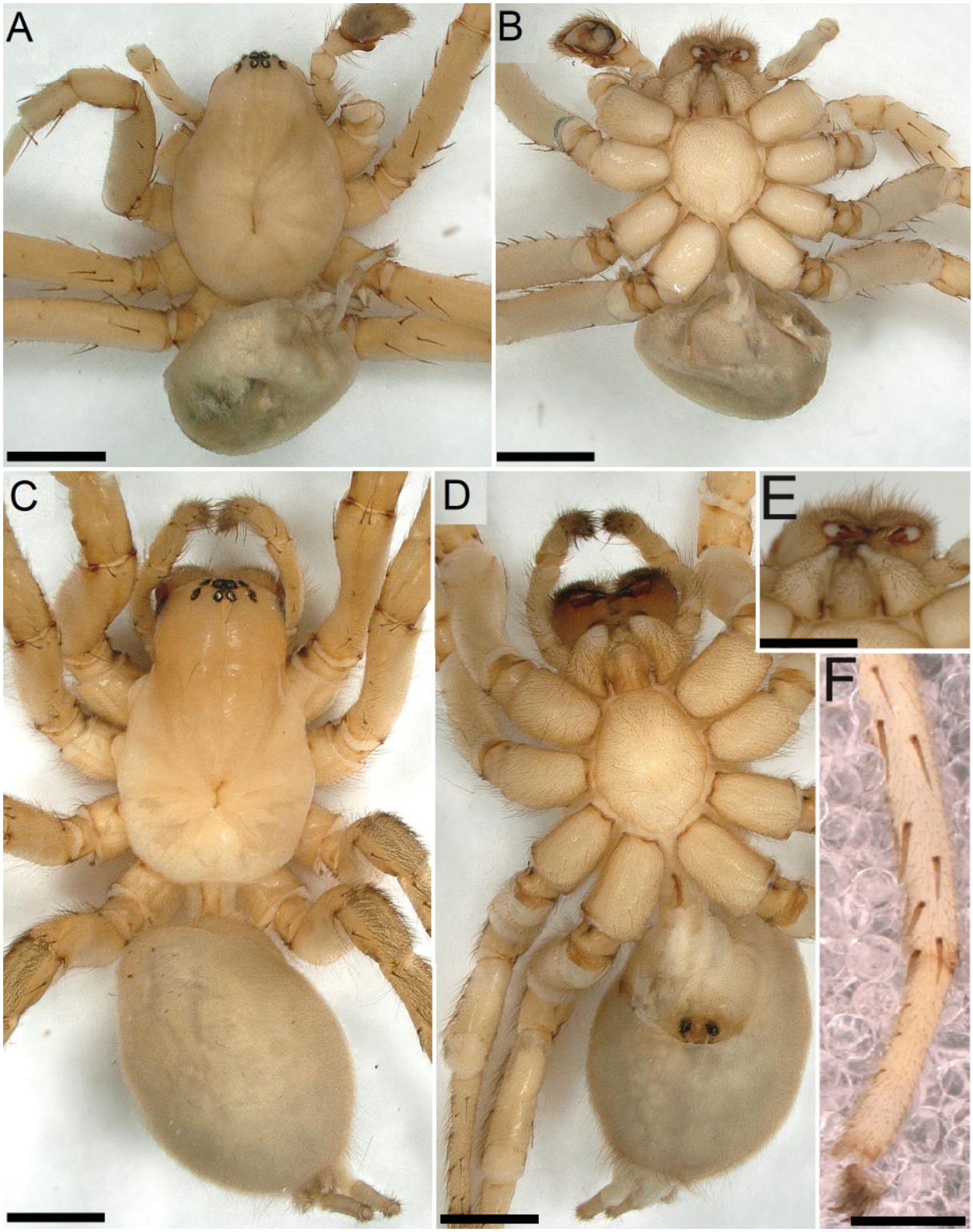


Fig. 1. *Lachesana gavishae* Shafaie & Pekár sp. nov. **A–B**, **E–F**. Holotype, ♂ (HUJINV-Ar 21312). **C–D**. Paratype, ♀ (HUJINV-Ar 21313). **A**. Habitus, dorsal view. **B**. Habitus, ventral view. **C**. Habitus, dorsal view. **D**. Habitus, ventral view. **E**. Carapace, ventral view. **F**. Leg I, lateral view. Scale bars: A–E = 2 mm; F = 1 mm.

and Zamani & Marusik 2021: fig. 3h, j); and (2) the uniformly pale and patternless abdomen (vs with distinct pattern, cf. Fig. 1A and Zamani & Marusik 2021: fig. 1e). The new species can be distinguished from *L. insensibilis* by having at least 1.5 times as many spines on each leg (e.g., leg IV, 53 in *L. gavishae* vs 20 in *L. insensibilis*) and the absence of a scutum (Fig. 1A). In addition, the new species might be distinguished from all other species of *Lachesana* by the smallest body size (7.8 mm vs <9.8 mm) and by the retrolateral tibial apophysis with a rather short and pointed tip (Fig. 2C, G). The female can be distinguished from those of other congeners by a heart-shaped epigynal plate with large lobes that are strongly chitinized anterolaterally (Fig. 3A, C) (vs not heart-shaped), as well as by a unique form of spermathecae, comprising a slightly divergent, upward-sloping straight spermathecal stalk ending in a convergent, globular spermathecal head (vs a cylindrical head in *L. rufiventris* Simon, 1873; exclusively divergent in *L. tarabaevi* Zonstein & Ovtchinnikov, 1999; cf. Fig. 3B, and Levy 1990: fig. 19 and Zonstein & Ovtchinnikov 1990: fig. 4, respectively).

Etymology

The new species is named in honor of our Israeli colleague, Efrat Gavish-Regev.

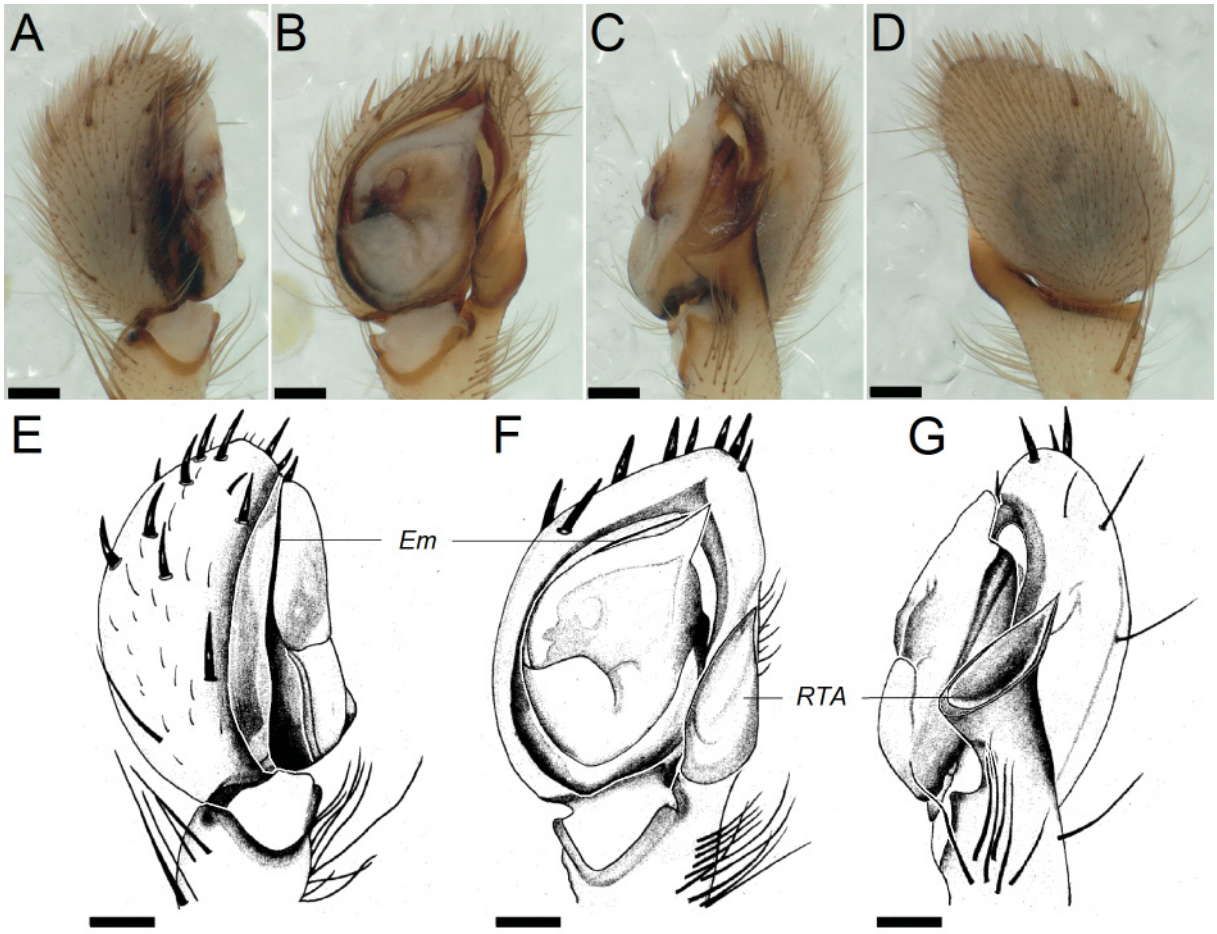


Fig. 2. Male palp of *Lachesana gavishae* Shafaie & Pekár sp. nov., holotype (HUJINV-Ar 21312). **A**. Prolateral view. **B**. Ventral view. **C**. Retrolateral view. **D**. Dorsal view. **E**. Prolateral view. **F**. Ventral view. **G**. Retrolateral view. Abbreviations: see Material and methods. Scale bars: 0.2 mm.

Type material

Holotype

ISRAEL • ♂; Negev Desert, Mashabim; 31.007° N, 34.739° E; 27–30 Mar. 2007; S. Pekár and S. Hénriques leg.; sand; HUJINV-Ar 21312.

Paratypes

ISRAEL • 2 ♀♀; same collection data as for holotype; 20 Mar. 2007; HUJINV-Ar 21313, HUJINV-Ar 21314.

Other material examined

ISRAEL • 1 ♀, 9 juv.; same collection data as for paratypes; CMU • 1 juv.; same collection data as for paratypes; 27–30 Mar. 2007; S. Pekár and S. Hénriques leg.; CMU • 3 juv.; same collection data as for paratypes.; 4 Apr. 2009; J. Král leg.; CMU.

Description

Male

Habitus (Fig. 1A–B, E–F). Carapace yellow; chelicerae, mouthparts, sternum, and spinnerets pale; labium arrow-shaped and considerably longer than wide; gnathocoxae 1.5 times as long as labium. Chelicerae mesally densely covered with brown setae. Legs entirely dirty yellow except for ventrally pale coxae; legs with 214 spines (Table 1). Abdomen dirty yellow on both sides, without scutum.

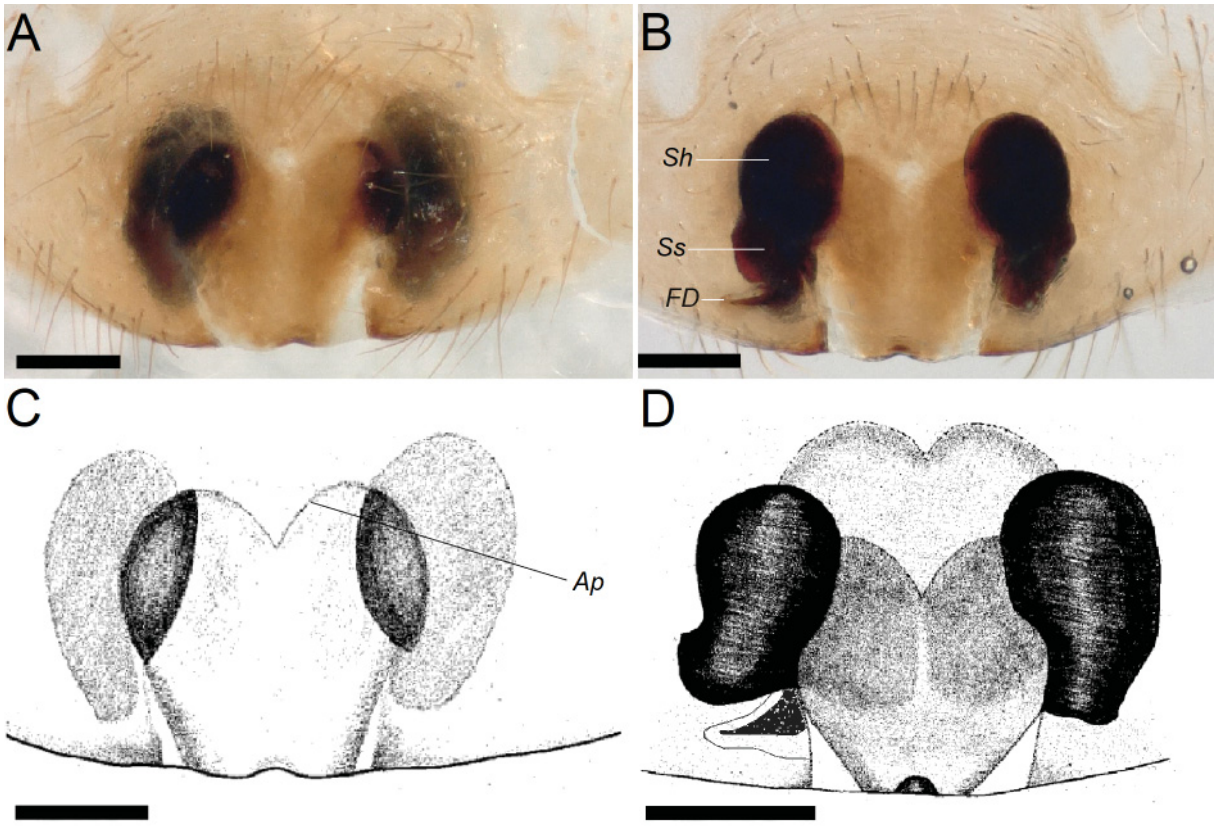


Fig. 3. Female copulatory organ of *Lachesana gavishae* Shafaie & Pekár sp. nov., paratype (HUJINV-Ar 21313). **A**. Intact epigyne, ventral view. **B**. Vulva, ventral view. **C**. Epigyne, ventral view. **D**. Vulva, ventral view. Abbreviations: see Material and methods. Scale bars: 0.2 mm.

Table 1. Male leg spination of *Lachesana gavishae* Shafaie & Pekár sp. nov. Abbreviations: d = dorsal; Fe = femur; Mt = metatarsus; p = prolateral; Pa = patella; r = retrolateral; Ti = tibia; v = ventral.

	Fe	Pa	Ti	Mt	Total
I	d4 p5 r6 v1	p1 r1	p4 r2 v10	p2 r5 v9	50
II	d4 p7 r5 v1	d1 p2 r1	p4 r3 v12	p4 r2 v11	57
III	d3 p6 r4 v5	d1 p2 r1	d2 p3 r4 v6	d3 p3 r2 v9	54
IV	d4 p6 r4 v3	d2 p1 r1	d2 p3 r4 v6	d3 p5 r2 v7	53

Measurements. Total length 7.85; carapace 4.4 long, 2 wide at pars cephalica, 3.15 wide at pars thoracica. Eye sizes and interdistances: AME: 0.19, ALE: 0.12, PME: 0.15, PLE: 0.17, AME–AME: 0.04, AME–ALE: 0.06, ALE–ALE: 0.37, PME–PME: 0.06, PME–PLE: 0.19. Legs: I 13.55 (4.25, 1.56, 3.12, 2.81, 1.81), II 14.68 (3.81, 1.5, 3.06, 4.06, 2.25), III 13.33 (4.06, 0.09, 1.94, 4.87, 2.37), IV 16.47 (4.68, 1.75, 2.93, 5.68, 1.43). Palp: 4.1 (1.6, 0.7, 0.5, 1.3).

Palp (Fig. 2A–G). RTA distally oblique, both pro/retrolateral edges parallel, dorsal part tapering blade-like; RTA about 0.6 times as long as tibia, widest part over 3 times as wide as stalk. Cymbium with spines on mesoproximal side; bulb 1.5 times as long as wide. Embolus filamentous, embolar base large, about half the length of tegulum.

Female (paratype HUJINV-Ar 21313)

Habitus (Fig. 1C–D). Carapace yellow anteriorly, pale posteriorly; chelicerae yellowish-orange covered by black setae. Mouthparts, sternum and abdomen similar to those in male; gnathocoxae triangular shield-shaped, yellow proximally and pale distally. Carapace and abdomen without pattern. Spinnerets pale proximally and dirty yellow distally. Legs entirely yellow, with 97 spines (Table 2).

Measurements. Total length 10.95; carapace 5.4 long, 2.4 wide at pars cephalica, 3.52 wide at pars thoracica. Eye sizes and interdistances: AME: 0.15, ALE: 0.12, PME: 0.12, PLE: 0.13, AME–AME: 0.06, AME–ALE: 0.09, ALE–ALE: 0.46, PME–PME: 0.09, PME–PLE: 0.34. Legs: I 12.8 (4.1, 1.9, 2.9, 2.4, 1.5), II 12.5 (4.7, 1.8, 2.1, 2.5, 1.4), III 11.3 (3.3, 1.8, 1.5, 3, 1.7), IV 14.1 (3.9, 1.8, 2.5, 3.9, 2).

Epigyne (Fig. 3A–D). Epigynal plate about 1.3 times as wide as long, including heart-shaped plate, both large lobes darkly chitinized anterolaterally; two divergent copulatory ducts extended laterally. Anterior pockets strongly sinuous, touching each other. Spermathecae situated along epigynal plate and confining edges of epigynal pockets, including rather long, divergent, upward-sloping straight spermathecal stalks ending in globular and convergent spermathecal heads; spermathecal heads separated by about their diameter.

Size variation

Total body length 10.95–13.77, carapace length/width 5.4–6.87/2.4–3.5 in females (N = 3).

Distribution

The species is currently only known from the type locality in Israel.

Table 2. Female leg spination of *Lachesana gavishae* Shafaie & Pekár sp. nov. Abbreviations: d = dorsal; Fe = femur; Mt = metatarsus; p = prolateral; Pa = patella; r = retrolateral; Ti = tibia; v = ventral.

	Fe	Pa	Ti	Mt	Total
I	d4 p1 r1 v0	p2 r1	p0 r0 v4	p0 r0 v10	23
II	d4 p1 r0 v0	P1 r0	p2 r0 v2	p1 r0 v10	21
III	d4 p1 r0 v0	p3 r2	d0 p3 r4 v0	d1 p3 r2 v6	29
IV	d3 p0 r0 v0	p3 r1	d0 p3 r2 v0	d1 p4 r2 v5	24

Lachesana lubinae Shafaie & Pekár sp. nov.
urn:lsid:zoobank.org:act:EF76D45C-001C-4947-B30C-D43AD30FF63C
Figs 4–6, 106; Tables 3–4

Diagnosis

This new species is most similar to *L. gavishae* sp. nov. in terms of body coloration and overall palp morphology. The male of the new species can be recognized by a wider retrolateral tibial apophysis apical width/basal width ratio (3.8 vs 3.1); and different number of spines on leg segments and cymbium (i.e., metatarsus spines 89 vs 57 and cymbium spines 9 vs 16). The female can be distinguished by a remarkably spatulated, mushroom-shaped epigynal plate (vs heart-shaped, cf. Fig. 6A, C and Fig. 3A, C), and convergent spermathecal stalks ending in kidney-shaped spermathecal heads (vs parallel spermathecal stalks, with globular spermathecal heads, cf. Fig. 6B, D and Fig. 3B, D). Furthermore, the total number of leg spines can separate both adult and juvenile specimens of *L. lubinae* sp. nov. from those of *L. gavishae* (>130 spines vs <97).

Etymology

This species is named in honor of our colleague, the Israeli arachnologist, Yael Lubin.

Type material

Holotype

ISRAEL • ♂; Negev Desert, Mashabim; 31.007° N, 34.739° E; 19 Oct. 2004; J. Král leg.; sands; HUJINV-Ar 21315.

Paratype

ISRAEL • 1 ♀; same collection data as for holotype; 20 Mar. 2007; S. Pekár leg.; HUJINV-Ar 21316.

Other material examined

ISRAEL • 6 juv.; same collection data as for paratype; CMU • 7 juv.; same collection data as for paratype; 27–30 Mar. 2007; S. Pekár and S. Hénriques leg.; CMU • 2 juv.; same collection data as for paratype; 4 Apr. 2009; J. Král leg.; CMU.

Description

Male

Habitus (Fig. 4A–B, E, G). Carapace dark yellow, with several pale stripes radiating from fovea; chelicerae, gnathocoxae, and arrow-shaped labium pale, labium as long as wide; chelicerae mesally densely covered with thin, brown setae; gnathocoxae 1.6 times as long as labium. Sternum pale. Fe, Pa,

Ti, and Mt of all legs and Ta II–IV yellow dorsally and pale ventrally. Ta I brownish-orange, Ta I about 1.5 times as stout as Ta II. Legs with 272 spines (Table 3). Abdomen missing.

Measurements. Carapace 6 long, 2.5 wide at pars cephalica, 4.5 wide at pars thoracica. Eye sizes and interdistances: AME: 0.2, ALE: 0.23, PME: 0.16, PLE: 0.2, AME–AME: 0.03, AME–ALE: 0.13, ALE–ALE: 0.6, PME–PME: 0.07, PME–PLE: 0.2. Legs: I 17.5 (5.2, 2.1, 4, 4, 2.2), II 17.6 (5, 4, 1.8, 5, 1.8), III 17.9 (5.2, 1.9, 3, 5.6, 2.2), IV 21.4 (5.2, 2.2, 4, 7, 3). Palp: 4.1 (2, 0.8, 0.48, 1.76).

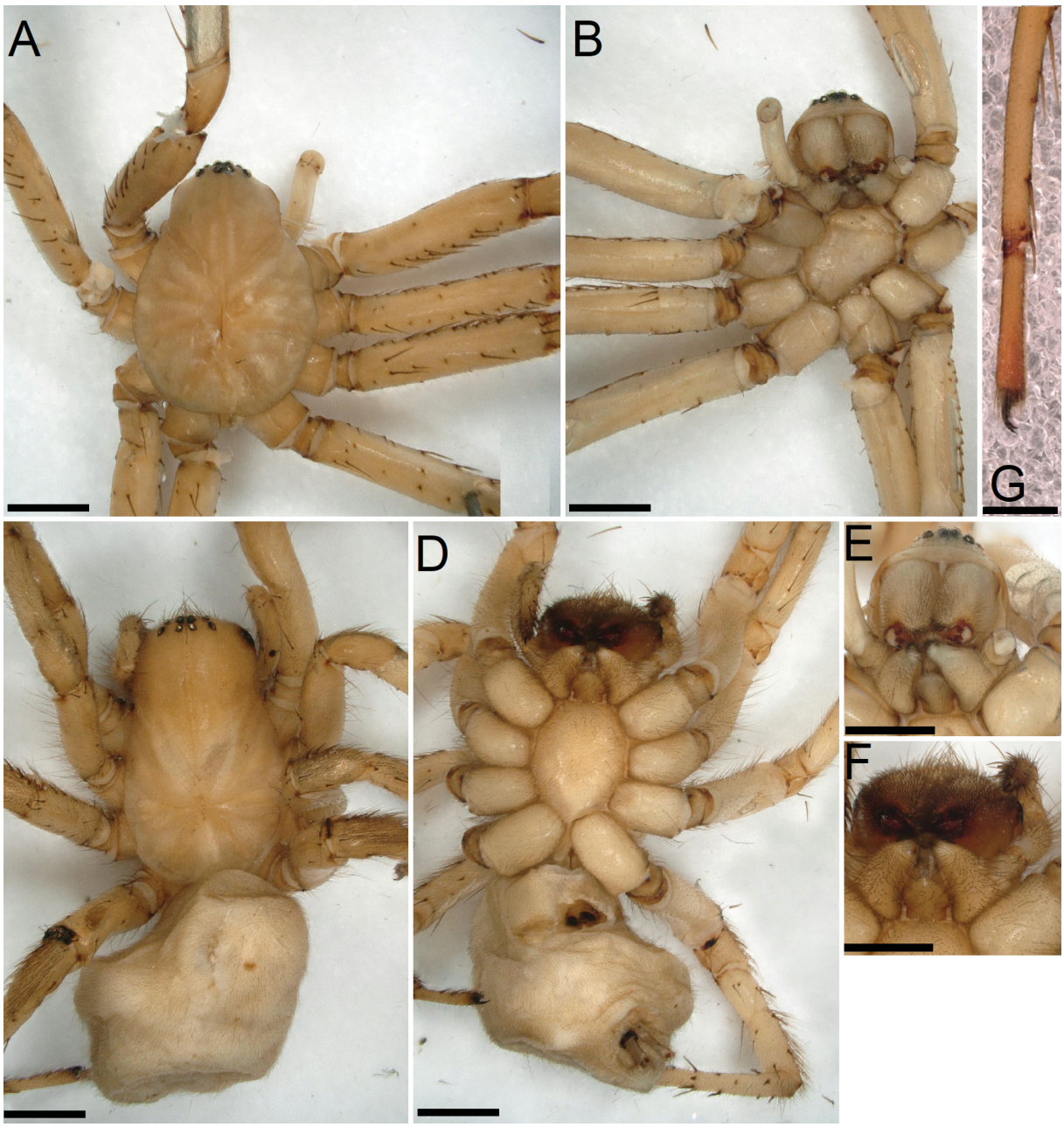


Fig. 4. *Lachesana lubinae* Shafaie & Pekár sp. nov. **A–B**, **E**, **G**. Holotype, ♂ (HUJINV-Ar 21315). **C–D**, **F**. Paratype, ♀ (HUJINV-Ar 21316). **A**. Habitus, dorsal view. **B**. Habitus, ventral view. **C**. Habitus, dorsal view. **D**. Habitus, ventral view. **E**. Carapace, ventral view. **F**. Carapace, ventral view. **G**. Leg I, lateral view. Scale bars: A–F = 2 mm; G = 1 mm.

Table 3. Male leg spination of *Lachesana lubinae* Shafaie & Pekár sp. nov. Abbreviations: d = dorsal; Fe = femur; Mt = metatarsus; p = prolateral; Pa = patella; r = retrolateral; Ti = tibia; v = ventral.

	Fe	Pa	Ti	Mt	Total
I	d4 p9 r12 v1	p2 r1	p4 r1 v8	p1 r0 v11	54
II	d4 p13 r11 v1	p2 r0	p4 r3 v9	p4 r3 v12	67
III	d6 p9 r3 v5	p3 r1	d3 p6 r5 v6	d3 p9 r6 v9	74
IV	d6 p7 r3 v6	p3 r1	d3 p7 r3 v7	d3 p10 r6 v12	77

Palp (Fig. 5A–G). RTA distally oblique, without parallel edges (prolateral edge inclined, retrolateral edge arch-shaped), dorsal part triangular. The RTA about 1.6 times as long as palpal tibiae, widest part over 3 times as wide as stalk of apophysis. Cymbium without spines in mesoproximal part. Bulb about 1.7 times as long as wide. Embolus filamentous, embolar base large, about half the length of tegulum.

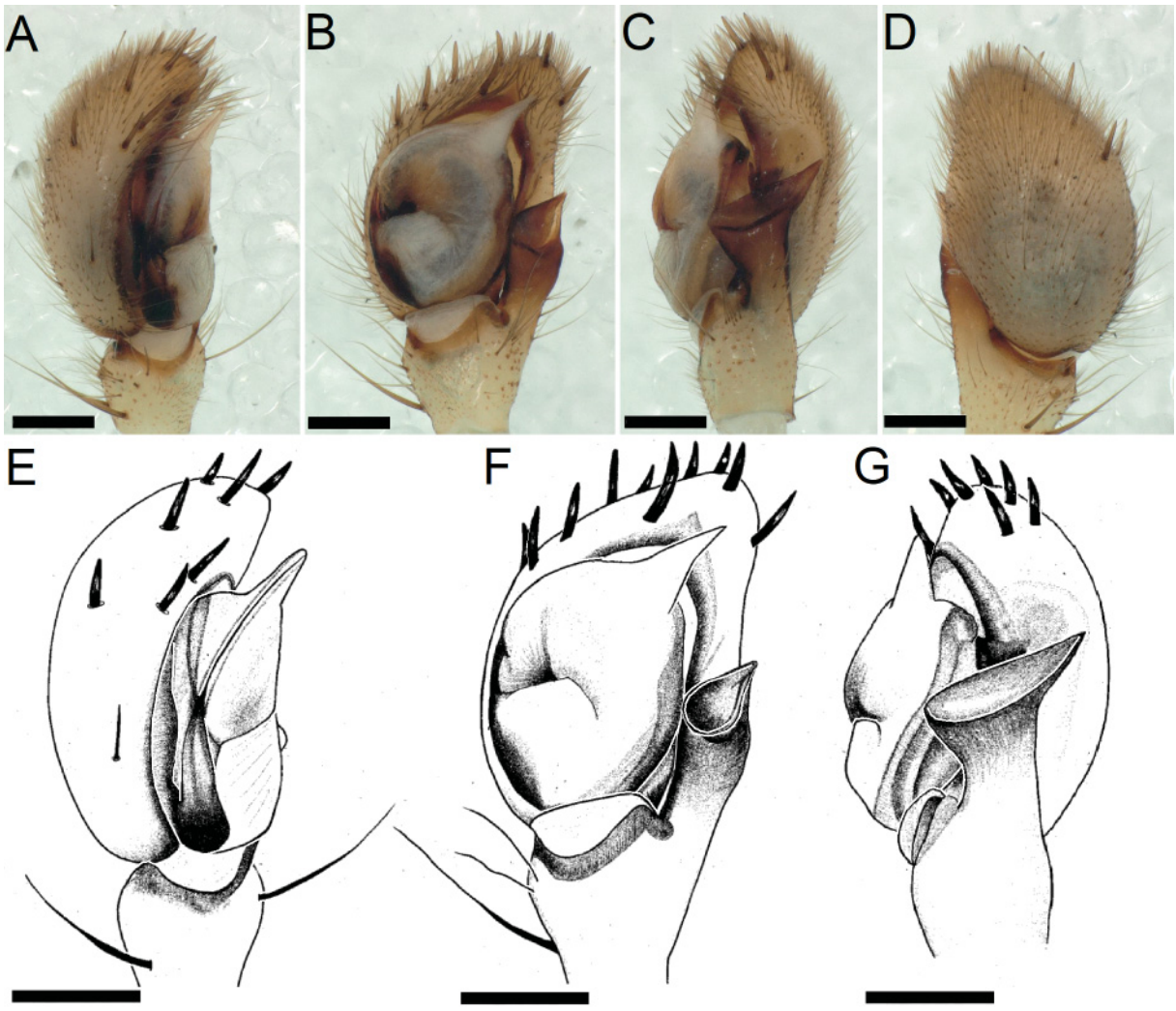


Fig. 5. Male palp of *Lachesana lubinae* Shafaie & Pekár sp. nov., holotype (HUJINV-Ar 21315). **A**. Prolateral view. **B**. Ventral view. **C**. Retrolateral view. **D**. Dorsal view. **E**. Prolateral view. **F**. Ventral view. **G**. Retrolateral view. Scale bars: 0.2 mm.

Female (paratype HUJINV-Ar 21316)

Habitus (Fig. 4C–D, F). Carapace and sternum similar to those in male; chelicerae dark yellow, with black setae; gnathocoxae and arrow-shaped labium pale, labium as wide as long. Fe, Pa, Ti, and Mt of all legs yellow dorsally and pale ventrally. Tarsal tips brownish-orange (Ta I the darkest), Ta I about 1.5 times as stout as Ta II; Legs with 142 spines (Table 4). Abdomen pale yellow on both sides, with no pattern; spinnerets dirty yellow.

Measurements. Total length 10.85; carapace 5.35 long, 2.4 wide at pars cephalica, 3.6 wide at pars thoracica. Eye sizes and interdistances: AME: 0.19, ALE: 0.12, PME: 0.15, PLE: 0.17, AME–AME: 0.03, AME–ALE: 0.06, ALE–ALE: 0.37, PME–PME: 0.06, PME–PLE: 0.19. Legs: I 15.55 (5, 2.25, 3.5, 3, 1.8), II 13.2 (3.95, 1.6, 2.7, 3.1, 1.85), III 13.46 (4.1, 1.85, 1.86, 3.4, 2.25), IV 17.75 (4.85, 2.25, 3.25, 4.85, 2.35). The palpal segments were not measured.

Epigyne (Fig. 6A–D). Epigyne enlarged, fusiform and about 1.8 times as wide as long, epigyne slightly extended posteriorly, the copulatory openings separated by plate equal to half of epigyne width. Anterior pockets touching each other. Spermathecae comprising basally stout and apically thinner spermathecal stalks, ending in large kidney-shaped spermathecal heads; spermathecal heads convergent, confined to the epigynal plate borders, and not reaching the edges of epigynal pockets, anterior lobes more swollen; spermathecal heads separated by 0.23 times their diameter.

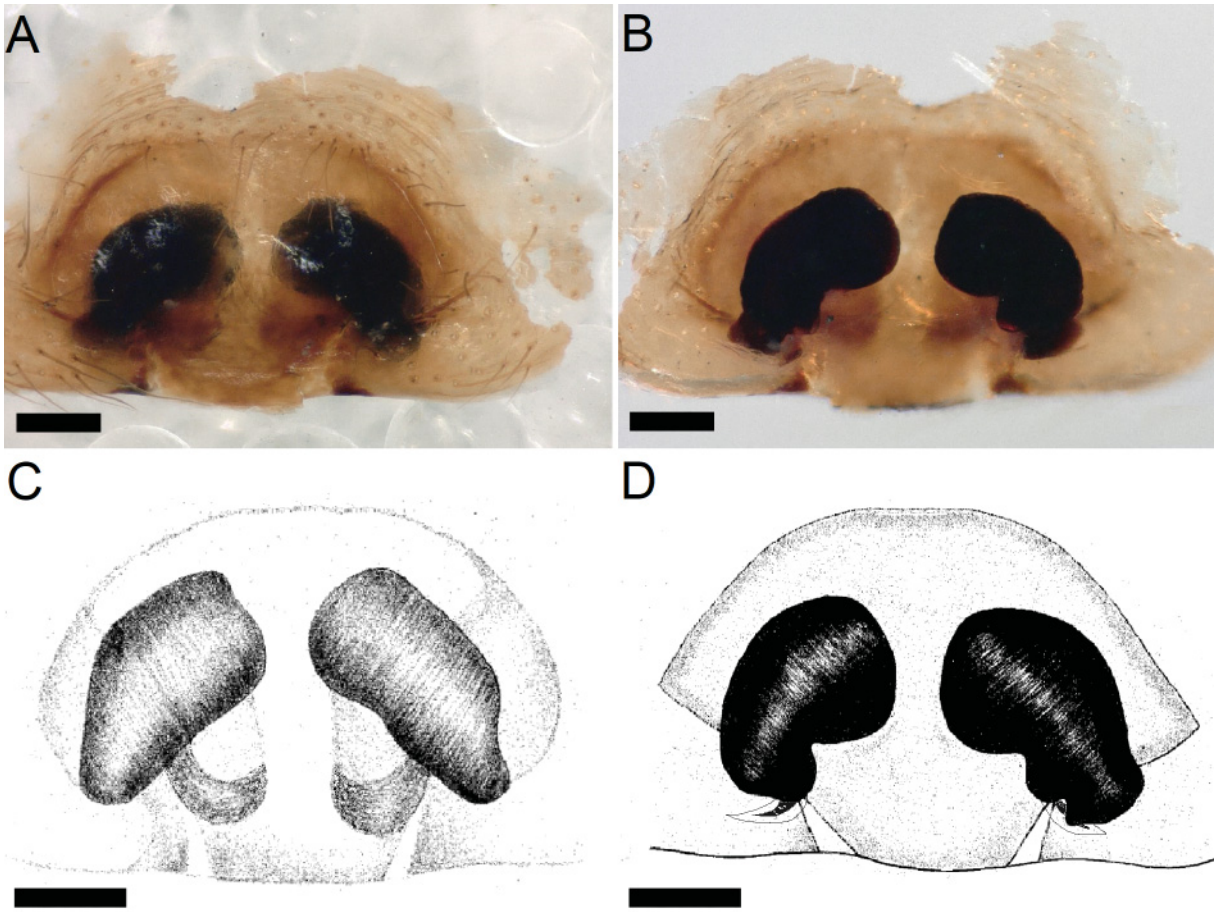


Fig. 6. Female copulatory organ of *Lachesana lubinae* Shafaie & Pekár sp. nov., paratype (HUJINV-Ar 21316). **A**. Intact epigyne, ventral view. **B**. Vulva, ventral view. **C**. Epigyne, ventral view. **D**. Vulva, ventral view. Scale bars: 0.2 mm.

Table 4. Female leg spination of *Lachesana lubinae* Shafaie & Pekár sp. nov. Abbreviations: d = dorsal; Fe = femur; Mt = metatarsus; p = prolateral; Pa = patella; r = retrolateral; Ti = tibia; v = ventral.

	Fe	Pa	Ti	Mt	Total
I	d4 p2 r0 v0	p1 r0	p0 r0 v8	p0 r0 v11	26
II	d4 p2 r0 v1	p2 r0	p3 r0 v4	p1 r0 v8	25
III	d4 p6 r5 v0	d1 p3 r1	d3 p3 r2 v5	d0 p3 r3 v6	45
IV	d4 p2 r3 v0	d1 p3 r1	d2 p3 r2 v5	d2 p5 r5 v8	46

Distribution

At present, known only from the type locality in Israel.

Subfamily Storeninae Simon, 1893

Genus ***Pax*** Levy, 1990

Type species

Pax libani (Simon, 1873).

Diagnosis

For genus diagnosis, refer to Levy (1990).

Pax akilae Shafaie & Pekár sp. nov.
urn:lsid:zoobank.org:act:ECBCD6F6-2EC4-4242-A549-1B1B2D0E0D68
Figs 7–9, 106

Diagnosis

This new species closely resembles *P. islamita* (Simon, 1873) in habitus coloration and the overall shape of the copulatory organs but can be distinguished by the oblong extension of the tibiae (vs apical triangular extension in *P. islamita*, cf. Fig. 8C, F and Fig. 12D, G); the tibial spur comprising a hump on its dorsal side (vs missing, cf. Fig. 8C, F and Fig. 12D, G); the median platelet extending mesally (vs narrowed, cf. Fig. 8D–E and Fig. 12E–F); a shorter, finger-shaped conductoral prong (vs longer and tapering, cf. Fig. 8A–B and Fig. 12A–B); and a different position of the spermathecal medial tubes (situated superior to ectal tubes vs situated inferior to ectal tubes, cf. Fig. 9C–D and Fig. 12I).

Etymology

The species is named after Huda Akil, the celebrated Syrian neuroscientist.

Type material

Holotype

SYRIA • ♂; Al-Qadmus, Al-Kahf Castle; 5–7 Apr. 2001; M. Řezáč leg.; NMP P6A 7514.

Paratypes

SYRIA • 2 ♀♀; same collection data as for holotype; NMP P6A 7515, NMP P6A 7516 • 1 ♂; same collection data as for holotype; NMP P6A 7517.

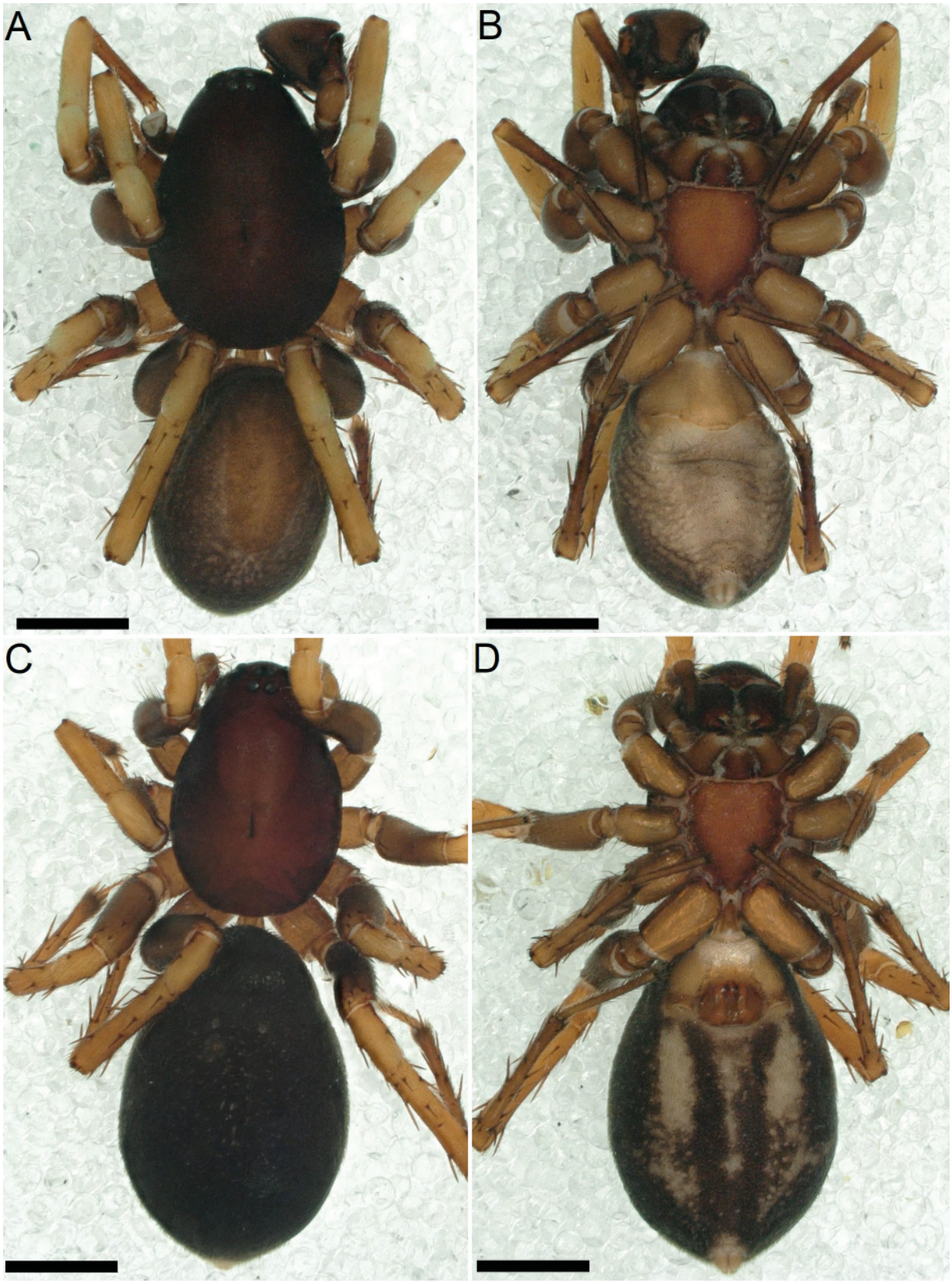


Fig. 7. Habitus of *Pax akilae* Shafaie & Pekár sp. nov. **A–B**. Holotype, ♂ (NMP P6A 7514). **C–D**. Paratype, ♀ (NMP P6A 7515). **A**. Dorsal view. **B**. Ventral view. **C**. Dorsal view. **D**. Ventral view. Scale bars: 1 mm.

Other material examined

SYRIA • 1 ♀; same collection data as for paratypes; CMU • 1 ♂, 2 ♀♀; Mashta al-Helu; 30 Mar.–3 Apr. 2001; M. Řezáč leg.; CMU.

Description

Male (holotype NMP P6A 7514)

Habitus (Fig. 7A–B). Carapace, chelicerae metallic dark brown; carapace patternless. Sternum and mouthparts basally reddish-brown and apically pale. Chelicerae with two rather distant promarginal teeth. Cx yellowish-brown, Fe greyish, Pa and Ti light yellow, Mt and Ta reddish-brown. Abdomen dorsum brown, with a light brown scutum about ⅔ the length of abdomen, venter light grey, darker ventrolaterally, with yellowish epiandrous area; spinnerets pale.

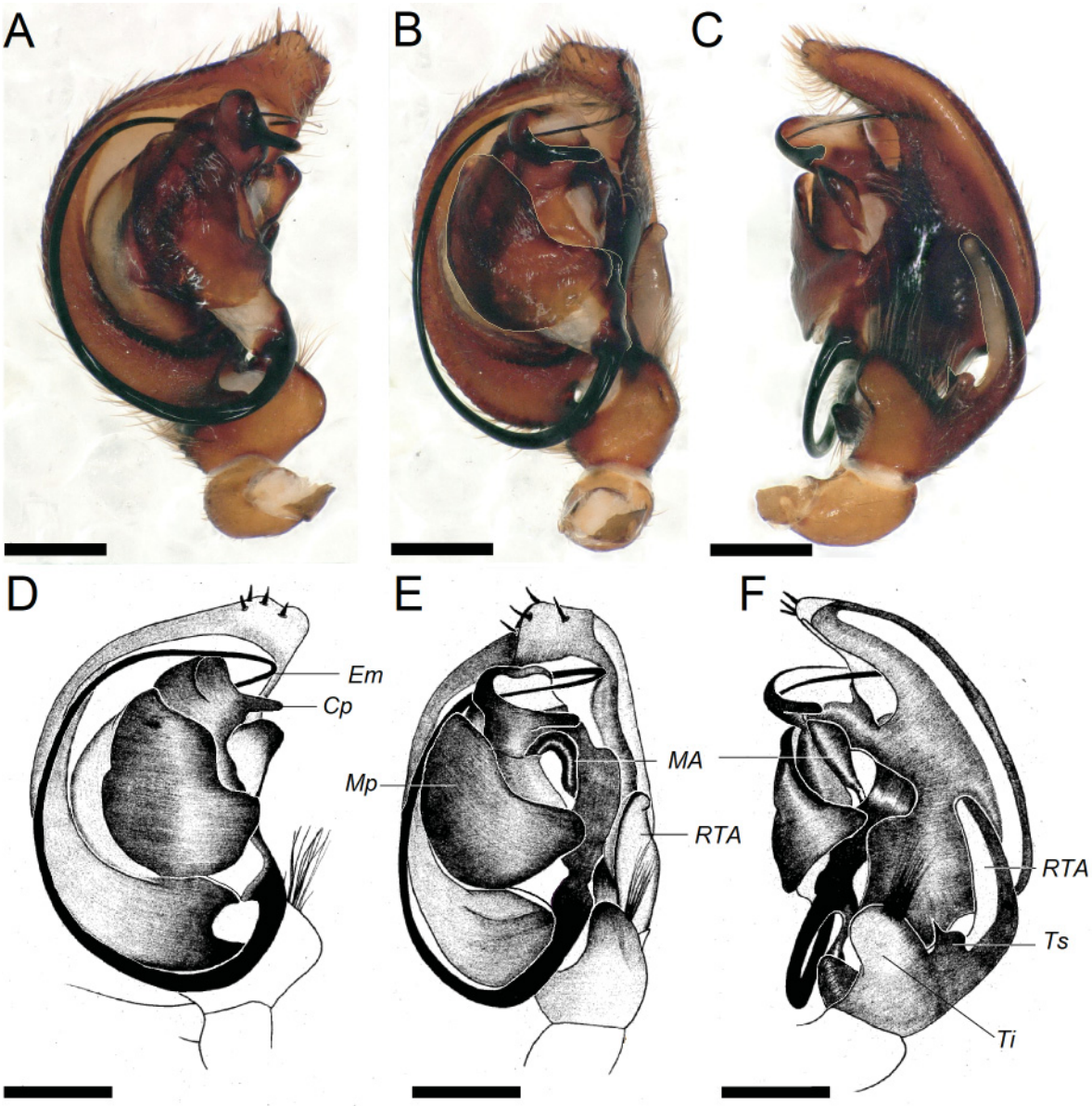


Fig. 8. Male palp of *Pax akilae* Shafaie & Pekár sp. nov., holotype (NMP P6A 7514). **A**. Prolateral view. **B**. Ventral view. **C**. Retrolateral view. **D**. Prolateral view. **E**. Ventral view. **F**. Retrolateral view. Abbreviations: see Material and methods. Scale bars: 0.4 mm.

Measurements. Total length 7.56; carapace 3.95 long, 1.01 wide at pars cephalica, 2.65 wide at pars thoracica, scutum length 2.59. Eye sizes and interdistances: AME 0.33, ALE 0.39, PME 0.34, PLE 0.39, AME–AME 0.17, AME–ALE 0.28, ALE–ALE 1.29, PME–PME 0.22, PME–PLE 0.73. Legs: I 8.44 (2.37, 1.12, 1.8, 1.74, 1.41), II 7.99 (2.59, 1.12, 1.52, 1.58, 1.18), III 7.98 (2.3, 1.12, 1.41, 2.03, 1.12), IV 10.29 (2.7, 1.18, 2.24, 2.59, 1.58). Palp: 4.11 (1.58, 0.34, 0.28, 1.91).

Palp (Fig. 8A–F). RTA with an oblong extension, comprising a rather long, forward pointed tibial spur and a robust hump. Median platelet extended mesally and anteriorly; conductoral prong finger-shaped; median apophysis rectangular basally and narrowed apically, with a folded tip. Embolus very long, originating at a 4 o'clock position, narrowed slightly and folded around bulb.

Female (paratype NMP P6A 7515)

Habitus (Fig. 7C–D). Carapace, chelicerae, sternum, mouthparts similar to those in male. Legs yellow except for slightly darker Cx, greyish Fe and light grey tips of Mt; spinnerets pale, palp segments greyish, with darker Ta. Abdomen blackish-brown dorsally, with no pattern, dark brown ventrally, with three sub-parallel yellow stripes in the middle, lateral stripes wider than middle stripe.

Measurements. Total length 8.29; carapace 3.5 long, 1.24 wide at pars cephalica, 2.37 wide at pars thoracica. Eye sizes and interdistances: AME 0.33, ALE 0.39, PME 0.45, PLE 0.39, AME–AME 0.11, AME–ALE 0.33, ALE–ALE 0.99, PME–PME 0.17, PME–PLE 0.56. Legs: I 8.44 (2.37, 1.12, 1.8, 1.74, 1.41), II 7.99 (2.59, 1.12, 1.52, 1.58, 1.18), III 7.71 (2.03, 1.12, 1.41, 2.03, 1.12), IV 10.29 (2.7, 1.18, 2.24, 2.59, 1.58). Palp: 3.03 (1.01, 0.45, 0.45, 1.12).

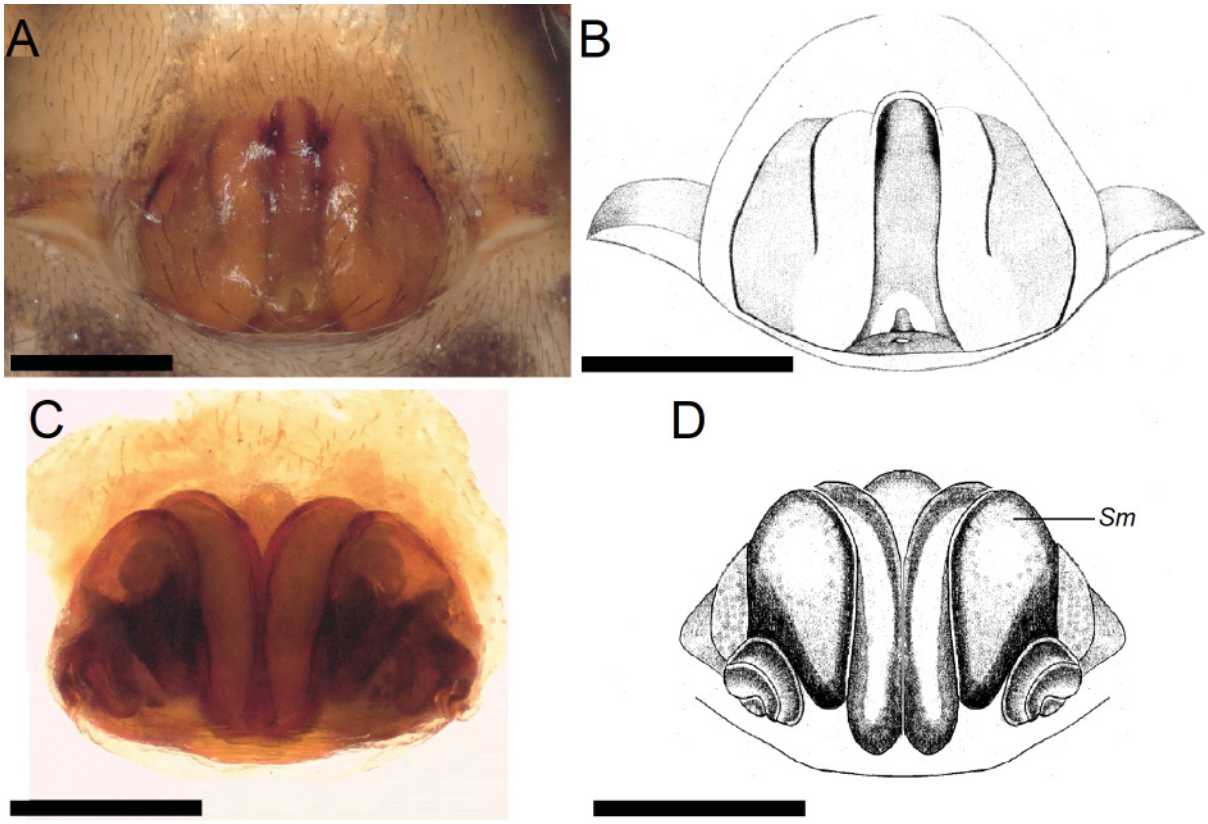


Fig. 9. Female copulatory organ of *Pax akilae* Shafaie & Pekár sp. nov., paratype (NMP P6A 7515). **A**. Intact epigyne, ventral view. **B**. Epigyne, ventral view. **C**. Vulva, ventral view. **D**. Vulva, ventral view. Abbreviation: see Material and methods. Scale bars: 0.4 mm.

Epigyne (Fig. 9A–D). Epigyne about 1.6 times as wide as long, comprising three longitudinal tubes: one dark medial and two light, sub-lateral tubes accompanied by a pair of dark marginal tubes. Spermathecal tubes parallel comprising a pair of elongated, yellow structures, situated medially, externally attached to a pair of reddish- brown, larger structures ending in twisted coils.

Size variation

Total body length 6.5–7.62, carapace length/width 3.5–3.95/2.01–2.75 in males (N = 3). Total body length 7.12–8.29, carapace length/width 3–3.5/2.24–2.3 in females (N = 5).

Distribution

The species is currently only known from the type locality in Syria.

Pax engediensis Levy, 1990
Fig. 10

Pax engediensis Levy, 1990: 356, figs 64–67.

Diagnosis

Refer to Levy (1990).

Type material examined

Holotype
ISRAEL • ♀; En Gedi; 26 Mar. 1957; A. Shulov leg.; HUJ 14216.

Description

For a detailed description of female, refer to Levy (1990).

Distribution

Israel.

Pax islamita (Simon, 1873)
Figs 11–12

Habronestes islamita Simon, 1873: 75.

Storena islamita – Simon 1893: 247.
Pax islamita – Levy 1990: 358, figs 68–71. — Seyyar *et al.* 2008: 52, figs 1–11.

Diagnosis

Refer to Levy (1990).

Material examined

ISRAEL • 3 ♀♀, 9 juv.; Adullam; 31.641° N, 34.931° E; 25 Mar. 2001; S. Pekár, S. Hénriques and M. Řezáč leg.; CMU • 2 ♂♂, 6 ♀♀, 2 juv.; same collection data as for preceding; 5 Apr. 2017; S. Pekár and S. Korenko leg.; CMU • 1 ♂; Mount Carmel; 13 Apr. 2009; J. Král leg.; CMU • 1 ♂; Carmel; 32.733° N, 35.05° E; 6 May 2023; M. Řezáč leg.; CMU.

TURKEY • 1 ♂; SE Turkey; 28 Apr. 2004; M. Řezáč leg.; CMU • 1 ♂, 1 ♀; Toprakkale; 37.061° N, 36.148° E; 67 m a.s.l.; 1 May 2009; CMU • 1 ♂; Mersin, 12 km to Anamur, 1 km to Ala Bridge; 36.174° N, 32.894° E; 93 m a.s.l.; 14 May 2009; R. Kaya leg.; ZMUT.

Description

For a detailed description, refer to Levy (1990).

Distribution

Turkey, Israel, Syria, Lebanon.

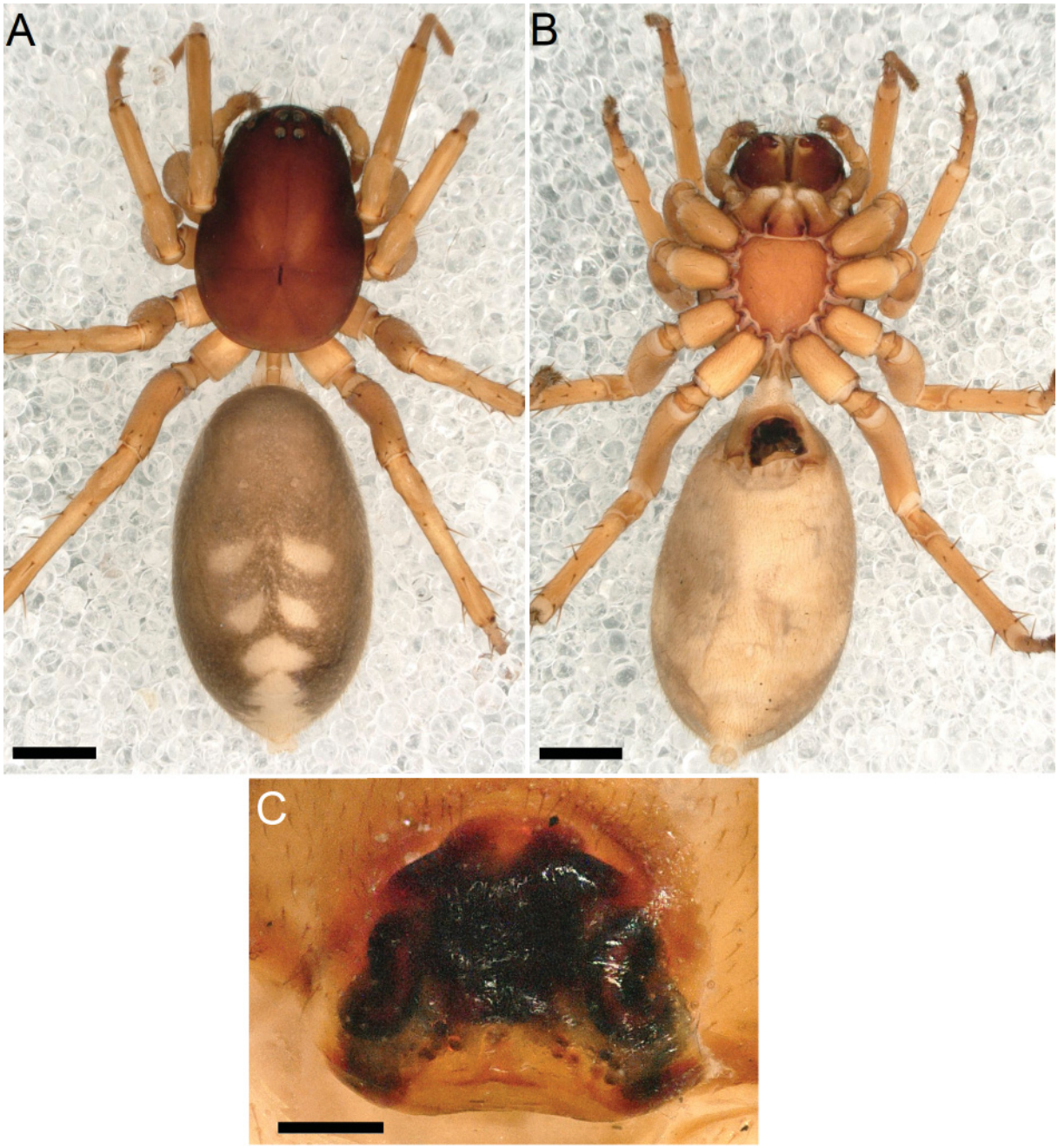


Fig. 10. *Pax engediensis* Levy, 1990, holotype, ♀ (HUJ 14216). **A**. Habitus, dorsal view. **B**. Habitus, ventral view. **C**. Intact epigyne, ventral view. Scale bars: A–B = 1 mm; C = 0.4 mm.

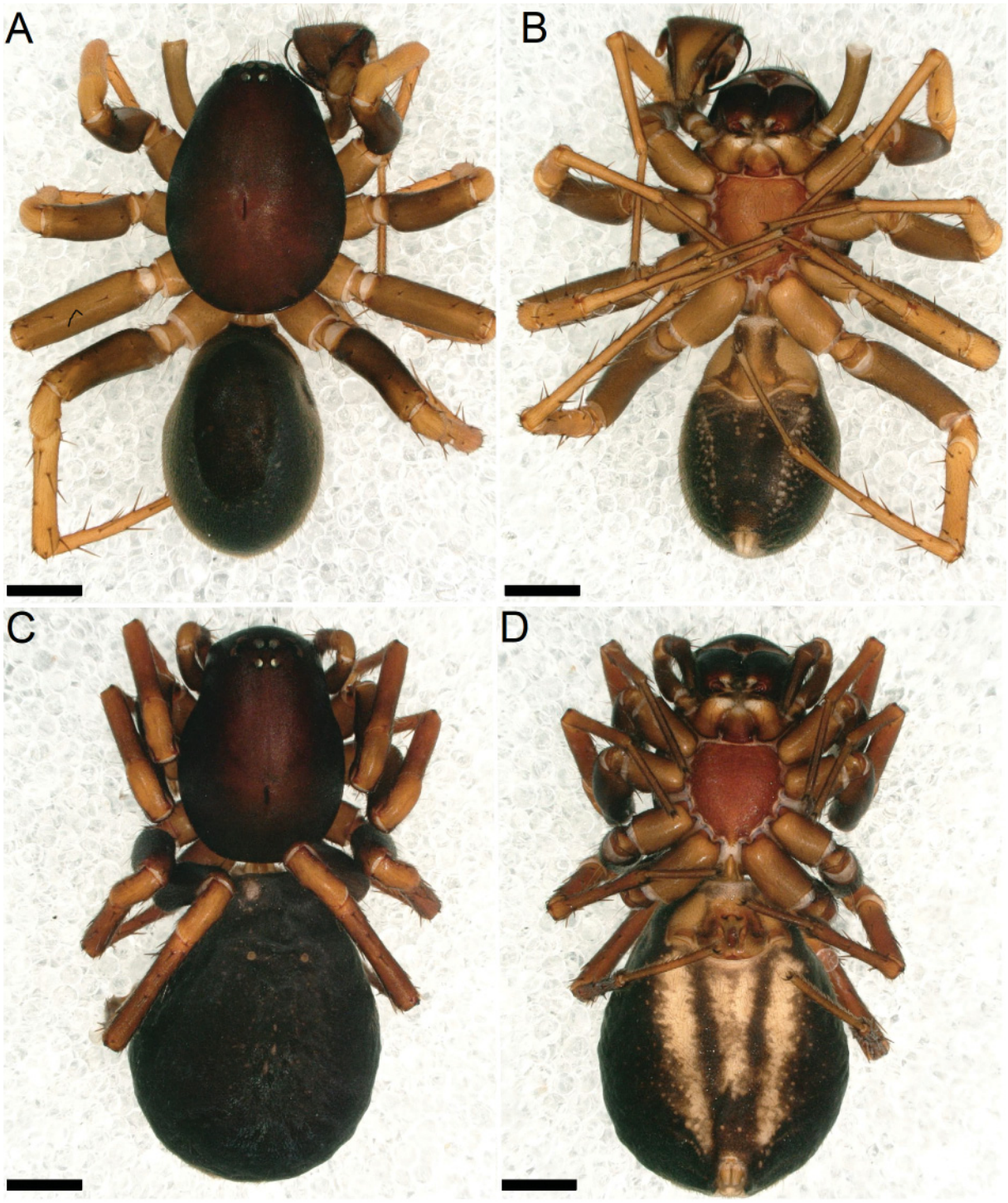


Fig. 11. Habitus of *Pax islamita* (Simon, 1873) (CMU). **A–B**. ♂. **C–D**. ♀. **A**. Dorsal view. **B**. Ventral view. **C**. Dorsal view. **D**. Ventral view. Scale bars: 1 mm.

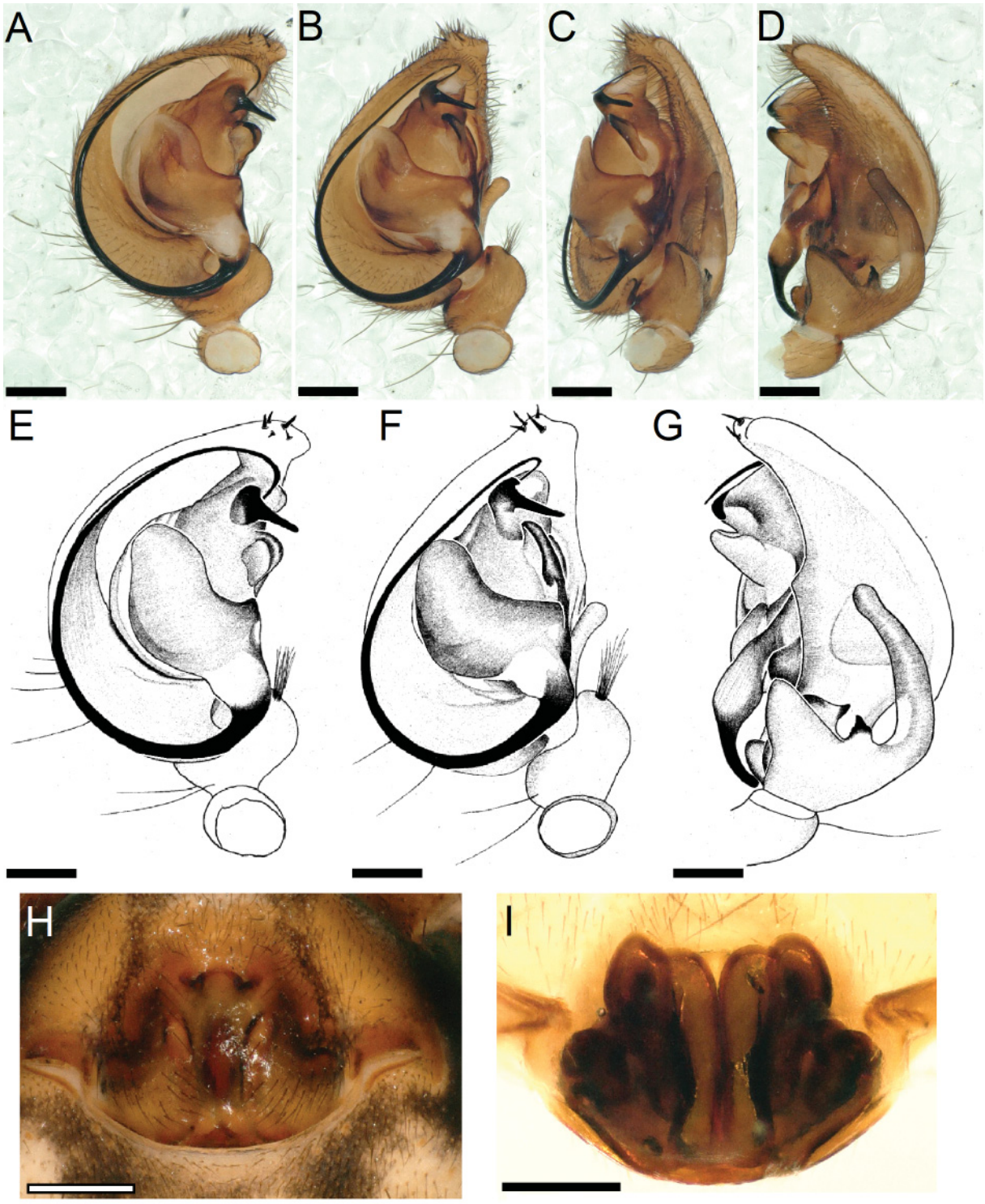


Fig. 12. Copulatory organs of *Pax islamita* (Simon, 1873) (CMU). **A–G**. Male palp. **H–I**. Female copulatory organ. **A**. Prolateral view. **B**. Ventral view. **C**. Ventro-retrolateral view. **D**. Retrolateral view. **E**. Prolateral view. **F**. Ventral view. **G**. Retrolateral view. **H**. Intact epigyne, ventral view. **I**. Vulva, ventral view. Scale bars: 0.4 mm.

Pax palmonii Levy, 1990
Figs 13–14

Pax palmonii Levy, 1990: 352, figs 60–63.

Diagnosis

Refer to Levy (1990).

Type material examined

Holotype
ISRAEL • ♂; Ma'oz Hayyam; 30 May 1943; A. Shulov leg.; HUJ 14215.

Paratype
ISRAEL • 1 ♀; same collection data as for holotype; HUJ 14215.

Description

For a detailed description, refer to Levy (1990).

Distribution

Israel.

Subfamily Zodariinae Simon, 1890

Genus ***Acanthinozodium*** Denis, 1966

Type species

Acanthinozodium spinulosum Denis, 1966.

Diagnosis

For genus diagnosis, refer to Jocqué & Henrard (2015).

Acanthinozodium odem (Levy, 2007)
Figs 15–16, 105

Zodarion odem Levy, 2007: 15, figs 38–39.
Zodarion kunti Coşar *et al*., 2021: 49, figs 5a–f, 6a–d, 7a–c, 8a–c, 9a–b, 10a–b. **Syn. nov.**

Acanthinozodium odem – Zonstein 2025: 392, figs 1–21.

Diagnosis

Refer to Zonstein (2025).

Type material examined

Holotype
ISRAEL • ♀; Odem Forest, Golan Heights (219/290 Is. Gr.); 950 m a.s.l.; May 1996; S. Rakefet leg.; HUJ 15220.

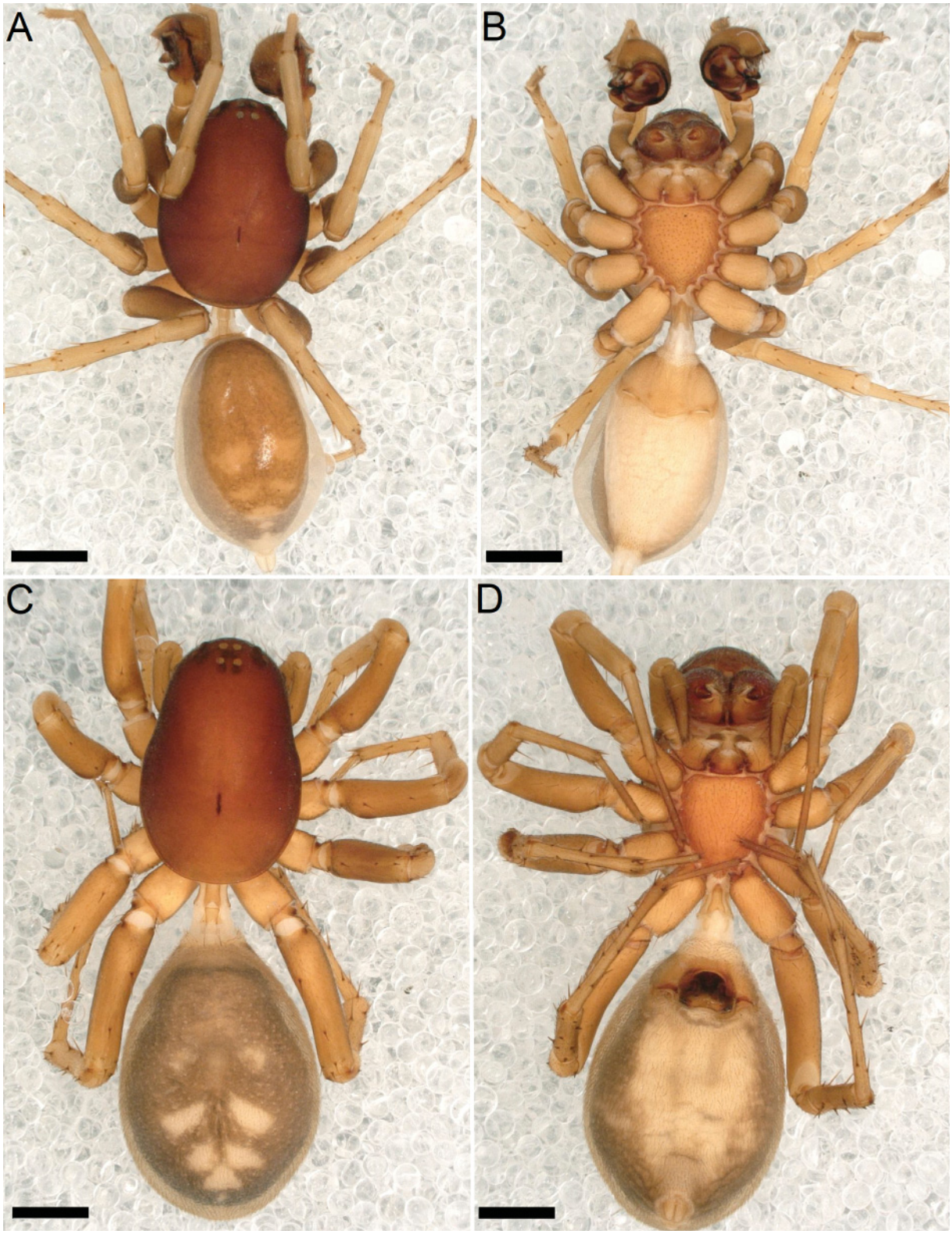


Fig. 13. Habitus of *Pax palmonii* Levy, 1990. **A–B**. Holotype, ♂ (HUJ 14215). **C–D**. Paratype, ♀ (HUJ 14215). **A**. Dorsal view. **B**. Ventral view. **C**. Dorsal view. **D**. Ventral view. Scale bars: 1 mm.

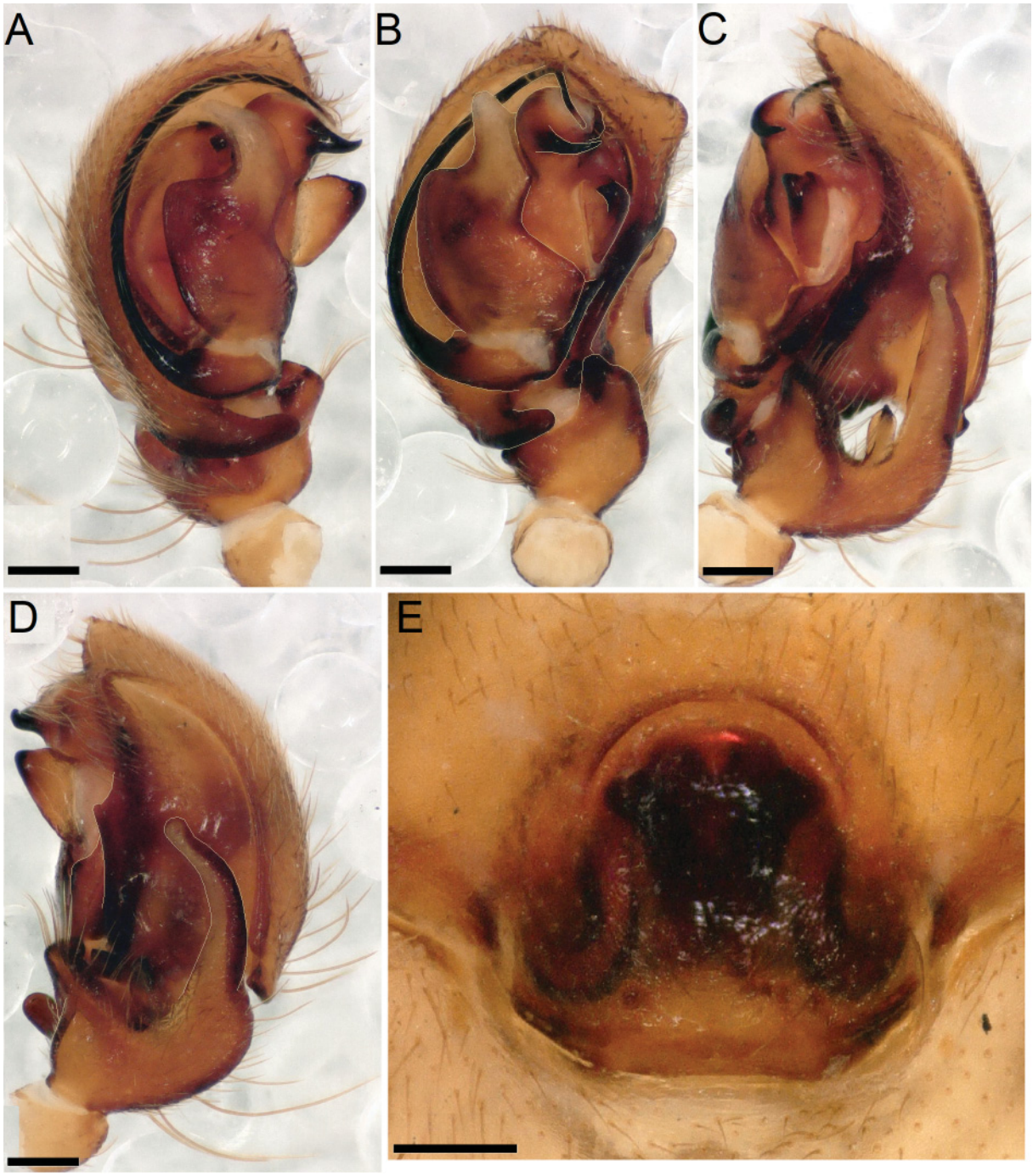


Fig. 14. Copulatory organs of *Pax palmonii* Levy, 1990. **A–D**. Holotype, male palp (HUJ 14215). **E**. Paratype, female copulatory organ (HUJ 14215). **A**. Palp, prolateral view. **B**. Palp, ventral view. **C**. Palp, ventro-retrolateral view. **D**. Palp, retrolateral view. **E**. Intact epigyne, ventral view. Scale bars: 0.2 mm.

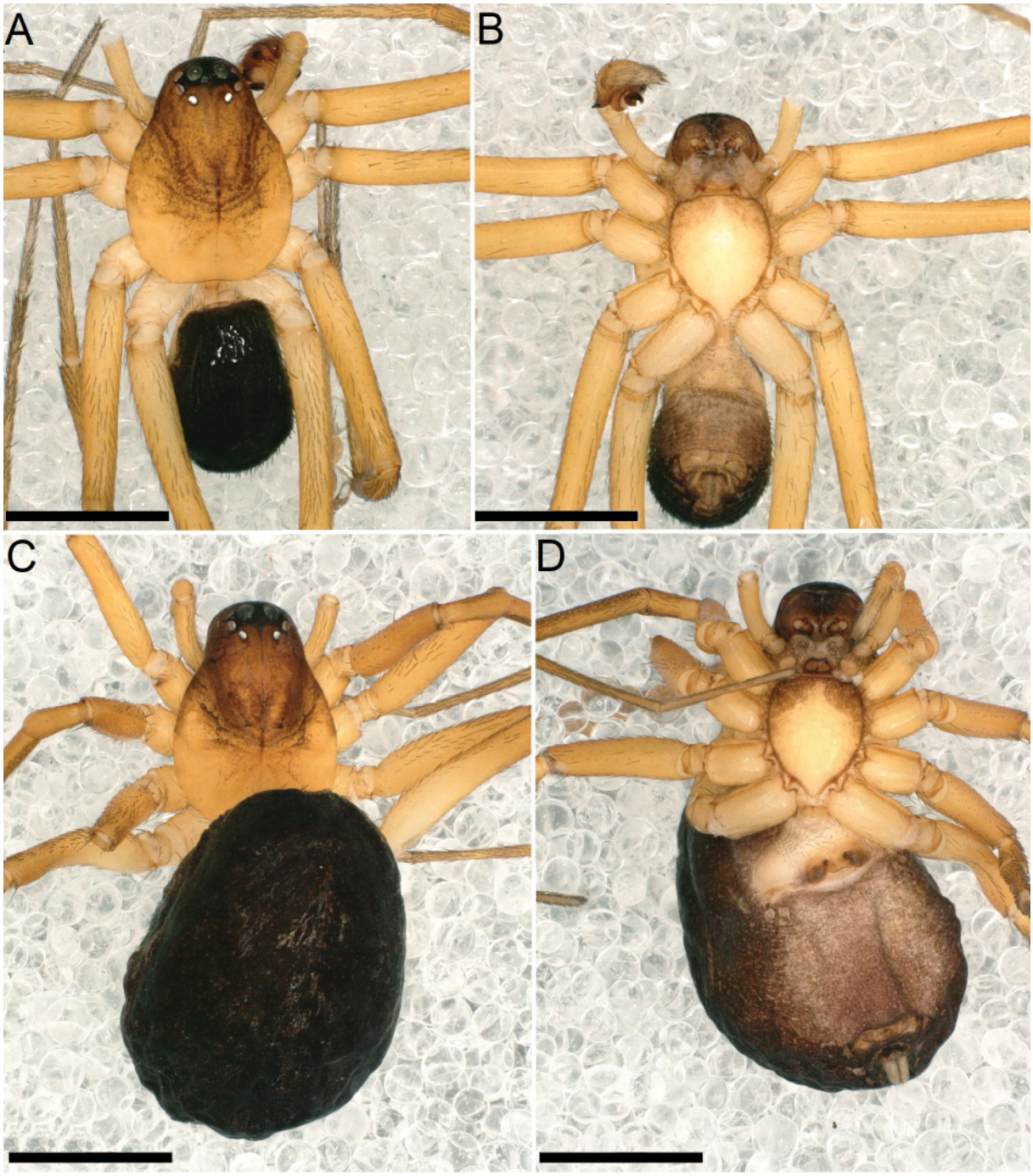
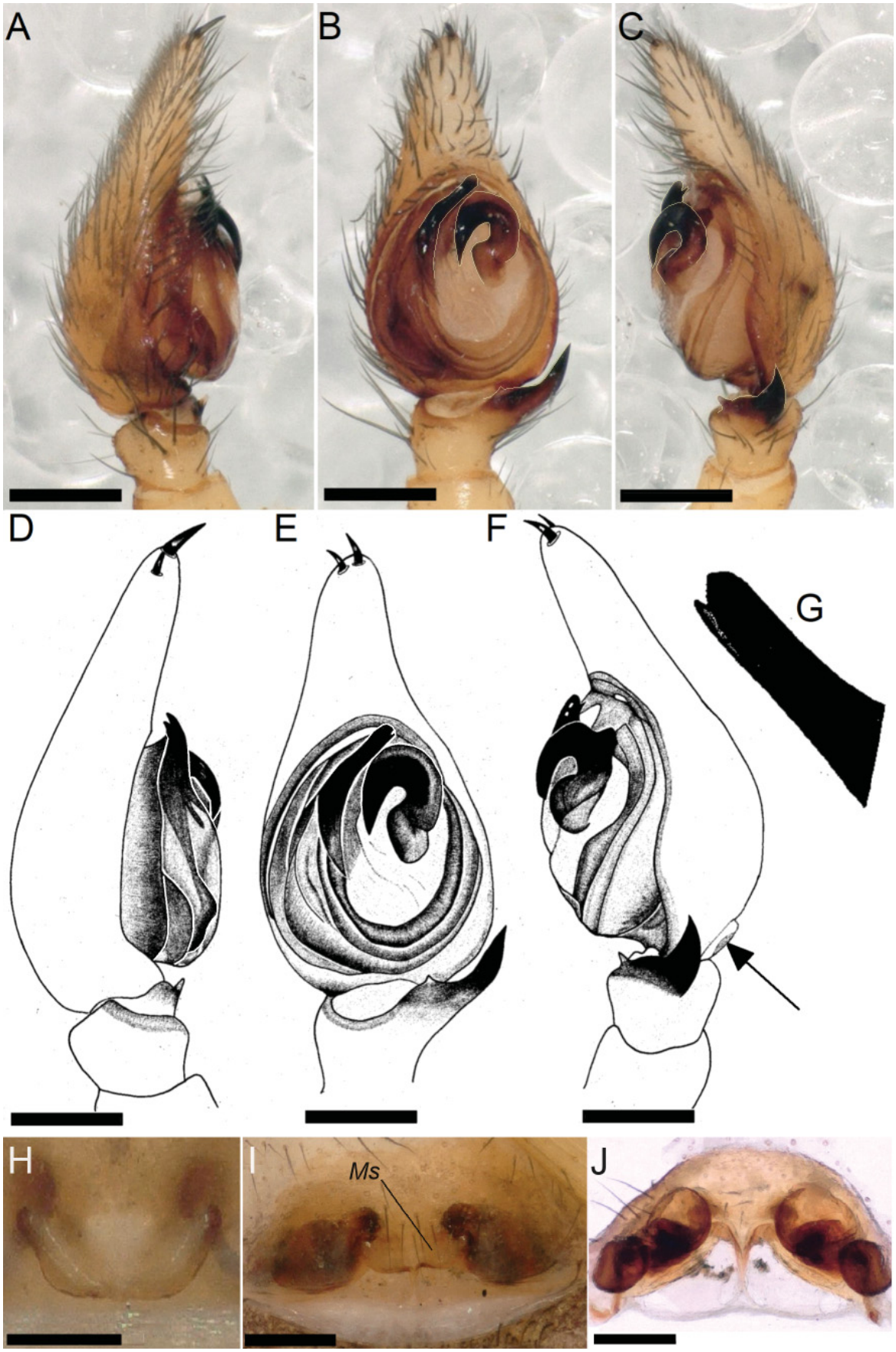


Fig. 15. Habitus of *Acanthinozodium odem* (Levy, 2007). **A–B**. ♂ (CMU). **C–D**. ♀ (CMU). **A**. Dorsal view. **B**. Ventral view. **C**. Dorsal view. **D**. Ventral view. Scale bars: 1 mm.

Fig. 16 (next page). Copulatory organs of *Acanthinozodium odem* (Levy, 2007). **A–G**. Male palp (CMU). **H–J**. Female copulatory organ (CMU), specimens from Syria (H) and Israel (I–J). **A**. Prolateral view. **B**. Ventral view. **C**. Retrolateral view. **D**. Prolateral view. **E**. Ventral view. **F**. Retrolateral view, arrow indicates circular pit. **G**. Embolar tip, ventral view. **H**. Intact epigyne, ventral view. **I**. Intact epigyne, ventral view. **J**. Vulva, ventral view. Abbreviation: see Material and methods. Scale bars: 0.2 mm.


A
B
C
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J

Other material examined

ISRAEL • 2 ♂♂, 1 ♀, 5 juv.; same collection data as for holotype; 29 Mar. 2023; S. Pekár and V. Opatová leg.; CMU • 1 juv.; same collection data as for holotype; 4 May 2023; M. Řezáč leg.; CMU • 1 juv.; Har Hermon; 33.288° N, 35.764° E; 5 May 2023; M. Řezáč leg.; CMU.

SYRIA • 1 ♀; W of Homs, Krak de Chevaliers; Jul. 2002; T. Pigula leg.; CMU • 1 ♀; Hasaka, Al Batra; 3 Apr. 2003; CMU • 1 juv.; same collection data as for preceding; 21 Apr. 2003; CMU.

TURKEY • 1 ♂, 1 ♀ (*Z. kunti*); Kahramanmaraş, Göksun; 37.626° N, 36.413° E; 1285 m a.s.l.; 2020; İ. Coşar and T. Danışman leg.; CMU • 1 ♂; Kahramanmaraş, Andiran, Geben, Çukurgöz; 37.622° N, 36.409° E; 1281 m a.s.l.; 25 Jun. 2008; O. Seyyar leg.; CMU.

Description

For a detailed description, refer to Levy (2007) and Zonstein (2025).

Remarks

A comparative examination of specimens of *A. odem* alongside both male and female representatives of the Turkish species *Z. kunti* has demonstrated a clear congruence in key diagnostic morphological features (cf. Figs 15–16 and Coşar *et al*. 2021: figs 5a–d, 7a–c, 8a–c, 10a–b). This morphological alignment strongly supports our hypothesis to synonymize *Z. kunti* under *A. odem*, thereby recognizing *Z. kunti* as a junior synonym.

Moreover, we noticed that the female of *A. odem* exhibits notable similarities to that of *A. cirrisulcatum longispina* Denis, 1952, as described and illustrated in the original paper (Denis 1952: 59–60, figs 3–4). Nonetheless, the limited detail and precision of the original description and illustrations, coupled with the unavailability of the type material of *A. c. longispina*, present significant constraints. In light of these limitations, we advocate further comprehensive investigation to rigorously assess the possibility of synonymy between these taxa.

Size variation

Total body length 3.33–4.37, carapace length/width 1.77–2.37/1.33–1.5 in males (N = 4). Total body length 4.69–5.6, carapace length/width 1.87–2.4/1.5–1.8 in females (N = 4).

Distribution

Acanthinozodium odem was formerly recorded in Israel. In our study, we have now documented its occurrence in both Syria and Turkey.

Acanthinozodium tibesti Jocqué, 1991
Figs 17–18, 105

Acanthinozodium tibesti Jocqué, 1991: 130, figs 315–319.
Acanthinozodium crateriferum Jocqué & Henrard, 2015: 4, figs 1a–e, 2a–c, 3a–c. **Syn. nov.**

Acanthinozodium tibesti – Jocqué & Henrard 2015: 21, fig. 12a.

Diagnosis

For male diagnosis, refer to Jocqué & Henrard (2015). Females can be distinguished from other congeners by a pair of triangular atria separated by a thin median septum (Fig. 18A–B).

Material examined

EGYPT • 1 ♀; Cairo, Mariout, Aswan; MNHN-AR2847.

Description

For a detailed description of female, refer to Jocqué (1991).

Remarks

During our examination of the Simon collection, we identified a tube labelled *Zodarium longipes rubidus* MNHN-AR2847, which contained one female specimen of *A. tibesti* beside additional specimens belonging to *Z. nitidum*.

Acanthinozodium tibesti was originally described from a single female collected in Chad (Jocqué 1991: figs 315–319). Then, Jocqué & Henrard (2015: fig. 12a) provided a photograph of the epigyne to elucidate morphological features. In the same study, they described *A. crateriferum* from Ethiopia – a species morphologically very similar to *A. tibesti* – and provided a comparative diagnosis that emphasized distinctions between *A. crateriferum* and *A. zavattarii* Caporiacco, 1941.

Upon detailed morphological comparison of the specimen from the Simon collection with the descriptions and illustrations of both *A. tibesti* and *A. crateriferum*, we found no substantial diagnostic differences to justify their separation. Accordingly, we propose that *A. crateriferum* should be synonymized with *A. tibesti*, with the former being recognized as a junior synonym.

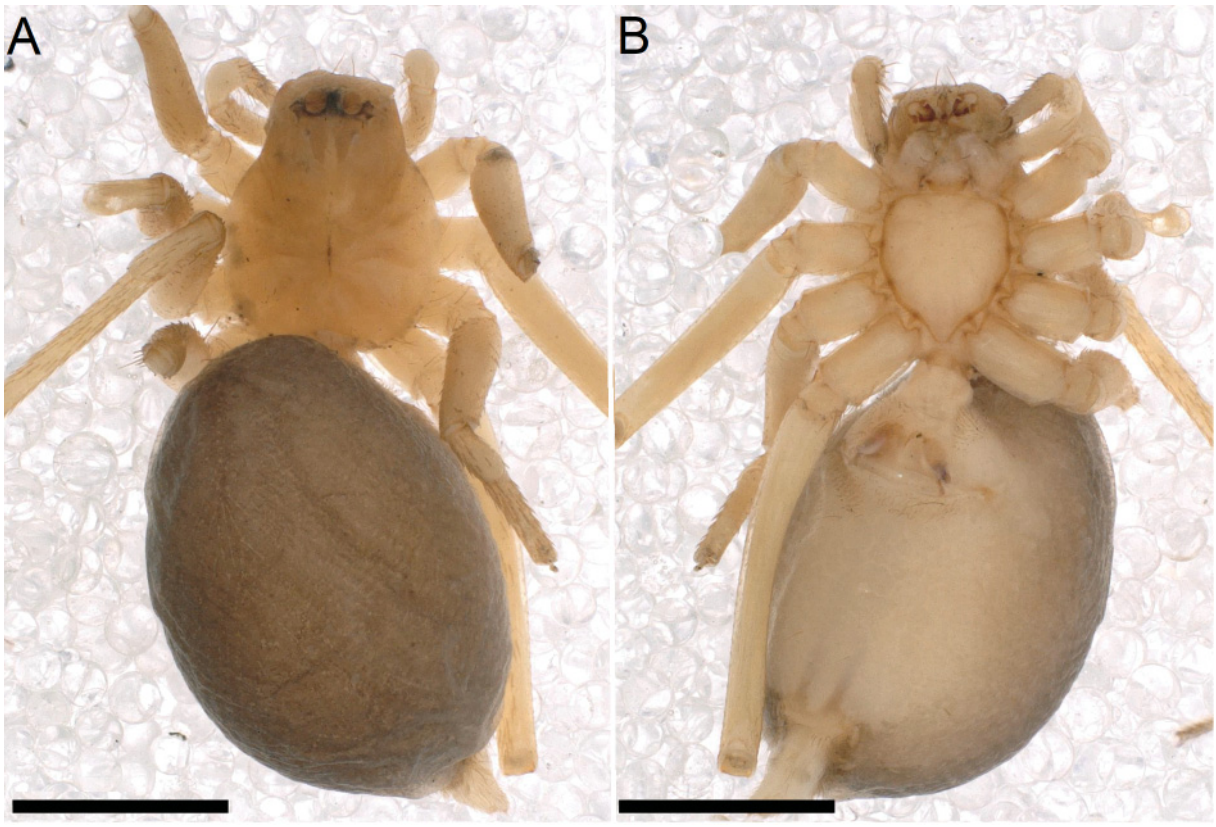

Fig. 17. Habitus of *Acanthinozodium tibesti* Jocqué, 1991 (MNHN-AR2847), ♀. **A**. Dorsal view. **B**. Ventral view. Scale bars: 1 mm.

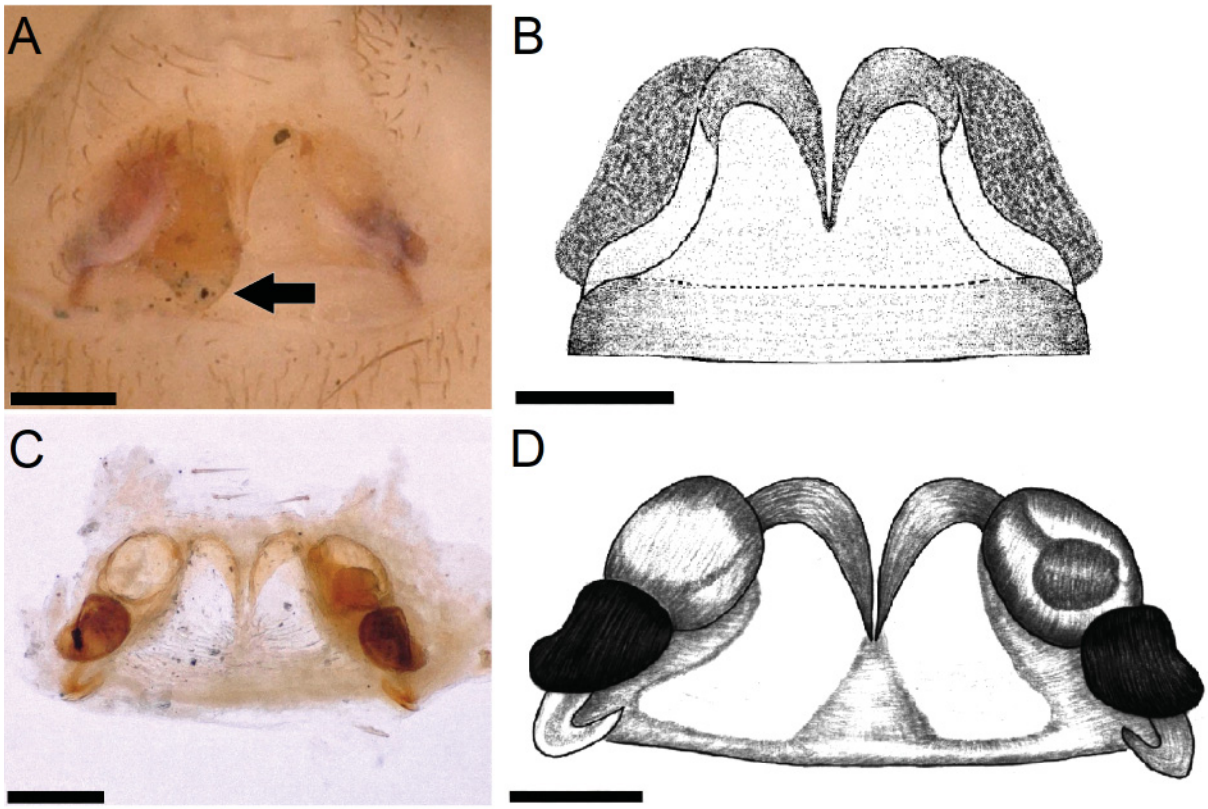

Fig. 18. Female copulatory organ of *Acanthinozodium tibesti* Jocqué, 1991 (MNHN-AR2847). **A**. Intact epigyne with a mating plug, ventral view, arrow indicates plug. **B**. Epigyne, ventral view. **C**. Vulva, ventral view. **D**. Vulva, ventral view. Scale bars: 0.2 mm.

Distribution

Acanthinozodium tibesti was formerly recorded from Chad and Ethiopia; this is the first report of this species from Egypt.

Genus ***Indozodion*** Ovtchinnikov, 2006

Type species

Indozodion inayatullahi Ovtchinnikov, 2006.

Diagnosis

For genus diagnosis, refer to Zamani & Marusik (2022).

Indozodion lindbergi (Roewer, 1960)
Figs 19–20, 106

Zodarion lindbergi Roewer, 1960: 45, fig. 15a–f.

Indozodion lindbergi – Zamani & Marusik 2022: 424, figs 1–3.

Diagnosis

Refer to Zamani & Marusik (2022).

Material examined

AFGHANISTAN • 1 ♂; Sarobi; 5 Apr. 1967; D. Povolný leg.; MMBC 7632 (5601/Ent).

Description

For a detailed description, refer to Zamani & Marusik (2022).

Remarks

A comparative evaluation of the current material with published illustrations of *I. lindbergi* from Pakistan (cf. Figs 19–20; Zamani & Marusik 2022: figs 1a, c–f, 2a–c) revealed minor morphological discrepancies. These include a ventro-retrolateral apophysis that is slightly curved rather than distinctly humped, and a bilobed Br structure as opposed to the simple, unlobed form depicted in the Pakistani specimens. Given these minor yet notable differences, we consider that additional material is required to conclusively determine the taxonomic status of this population.

Distribution

This species was formerly recorded from the Parwan and Kabul provinces in eastern Afghanistan and the Khyber Pakhtunkhwa Province in Pakistan (Zamani & Marusik 2022); thus, this is the third report of this species in Afghanistan.

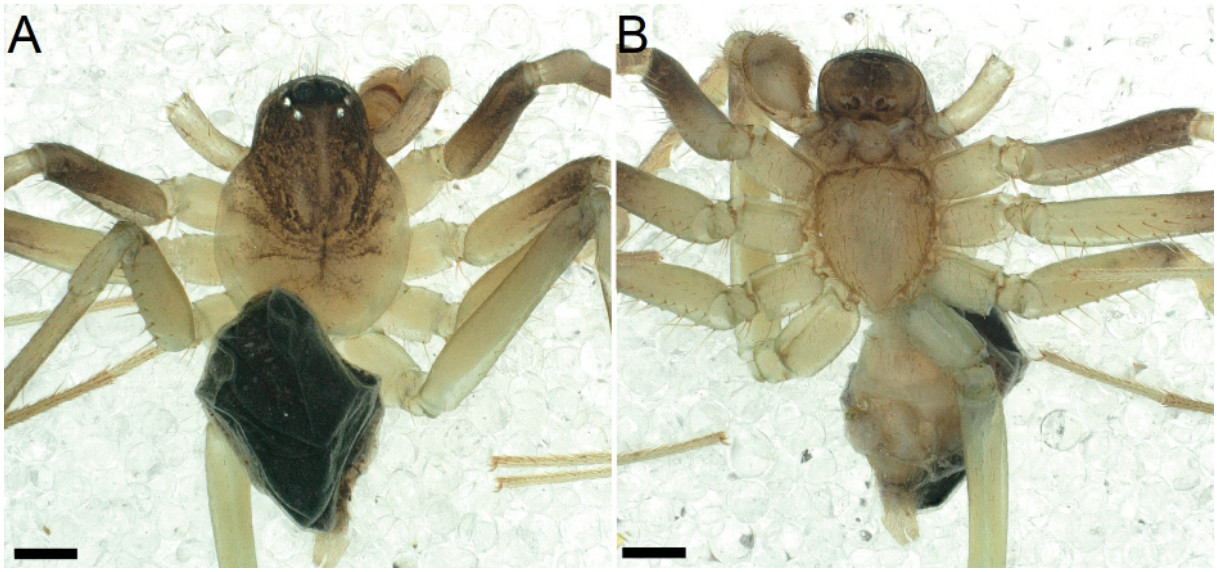

Fig. 19. Habitus of *Indozodion lindbergi* (Roewer, 1960) (MMBC, 7632 (5601/Ent)), ♂. **A**. Dorsal view. **B**. Ventral view. Scale bars: 0.2 mm.

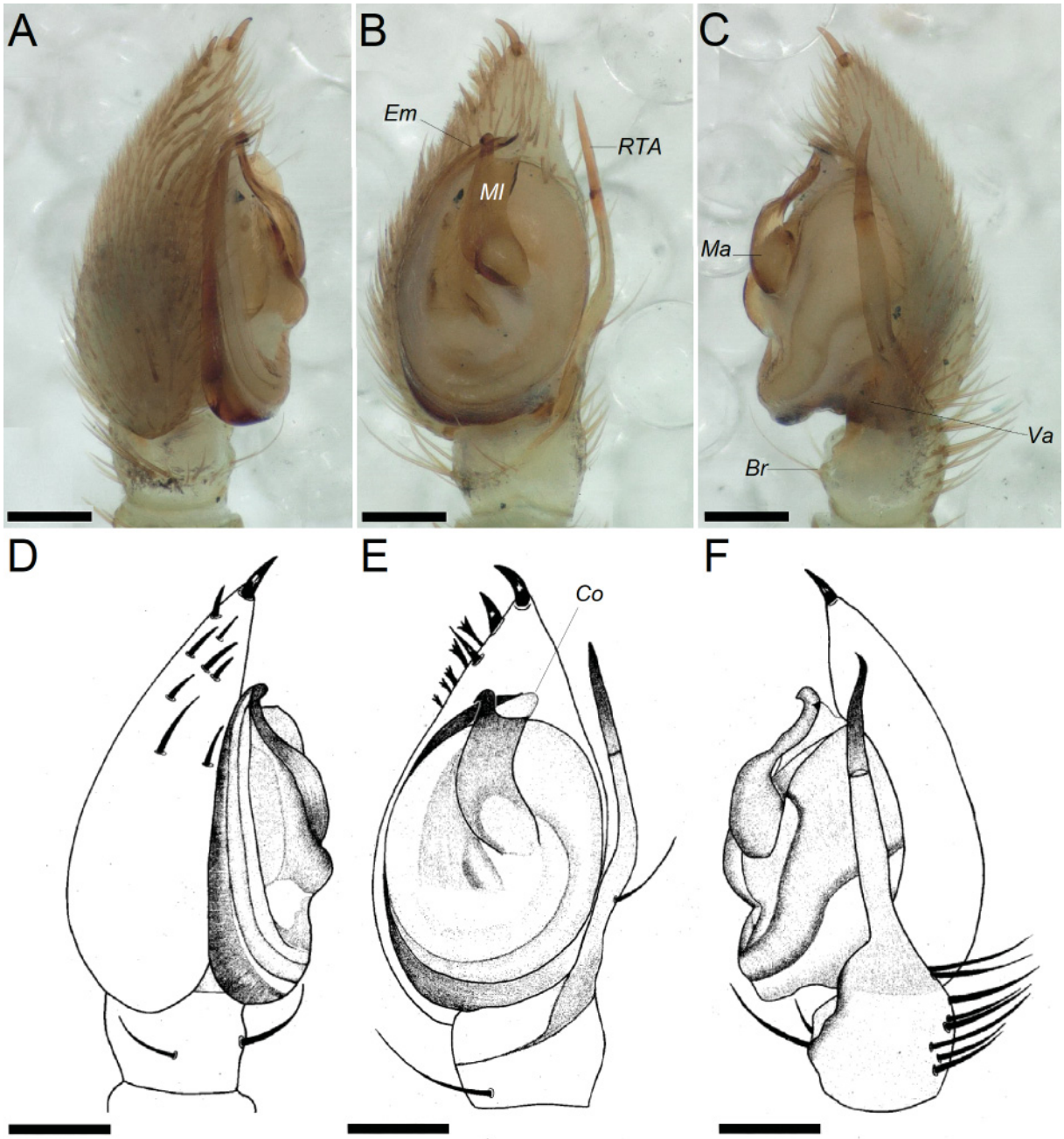

Fig. 20. Male palp of *Indozodion lindbergi* (Roewer, 1960) (MMBC, 7632 (5601/Ent)). **A**. Prolateral view. **B**. Ventral view. **C**. Retrolateral view. **D**. Prolateral view. **E**. Ventral view. **F**. Retrolateral view. Abbreviations: see Material and methods. Scale bars: 0.2 mm.

Genus ***Palaestina*** O.Pickard-Cambridge, 1872

Type species

Palaestina expolita O.Pickard-Cambridge, 1872.

Diagnosis

For genus diagnosis, refer to Levy (1992).

Palaestina expolita O. Pickard-Cambridge, 1872
Figs 21–22

Palaestina expolita O. Pickard-Cambridge, 1872: 269, pl. 13 fig. 6.
Palaestina smyrna Jocqué, 1991: 141, figs 350–351a.

Palaestina expolita – Simon 1893: 439, figs 412–413. — Roewer 1928: 119. — Jocqué 1991: 138, figs 336–342. — Levy 1992: 69, figs 1–12. — Lecigne 2023: 24, fig. 17a–f.

Diagnosis

Refer to Jocqué (1991) and Levy (1992).

Material examined

CYPRUS • 7 ♂♂, 3 ♀♀; Larnaca Salt Lake, Hala Sultan Tekke Mosque; 34.884° N, 33.610° E; 0 m a.s.l.; 28 Apr. 2022; S. Pekár, S. Shafaie, V. Šoltýsová and O. Michálek leg.; CMU • 4 ♂♂; Güzelyurt, Kyra (Mevlevi); 35.197° N, 33.064° E; 991 m a.s.l.; 26 Apr. 2022; S. Pekár, S. Shafaie, V. Šoltýsová and O. Michálek leg; CMU.

GREECE • 3 ♂♂; 1.5 km after Dadia; 600 m a.s.l.; 14 May–22 Jun. 2015; M. Chatzaki leg.; CMU • 1 ♂; same collection data as for preceding; 22 Jun.–21 Jul. 2015; M. Chatzaki leg.; CMU.

Description

For a detailed description, refer to Levy (1992).

Remarks

A critical re-examination of the illustrations associated with *P. smyrna* Jocqué (1991) reveals inconsistencies in both figure numbering and morphological content (Jocqué 1991: figs 351a–b, 352). In fact, figure 352 appears to depict a representative of *Palfuria*, rather than *P. smyrna*, while the curvature of the middle arm in figure 351a is incongruent with that in figure 351b. Upon closer inspection, figure 351a corresponds more closely to figure 350, which was formerly used to illustrate *Palaestina dentifera* O. Pickard-Cambridge, 1872. Based on this reassessment, it is likely that figures 343–349 and 351b pertain to *P. dentifera*, whereas figures 350–351a more accurately depict *P. smyrna*.

Distribution

Greece, Cyprus, Turkey, Lebanon, Israel.

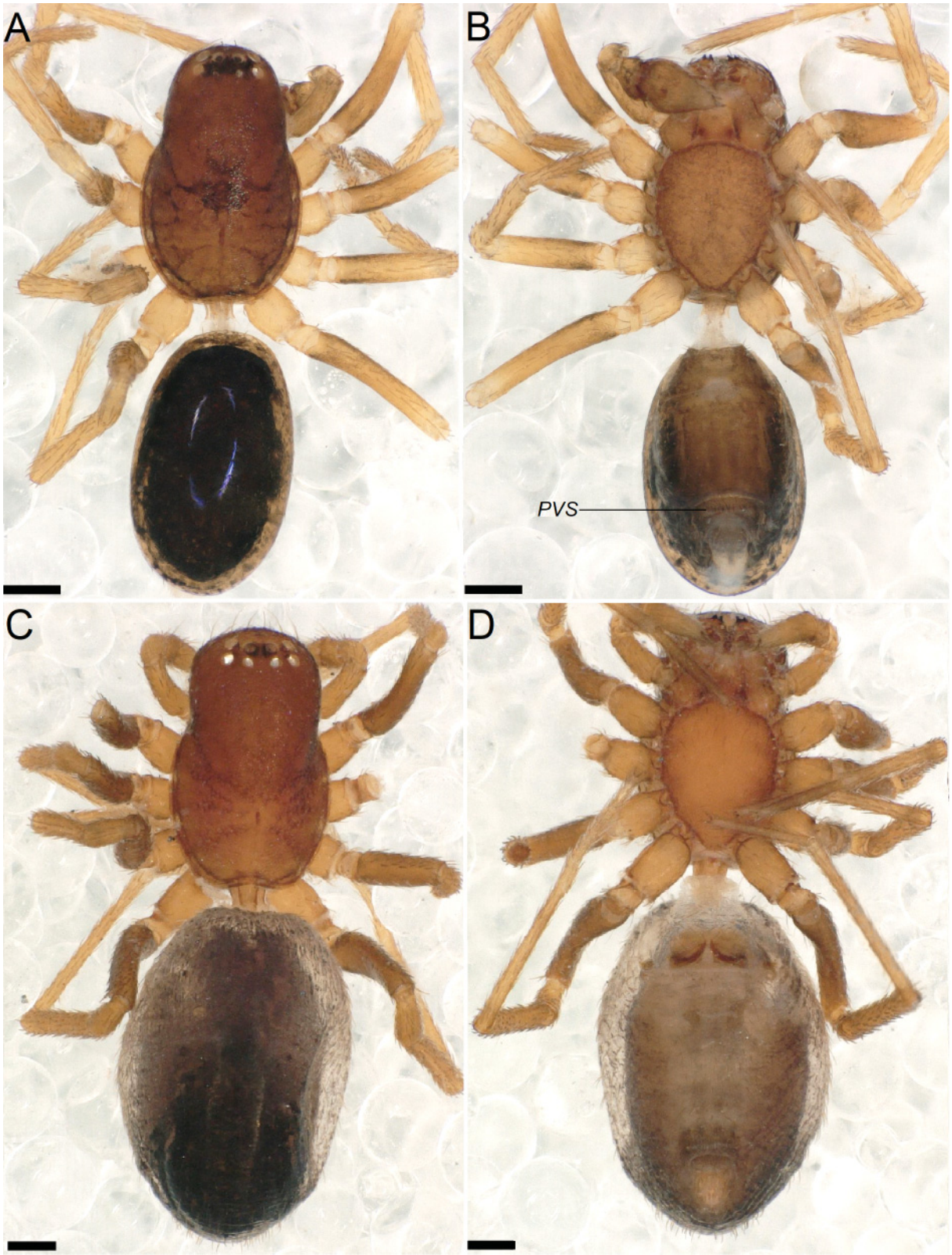

Fig. 21. Habitus of *Palaestina expolita* O. Pickard-Cambridge, 1872 (CMU). **A–B**. ♂. **C–D**. ♀. **A**. Dorsal view. **B**. Ventral view. **C**. Dorsal view. **D**. Ventral view. Abbreviation: see Material and methods. Scale bars: 0.2 mm.

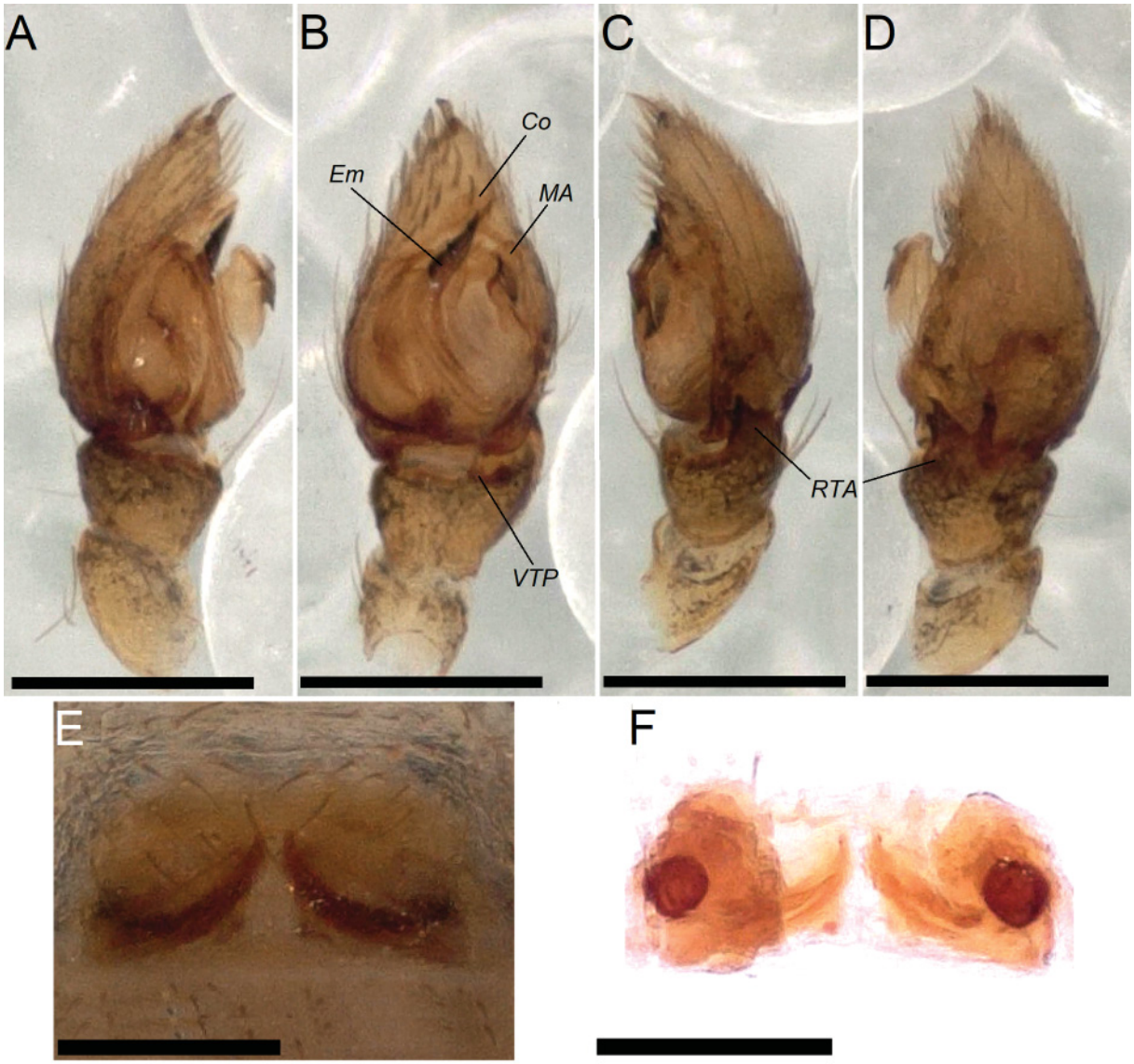

Fig. 22. Copulatory organs of *Palaestina expolita* O. Pickard-Cambridge, 1872 (CMU). **A–C**. Male palp. **D–E**. Female copulatory organ. **A**. Prolateral view. **B**. Palp with broken median apophysis, ventral view. **C**. Retrolateral view. **D**. Intact epigyne, ventral view. **E**. Vulva, ventral view. Abbreviations: see Material and methods. Scale bars: 0.2 mm.

Palaestina eremica Levy, 1992
Figs 23–24

Palaestina eremica Levy, 1992: 74, figs 19–26.

Diagnosis

Refer to Levy (1992).

Type material examined

Holotype

EGYPT • ♂; Sinai, St Catherine Monastery, (049/775 Isr.grid); 14 Apr. 1987; V.D. Roth leg.; HUJ 14250.

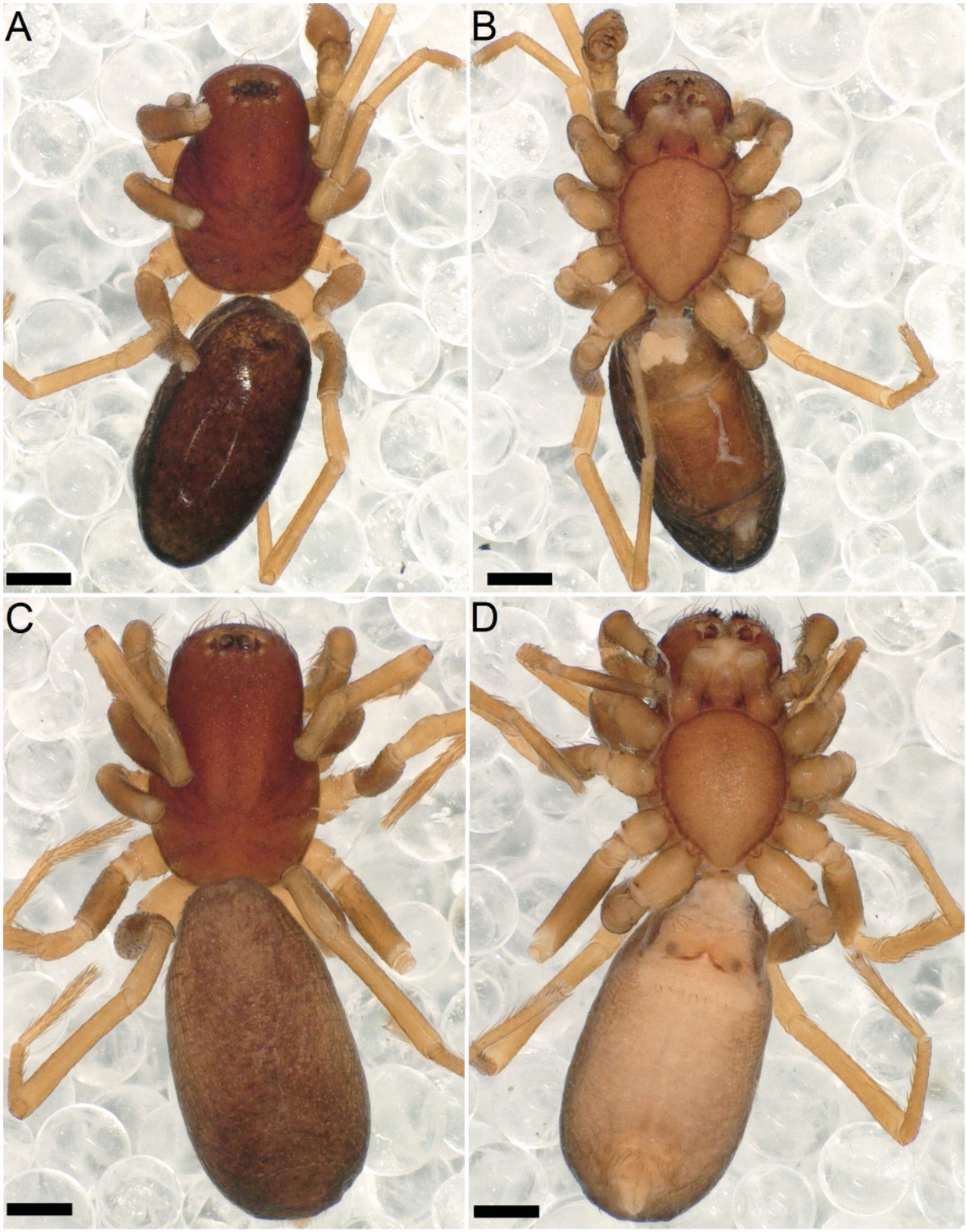

Fig. 23. Habitus of *Palaestina eremica* Levy, 1992. **A–B**. Holotype, ♂ (HUJ 14250). **C–D**. Paratype, ♀ (HUJ 14251). **A**. Dorsal view. **B**. Ventral view. **C**. Dorsal view. **D**. Ventral view. Scale bars: 0.2 mm.

Paratype

EGYPT • 1 ♀; same collection data as for holotype; HUJ 14251.

Description

For a detailed description, refer to Levy (1992).

Distribution

Egypt, Israel.

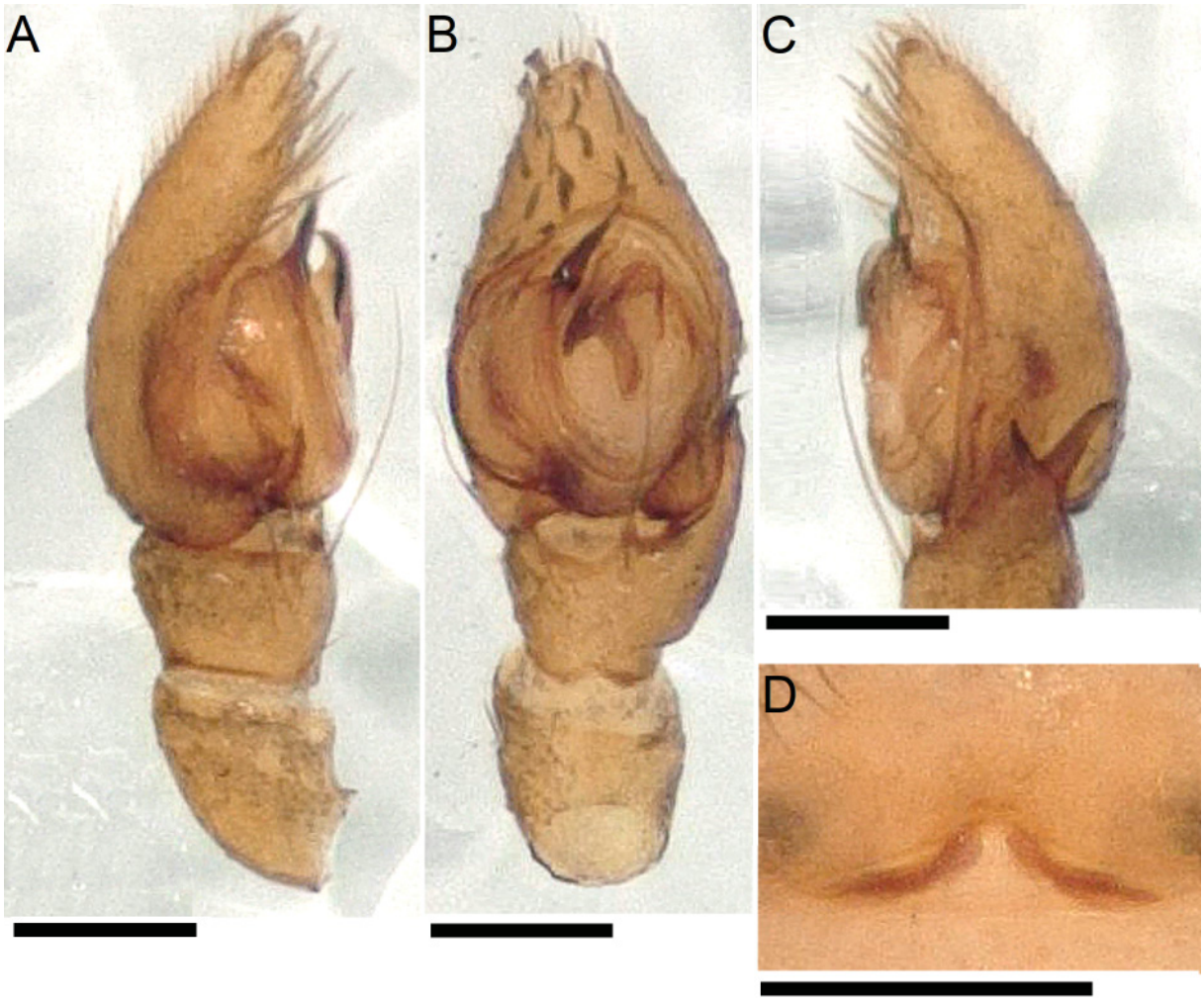

Fig. 24. Copulatory organs of *Palaestina eremica* Levy, 1992. **A–C**. Holotype, male palp (HUJ 14250). **D**. Paratype, female (HUJ 14251). **A**. Palp, prolateral view. **B**. Palp, ventral view. **C**. Palp, retrolateral view. **D**. Intact epigyne, ventral view. Scale bars: 0.2 mm.

Genus ***Parazodarion*** Ovtchinnikov, Ahmad & Gurko, 2009

Type species

Zodarion raddei Simon, 1889.

Diagnosis

For genus diagnosis, refer to Ovtchinnikov *et al*. (2009).

Parazodarion raddei (Simon, 1889)
Figs 25–26, 106

Zodarion raddei Simon, 1889: 383.
Zodarion vlasovi Sytshevskaja in Vlassov & Sytshevskaja, 1937: 249, figs 1–3.

Zodarion raddei – Denis 1958: 111, figs 42–44. — Fet 1985: 274. — Marusik & Koponen 2001: 46, fig. 27.
Parazodarion raddei – Ovtchinnikov *et al*. 2009: 471, fig. 1.1–6. — Zamani & Marusik 2021: 182, fig. 26a–c.

Diagnosis

Refer to Ovtchinnikov *et al*. (2009).

Material examined

AFGHANISTAN • 1 ♀; Badghis, Bala Murghab; 18 Jul.–4 Sep. 1964; O. Jakeš leg.; MMBC 7633 (5601/Ent).

IRAN • 5 ♀♀; Taybad, Dowqarun; 8 Nov. 2014; P. Rashidi leg.; ZMFUM-TA 1183.

Description

For a detailed description, refer to Ovtchinnikov *et al*. (2009).

Remarks

The single female specimen from Afghanistan exhibits slight differences compared to the Iranian population, particularly in the height of the spermathecal bodies, which are arranged in descending order (vs more or less equally sized, cf. Fig. 26D and Fig. 26B), and in the lighter proximal parts of Fe I and II (vs entirely dark, cf. Fig. 25C and Fig. 25A). Given the unlikely prospect of obtaining additional material from Afghanistan in the near future, we treated this single specimen as *P. raddei*.

Distribution

Afghanistan, Iran, Kazakhstan, Uzbekistan, Turkmenistan, Tajikistan, United Arab Emirates.

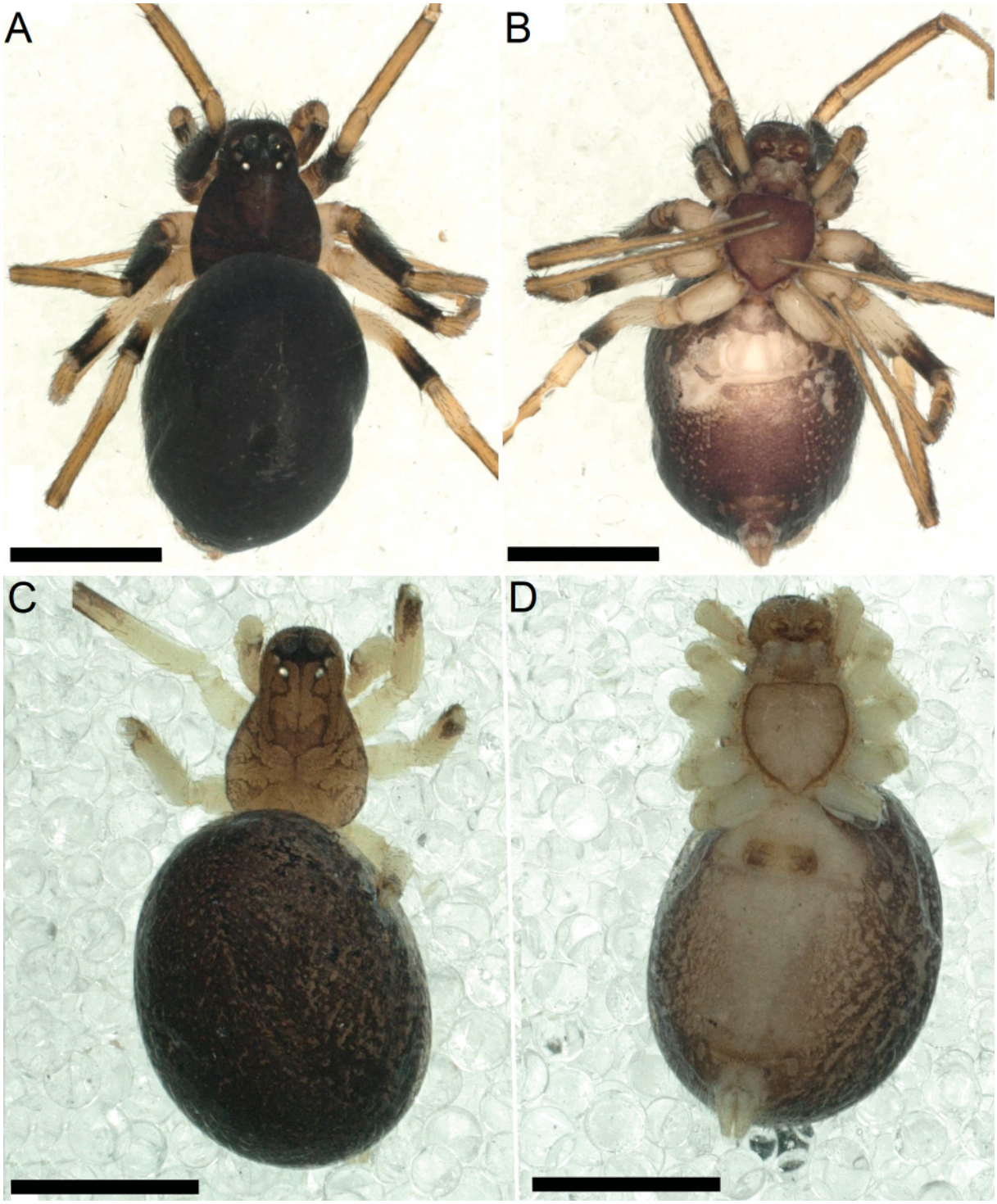

Fig. 25. Habitus of *Parazodarion raddei* (Simon, 1889), ♀. **A–B**. Specimen from Iran (ZMFUM-TA 1183). **C–D**. Specimen from Afghanistan (MMBC 7633 (5601/Ent). **A**. Dorsal view. **B**. Ventral view. **C**. Dorsal view. **D**. Ventral view. Scale bars: 1 mm.

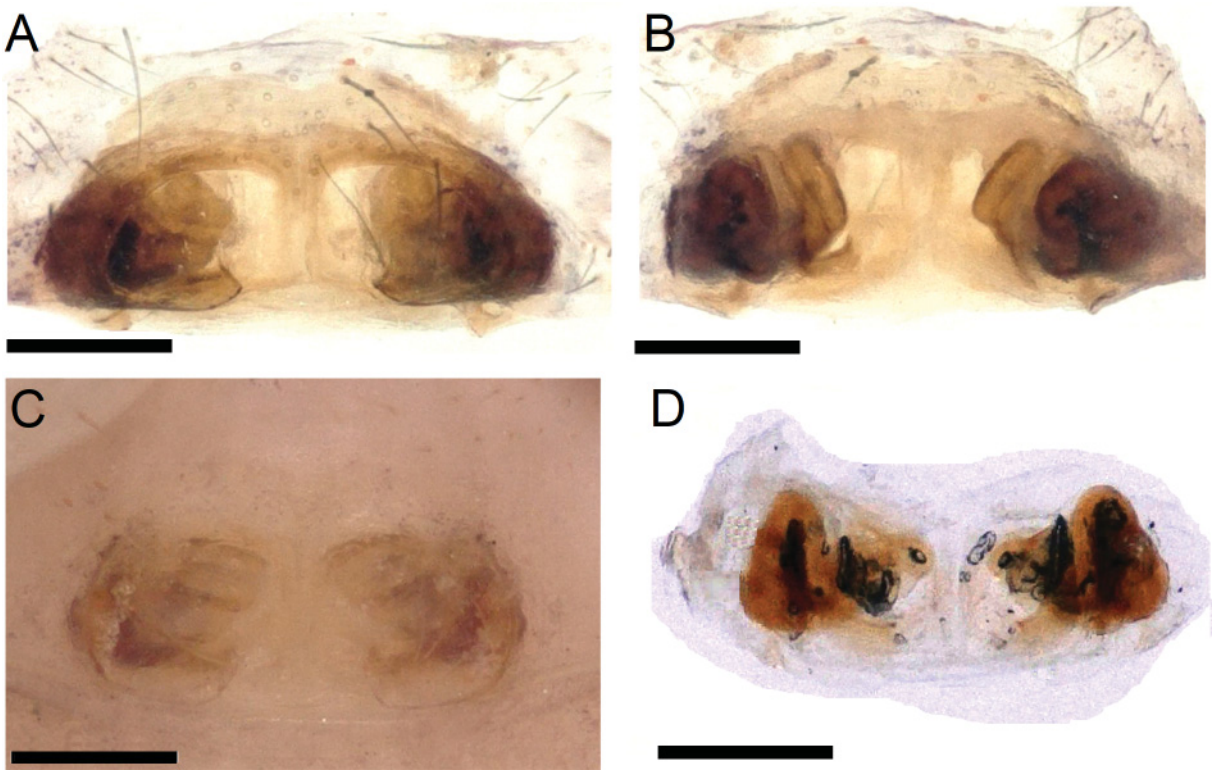

Fig. 26. Female copulatory organs of *Parazodarion raddei* (Simon, 1889). **A–B**. Specimen from Iran (ZMFUM-TA 1183). **C–D**. Specimen from Afghanistan (MMBC 7633 (5601/Ent). **A**. Epigyne, ventral view. **B**. Vulva, ventral view. **C**. Intact epigyne, ventral view. **D**. Epigyne, ventral view. Scale bars: 0.2 mm.

Genus ***Trygetus*** Simon, 1882

Type species

Trygetus sexoculatus O. Pickard-Cambridge, 1872.

Diagnosis

For genus diagnosis, refer to Levy (1992).

Trygetus sexoculatus (O. Pickard-Cambridge, 1872)
Figs 27–28

Palaestina sexoculata O. Pickard-Cambridge, 1872: 270.

Trygetus senoculatus – Simon 1893: 439.
Trygetus sexoculatus – Jocqué 1991: 149, figs 378–383. — Levy 1992: 77, figs 27–38.

Diagnosis

Refer to Jocqué (1991) and Levy (1992).

Material examined

ISRAEL • 2 ♂♂; Sayert Shaked; 1999; J. Levy leg.; CMU • 1 ♀; Lehavim; 31.364° N, 34.823° E; 12 Apr. 2001; S. Pekár leg.; CMU • 2 ♀♀; same collection data as for preceding; 20 Apr. 2001; S. Pekár leg.; CMU • 1 ♂; Halukim; 30.854° N, 34.768° E; 21 Mar. 2007; S. Pekár leg.; CMU • 8 ♂♂, 3 ♀♀, 1 juv.; same collection data as for preceding; 7 Apr. 2019; S. Pekár leg.; CMU • 2 ♂♂; same collection data as for preceding; 29 Mar. 2023; S. Pekár leg.; CMU • 1 ♀; Wadi Paran; 8 Apr. 2019; S. Pekár leg.; CMU.

Description

For a detailed description, refer to Levy (1992).

Distribution

Egypt, Israel.

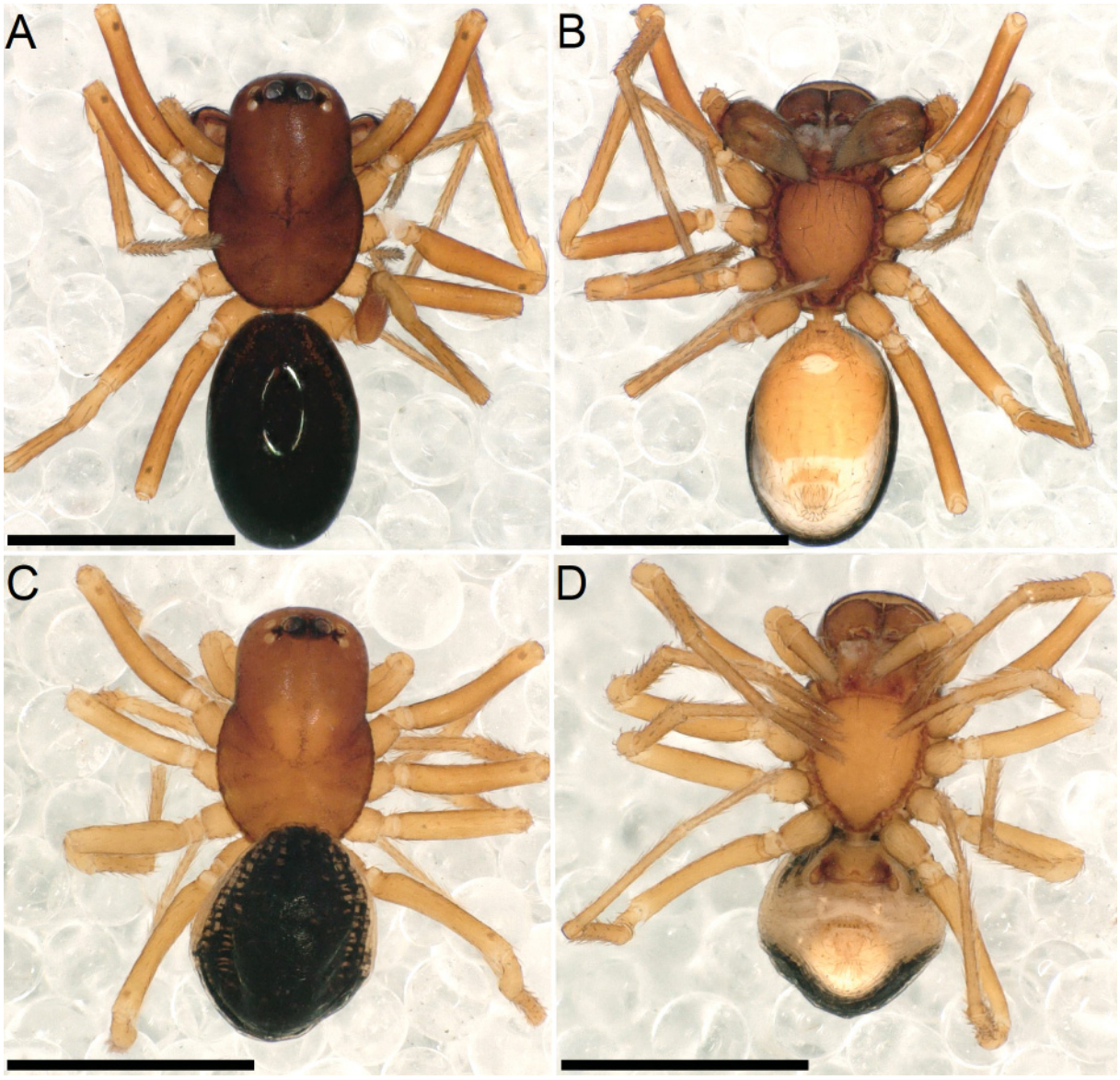

Fig. 27. Habitus of *Trygetus sexoculatus* (O. Pickard-Cambridge, 1872) (CMU). **A–B**. ♂. **C–D**. ♀. **A**. Dorsal view. **B**. Ventral view. **C**. Dorsal view. **D**. Ventral view. Scale bars: 1 mm.

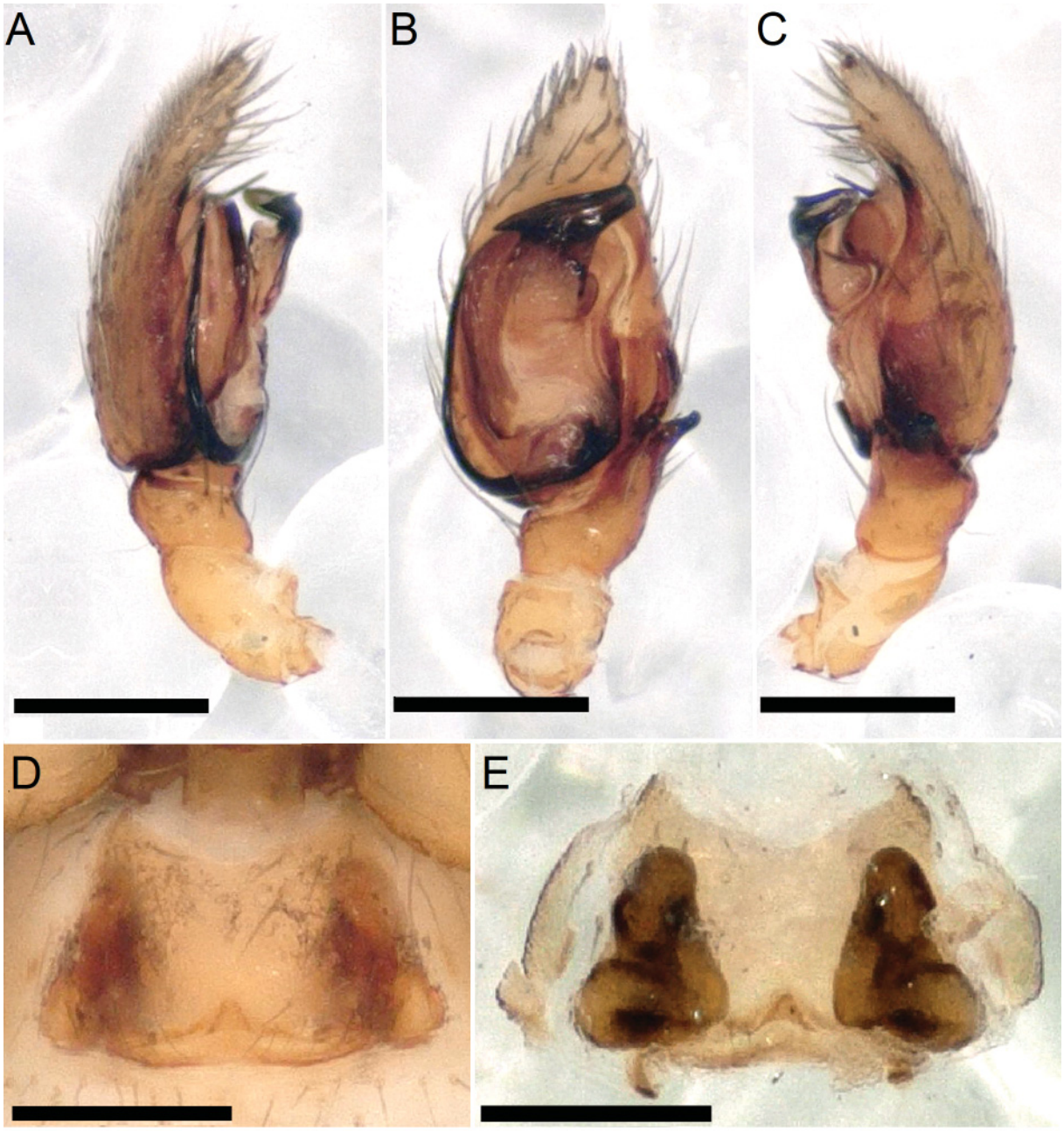

Fig. 28. Copulatory organs of *Trygetus sexoculatus* (O. Pickard-Cambridge, 1872) (CMU). **A–C**. Male palp. **D–E**. Female copulatory organ. **A**. Prolateral view. **B**. Ventral view. **C**. Retrolateral view. **D**. Intact epigyne, ventral view. **E**. Vulva, ventral view. Scale bars: 0.2 mm.

Genus ***Zodarion*** Walckenaer, 1826

Type species

Enyo nitida Audouin, 1826.

Diagnosis

For genus diagnosis, refer to Levy (1992).

Zodarion nitidum Audouin, 1826
Figs 29–31, 87, 106

Enyo nitida Audouin, 1826: 350, pl. 3 fig. 7.
Enyo longipes Audouin, 1826: 351, pl. 3 fig. 8.
Zodarion cambridgei Denis, 1938: 387.

Clotho nitida – Walckenaer 1837: 639.
Clotho longipes – Walckenaer 1837: 640.
Argus longipes – Walckenaer 1841: 347, pl. 16 fig. 6.
Zodarion longipes – Walckenaer 1847: 563.
Enyo nitida – Walckenaer 1847: 563. — Thorell 1869: 108. — F.O. Pickard-Cambridge 1876: 559.
Enyo luisante – Simon 1864: 160.
Zodarium longipes – Thorell 1869: 107.
Zodarium nitidum – Simon 1885: 29.
Zodarion nitidum – Simon 1893: 432, figs 403–407; 1908: 425. — Denis 1937: 6, pl. 1 fig. 1; 1962: 31, fig. 2. — Levy 1992: 86, figs 53–61. — Zamani & Marusik 2021: 188, fig. 28a–c; 2022: 162, fig. 11a–c.
Metargus longipes – F. Pickard-Cambridge 1902: 8.

Diagnosis

Zodarion nitidum specimens are most similar to *Z. nicki* in the shape of their copulatory organs, but the former species is distinguished by a brownish carapace and yellow coxae (vs black carapace and black to grey coxae; cf. Fig. 29A, C and Fig. 84A, C). Furthermore, males of *Z. nitidum* possess uniformly yellow femora (vs entirely black femora in *Z. nicki*; cf. Fig. 29A and Fig. 84A).

Material examined

EGYPT • 1 ♀; Alexandria; MNHN-AR2854 • 2 ♀♀; Cairo or Aswan, Lake Mariout; MNHN-AR2847.

ISRAEL • 1 ♂; Midreshet Sde Boker; 30.857° N, 34.781° E; 1 Apr. 2001; S. Pekár leg.; HUJINV-Ar 21301 • 1 ♀, same collection data as for preceding; HUJINV-Ar 21302 • 1 juv.; Midreshet Sde Boker; 10 Mar. 2001; S. Pekár leg.; CMU • 1 ♂; Arava Area, 12 km N of Ein Yahav Moshav, Hatzeva Moshav; 30.754° N, 35.269° E; 13 Mar. 2001; S. Pekár leg.; CMU • 1 ♀, 3 juv.; s. loc.; Apr. 2001; S. Pekár leg.; CMU • 12 ♂♂, 9 ♀♀, 50 juv.; same collection data as for preceding; Feb.–Mar. 2018; L. Sentenská leg.; CMU • 1 ♀, 2 juv.; same collection data as for preceding; 6 Apr. 2019; S. Pekár leg.; CMU • 9 ♂♂ 3 ♀♀ 1 juv.; Halukim; 30.854° N, 34.784° E; 16 Apr. 2001; S. Pekár leg.; CMU • 1 ♀; same collection data as for preceding; 27 Mar. 2007; S. Pekár leg.; CMU • 3 ♂♂, 1 juv.; same collection data as for preceding; 18 Mar. 2017; O. Macháč leg.; CMU • 6 ♂♂; same collection data as for preceding; 9 Apr. 2019; S. Pekár leg.; CMU • 1 ♀; Mashabim; 31.000° N, 34.757° E; 4 Sep. 2002; Y. Lubin leg.; CMU • 2 ♀♀; same collection data as for preceding; Sep. 2004; J. Král leg.; CMU • 1 ♂, 1 ♀; same collection data as for preceding; 1 Apr. 2016; S. Korenko leg.; CMU • 1 ♂; same collection data as for preceding; 1 Apr. 2017; S. Korenko leg.; CMU • 1 juv.; same collection data as for preceding; 6 Apr. 2019; S. Pekár leg.; CMU • 1 ♀; same collection data as for preceding; 28 Mar. 2023; S. Pekár and V. Opatová leg.; CMU • 1 ♀; same collection data as for preceding; 29 Mar. 2023; S. Pekár leg.; CMU • 1 ♂; Beersheba, between Beer Sheva and Mitzpe Ramon; 6–29 May 2003; M. Řezáč leg.; CMU • 1 ♀; Meirav; 29 Sep. 2007; J. Král leg.; CMU • 2 ♂♂, 2 juv.; Yeroham; 30.971° N, 34.97° E; 3 Mar. 2016; S. Pekár, S. Korenko and E. Líznarová leg.; CMU • 18 ♂♂, 11 ♀♀; same collection data as for preceding; 5 Apr. 2017; S. Pekár and S. Korenko leg.; CMU • 2 ♀♀, 8 juv.; same collection data as for preceding; 18 May 2017; O. Macháč leg.; CMU • 3 juv.; same collection data as for preceding; 5 Apr. 2019; S. Pekár leg.; CMU • 1 juv.; Ramon Crater, Nahal Paran; 30.333° N, 34.968° E; 8 Apr. 2019; S. Pekár leg.; CMU • 6 ♀♀, 2 juv.; s. loc.; May 2019; S. Pekár, L. Sentenská and S. Korenko leg.; CMU • 2 juv.; Hatira; 30.872° N, 34.816° E; 28 Mar. 2023; S. Pekár and V. Opatová leg.; CMU • 1 ♂, 1 ♀, 4 juv.; Borot Lotz; 30.511° N, 34.612° E; 29 Mar. 2023; S. Pekár and V. Opatová leg.; CMU.

PALESTINE • 3 ♀♀; Jericho or Bethlehem; MNHN-AR2849.

Redescription

Male (HUJINV-Ar 21301)

Habitus (Fig. 29A–B). Carapace dark brown; chelicerae and mouthparts brown; sternum light brown, with dark spots radiating towards the center. Legs entirely yellow except for the first pair of Fe, Pa and Ti laterally greyish. Palp segments grey to yellow. Abdomen dorsum black, venter apically pale and turned to dark brown distally; PVS present. Spinnerets black basally and pale apically.

Measurements. Total length 4; carapace 2 long, 1.5 wide. Clypeus 0.1 high. Eye sizes and interdistances: AME 0.1, ALE = PME 0.06, PLE 0.04, AME–AME 0.06, AME–ALE 0.02, ALE–ALE 0.27, AME–PME 0.06, PME–PME 0.41, PME–PLE 0.06, PLE–PLE 0.23, ALE–PLE 0.1. Legs: I 7.52 (1.69, 0.64, 1.63, 2.03, 1.52), II 6.64 (1.59, 0.56, 1.53, 1.86, 1.1), III 6.8 (1.63, 0.87, 1.39, 1.85, 1.06), IV 8.14 (2.23, 0.64, 1.66, 2.37, 1.24). Palp: 1.28 (0.52, 0.25, 0.16, 0.35).

Palp (Fig. 30A–F). For details, refer to Levy (1992).

Female (HUJINV-Ar 21302)

Habitus (Fig. 29C–D). Carapace, chelicerae and abdomen similar to those in male except abdomen venter slightly lighter. Mouthparts lighter than those in male. Fe I and II dark brown, with longitudinal, parallel lighter stripes; Fe III and IV darkened on the second half. Ti of all legs light, with dark lateral sides. Pa, Mt and Ta of all legs brown. Spinnerets brown basally and pale apically; PVS present.

Measurements. Total length 6.8; carapace 2.59 long, 1.85 wide. Clypeus 0.18 high. Eye sizes and interdistances: AME 0.1, ALE = PME = PLE 0.06, AME–AME 0.08, AME–ALE 0.04, ALE–ALE 0.4, AME–PME 0.08, PME–PME 0.42, PME–PLE 0.06, PLE–PLE 0.24, ALE–PLE 0.2. Legs: I 5.85 (1.41, 0.54, 1.61, 1.29, 1), II 5.37 (1.31, 1.15, 0.54, 1.47, 0.9), III 5.03 (1.23, 0.52, 1.1, 1.47, 0.71), IV 6.59 (1.69, 0.77, 1.4, 1.86, 0.87). Palp: 1.52 (0.54, 0.33, 0.19, 0.46).

Epigyne (Fig. 31A–F). For details, refer to Levy (1992).

Size variation

Total body length 2.5–4.4, carapace length/width 1.8–2/1.48–1.6 in males (N = 6). Total body length 4.6–6.8, carapace length/width 2.1–2.6/1.6–1.7 in females (N = 6). For the carapace length/width ratio, refer to Fig. 87.

Remarks

Although taxonomic studies on the genus *Zodarion* have a long history, little is known about its type species, Z. *nitidum*. In fact, *Z. nitidum* was not properly illustrated until Denis prepared two distinct epigyne drawings in separate manuscripts, each claiming to be the first illustration of *Z. nitidum*'s epigyne (Denis 1937, 1962). The reason for Denis' failure to address this inconsistency in his publications from 1937 to 1962 remains unclear (World Spider Catalog 2025).

Thirty years later, Levy (1992) acknowledged that the types of *Z. nitidum* – *Enyo nitida* (♀) and *Enyo longipes* (♂) – were presumably lost. However, he examined the holotypes of *Zodarium nicki* Strand, 1914 and *Zodarion cambridgei* Denis, 1938, along with a large number of newly collected specimens from various localities across Israel, Jordan, and Sinai. Based on the observed similarities in copulatory structures, Levy assigned all of these specimens to *Z. nitidum*. Despite Levy being the first to provide detailed descriptions and illustrations for both sexes within the *Z. nitidum* complex, his conclusions were based solely on the newly collected material. Consequently, he neither compared these specimens with the original (now lost) types nor provided illustrations that might serve as proxies for future taxonomic assessments.

Ultimately, all morphologically variable specimens were subsumed under the name *Z. nitidum*. However, recent comprehensive studies on the biology and ecology of this species complex (Pekár *et al*. 2022) combined with molecular phylogenomic analyses (Ortiz *et al*. 2024) have revealed that the complex consists of two distinct, diagnosable species, now recognized as *Z. nitidum* and *Z. nicki*.

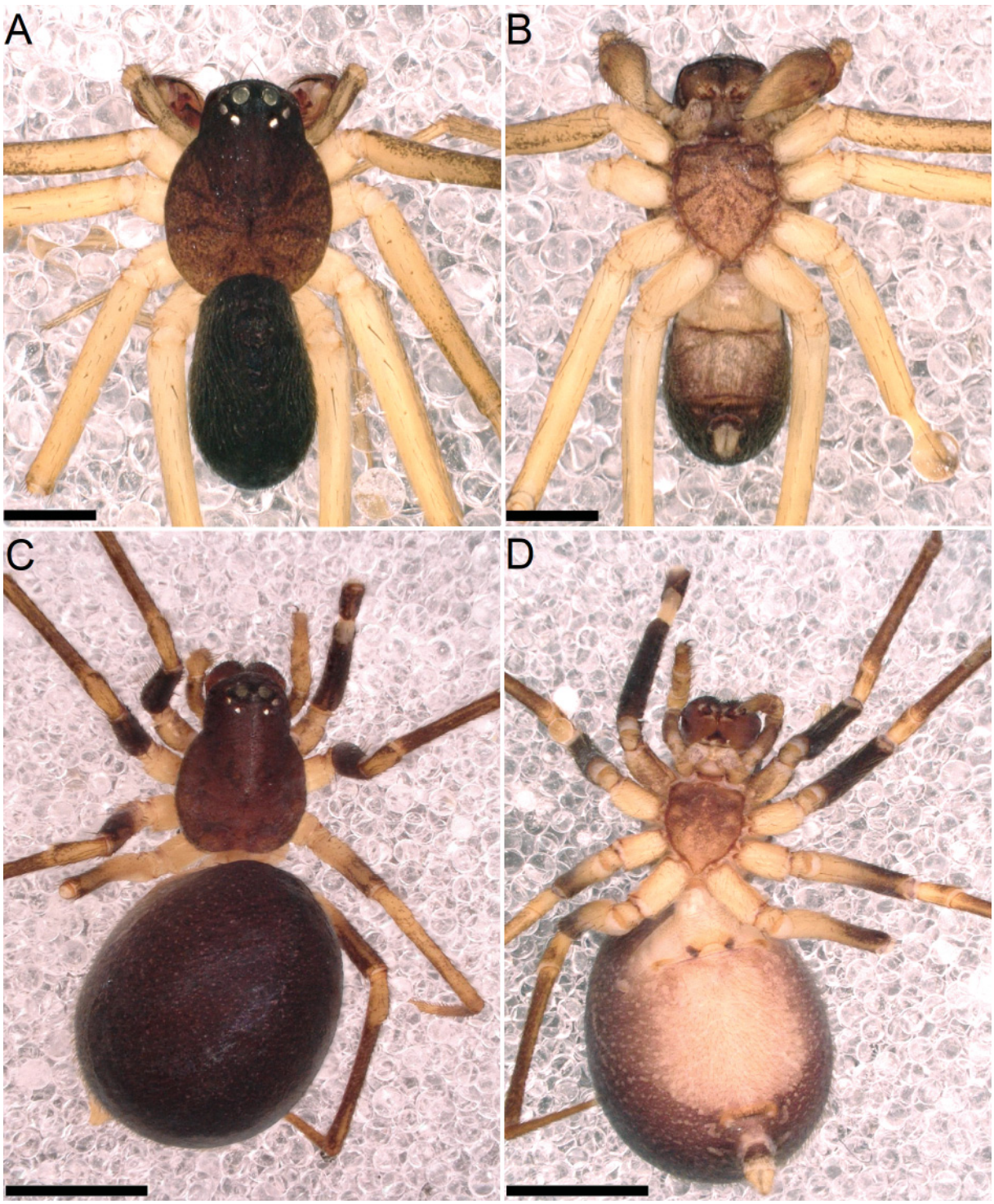

Fig. 29. Habitus of *Zodarion nitidum* Audouin, 1826. **A–B**. ♂ (HUJINV-Ar 21301). **C–D**. ♀ (HUJINV-Ar 21302). **A**. Dorsal view. **B**. Ventral view. **C**. Dorsal view. **D**. Ventral view. Scale bars: 1 mm.

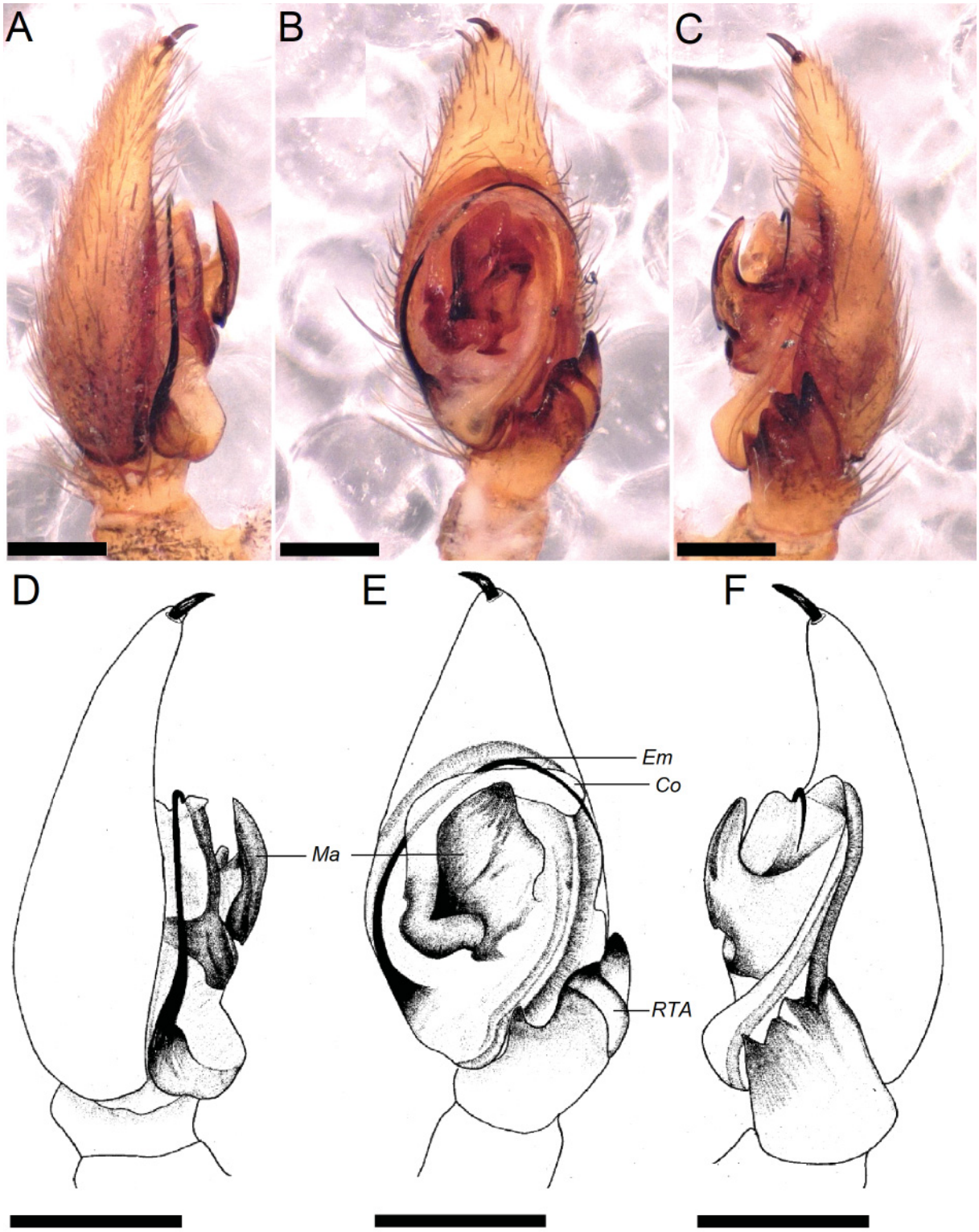

Fig. 30. Male copulatory organ of *Zodarion nitidum* Audouin, 1826 (HUJINV-Ar 21301). **A**. Prolateral view. **B**. Ventral view. **C**. Retrolateral view. **D**. Prolateral view. **E**. Ventral view. **F**. Retrolateral view. Abbreviations: see Material and methods. Scale bars: 0.2 mm.

Examination of the material from the Simon collection, who frequently combined specimens of different species or from different localities in a single tube, demonstrated that six female individuals, preserved in three different tubes (MNHN-AR2847: 2 ♀♀; MNHN-AR2849: 3 ♀♀; MNHN-AR2854: 1 ♀), had been misidentified and are, in fact, assignable to *Z. nitidum*. It should be noted that the MNHN-AR2854 tube contains material from multiple species, including the neotypes of *Z. tunetiacum* and *Z. nitidum*. The epigyne of the single *Z. nitidum* specimen from this tube closely corresponds with the illustrations provided by Denis (1937) (Fig. 31E cf. Fig. 31F). Levy (1992) erroneously lumped specimens of *Z. nitidum* and *Z. nicki* under a single taxon, as he found no discernible differences in their copulatory organ structures.

Levy (1992) also pointed out that earlier arachnologists had merged *E. nitida* (♀) and *E. longipes* (♂) – both described by Audouin (1826) – and subsequently treated them as *Z. nitidum*. However, whether these original associations were taxonomically accurate remains uncertain.

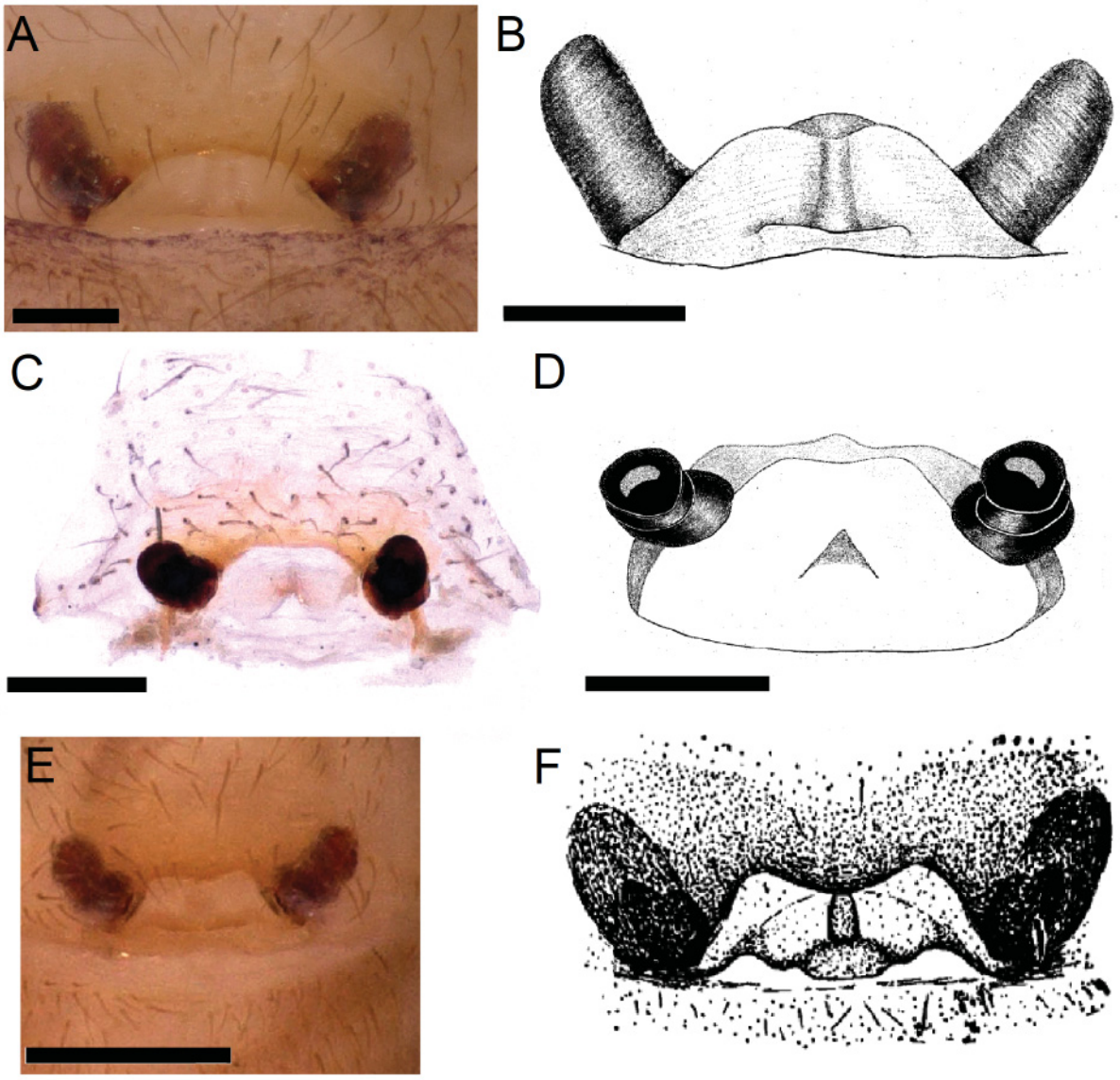

Fig. 31. Female copulatory organ of *Zodarion nitidum* Audouin, 1826. **A–D**. Specimen from Israel (HUJINV-Ar 21302). **E–F**. Specimen from Egypt (MNHN-AR2854). **A**. Intact epigyne, ventral view. **B**. Epigyne, ventral view. **C**. Vulva, ventral view. **D**. Vulva, ventral view. **E**. Intact epigyne, ventral view. **F**. Epigyne, ventral view, after Denis (1937). Scale bars: 0.2 mm.

Distribution

North Africa, Middle East.

Zodarion abantense Wunderlich, 1980
Figs 32, 105

Zodarion abantense Wunderlich, 1980: 236, figs 19–24.
Zodarion tireboluensis Danişman & Rubio, 2017: 179, figs 1–4.

Zodarion abantense – Dunin & Nenilin 1987: 192, figs 1–2. — Bosmans 2009: 228, figs 32–34, 60–61. — Dimitrov 2020: 362, figs 8–15.

Diagnosis

Refer to Bosmans (2009).

Material examined

GREECE • 1 ♂; between Aisymi-Mega Dereio, 5 km bef.; 389 m a.s.l.; 15 May–23 Jun. 2015; M. Chatzaki leg.; CMU.

Description

For a detailed description, refer to Bosmans (2009).

Distribution

Previous studies recorded *Z. abantense* in Turkey, Georgia and Russia; this is the first report of this species from Greece and represents, therefore, the westernmost occurrence of this species across its entire distribution range.

Zodarion aculeatum Chyzer, 1897
Fig. 33

Zodarion aculeatum Chyzer in Chyzer & Kulczyński, 1897: 149, pl. 6 fig. 5.
Zodarion geticum Weiss, 1987: 103, figs 1–4.

Zodarion aculeatum – Denis 1937: 39, pl. 8 fig. 67. — Drensky 1940: 174, fig. 3b. — Bosmans 2009: 225, figs 15–17, 51–52.

Diagnosis

Refer to Bosmans (2009).

Type material examined

Holotype
ROMANIA • ♀; Wallachia, Orsova; 30 Sep. 1991; HNHM 1187.

Description

For a detailed description, refer to Bosmans (2009).

Distribution

Albania, Bulgaria, North Macedonia, Romania, Serbia.

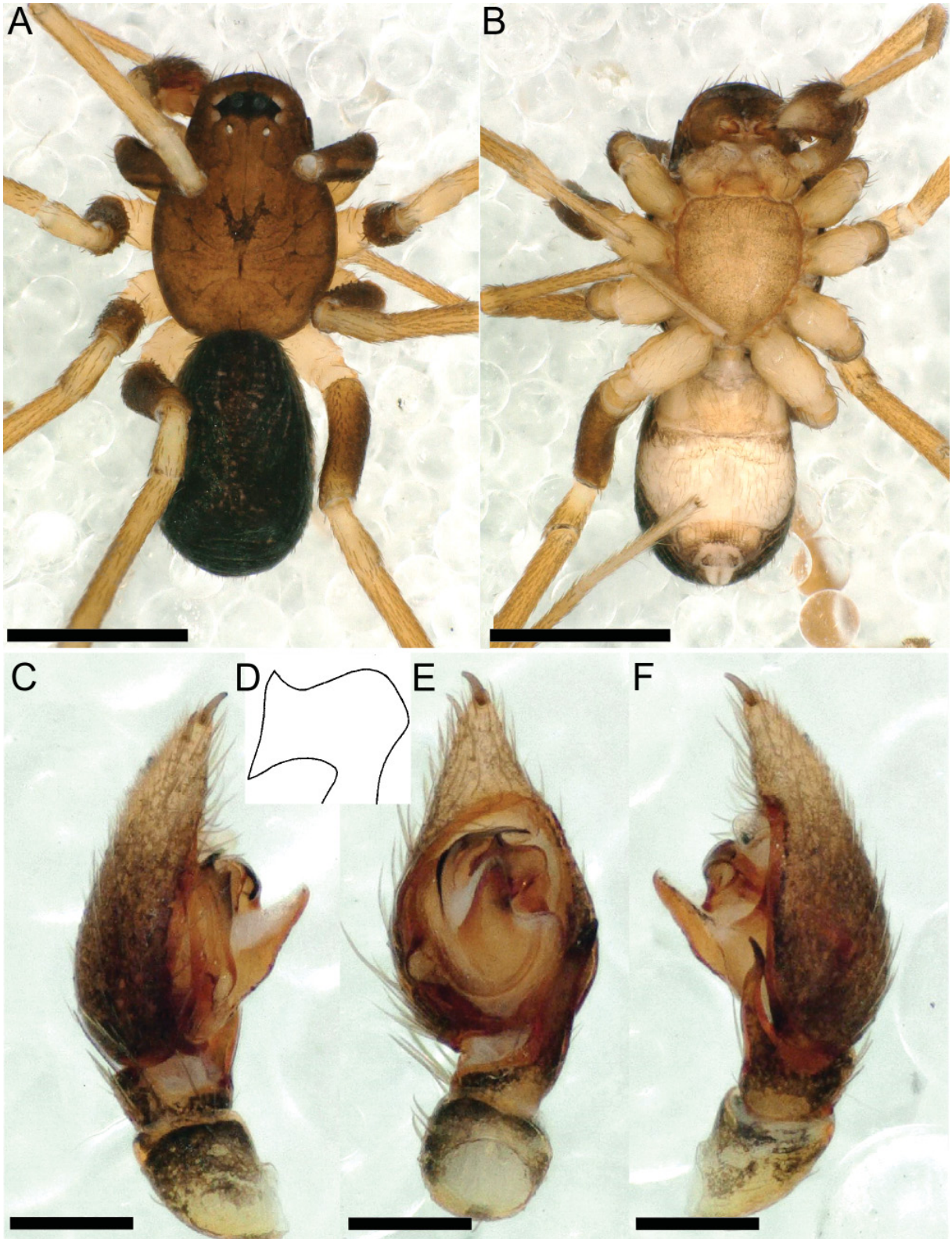

Fig. 32. *Zodarion abantense* Wunderlich, 1980 (CMU), ♂. **A**. Habitus, dorsal view. **B**. Habitus, ventral view. **C**. Palp, prolateral view. **D**. Median apophysis, ventral view. **E**. Palp, ventral view. **F**. Palp, retrolateral view. Scale bars: A–B = 1 mm; C, E–F = 0.2 mm.

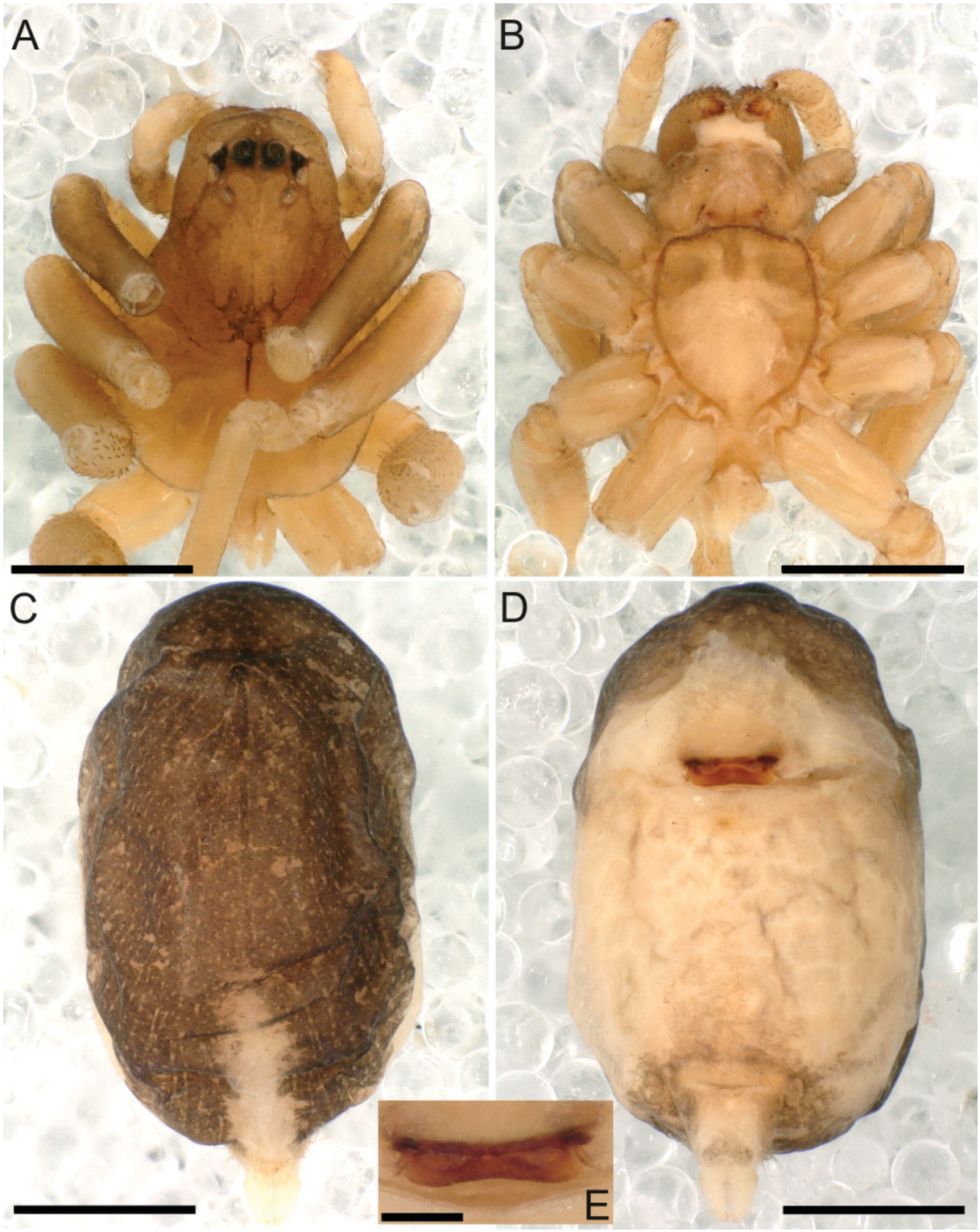

Fig. 33. *Zodarion aculeatum* Chyzer, 1897, holotype, ♀ (HNHM 1187). **A**. Prosoma, dorsal view. **B**. Prosoma, ventral view. **C**. Abdomen, dorsal view. **D**. Abdomen, ventral view. **E**. Epigyne, ventral view. Scale bars: A–D = 1 mm; E = 0.2 mm.

Zodarion barbarae Bosmans, 2009
Figs 34–35

Zodarion barbarae Bosmans, 2009: 248, figs 80–83, 138–139.

Zodarion barbarae – Bosmans *et al.* 2019: 32, fig. 20a–g. — Özkütük 2022: 241, figs 1–15. — Coşar & Danışman 2024: 268, figs 21–22.

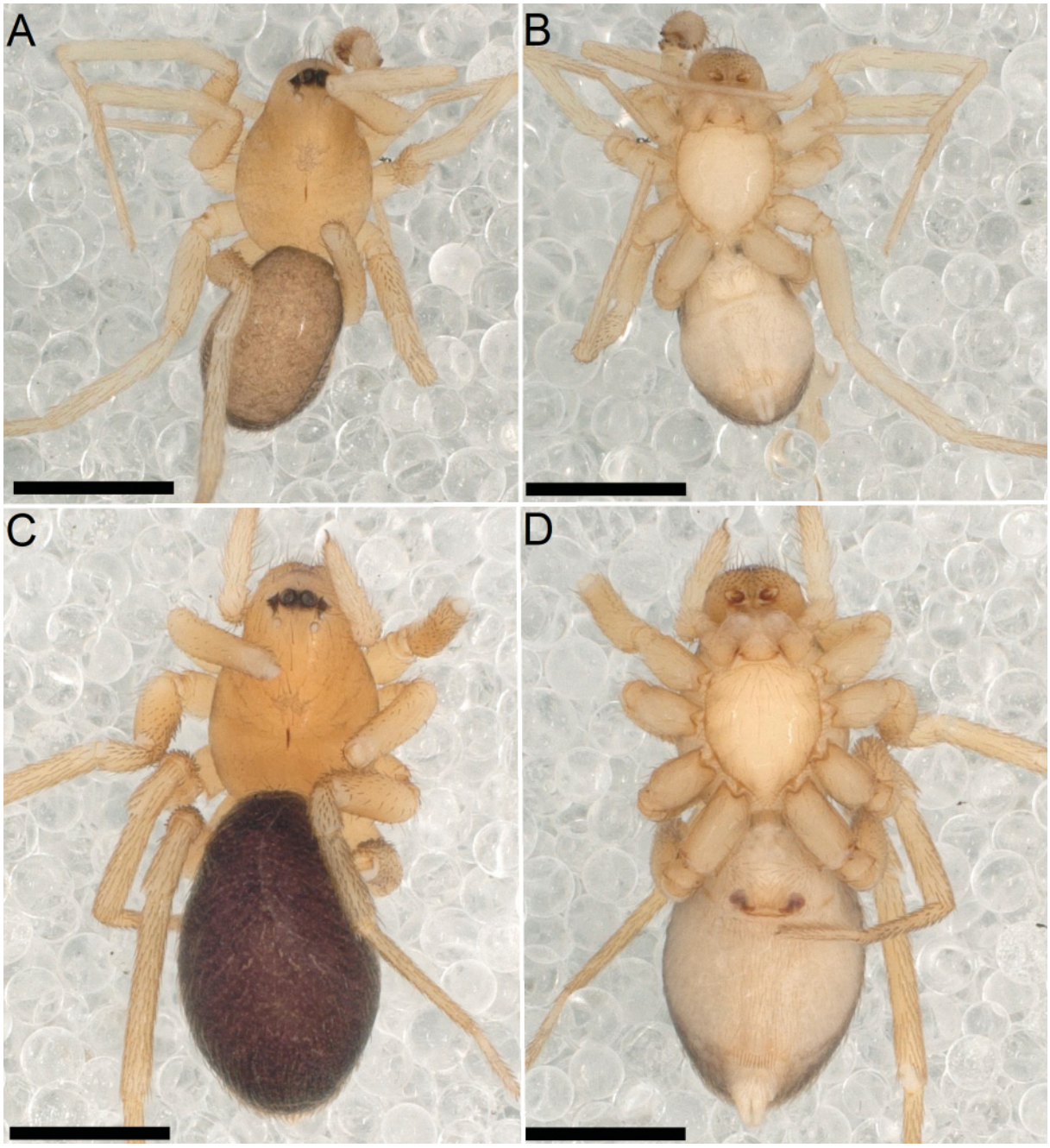

Fig. 34. Habitus of *Zodarion barbarae* Bosmans, 2009. **A–B**. Holotype, ♂ (NMBE-AR4147). **C–D**. Paratype, ♀ (NMBE-AR4147). **A**. Dorsal view. **B**. Ventral view. **C**. Dorsal view. **D**. Ventral view. Scale bars: 1 mm.

Diagnosis

Refer to Bosmans (2009).

Type material examined

Holotype

GREECE • ♂; Peloponnisos, Oros Taigetos, Moni Panaghi Giatrissa; 1100 m a.s.l.; 30 Sep. 1991; B. Knoflach and K. Thaler leg.; NMBE-AR4147.

Paratypes

GREECE • 2 ♀♀; same collection data as for holotype; NMBE-AR4147.

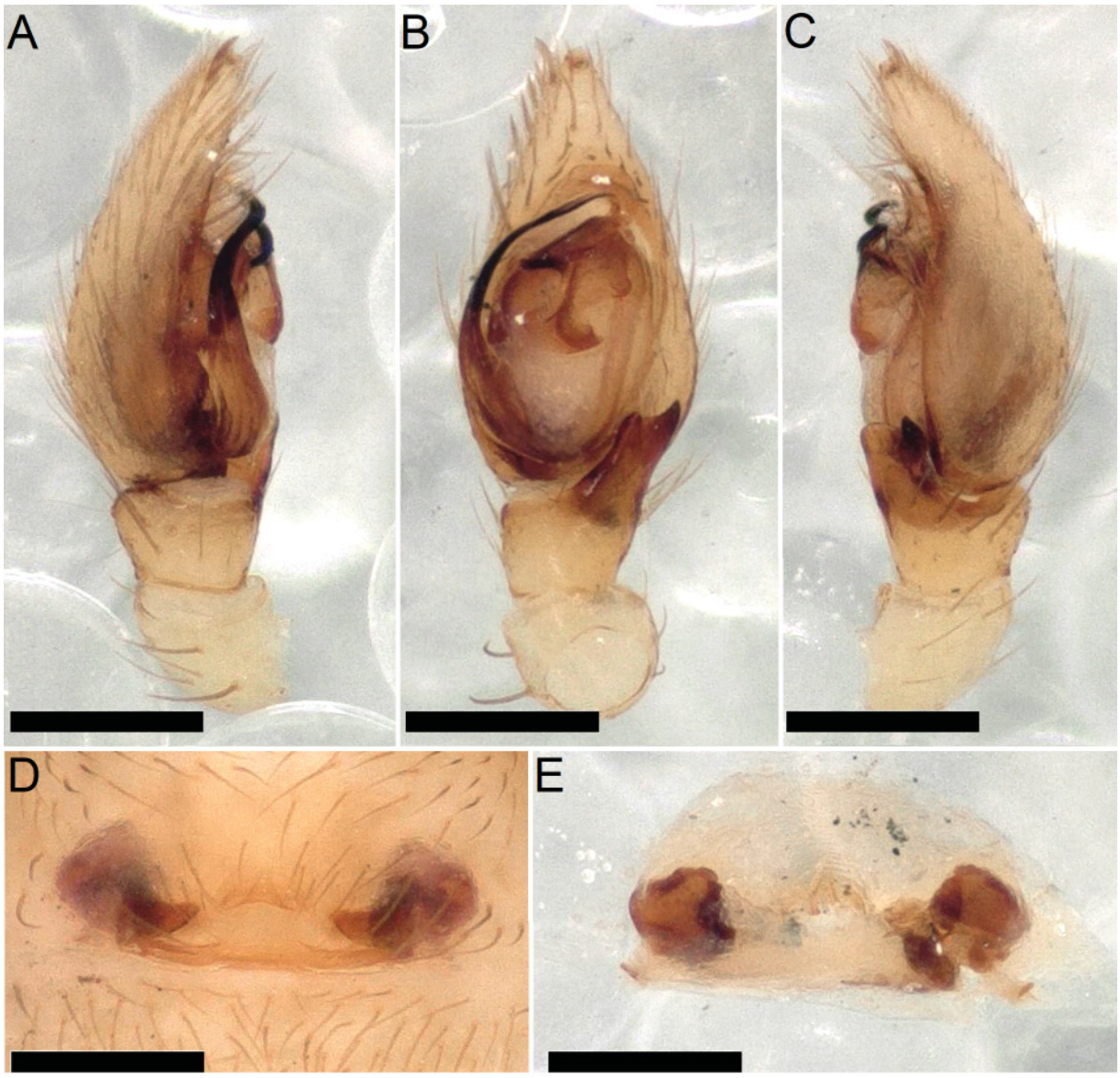

Fig. 35. Copulatory organs of *Zodarion barbarae* Bosmans, 2009. **A–C**. Holotype, male palp (NMBE-AR4147). **D–E**. Paratype, female copulatory organ (NMBE-AR4147). **A**. Prolateral view. **B**. Ventral view. **C**. Retrolateral view. **D**. Intact epigyne, ventral view. **E**. Vulva, ventral view. Scale bars: 0.2 mm.

Other material examined

CYPRUS • 1 ♂, 14 juv.; Nicosia, Lefka Dam; 35.063° N, 32.837° E; 288 m a.s.l.; 25 Apr. 2022; S. Pekár, S. Shafaie, V. Šoltýsová and O. Michálek leg.; CMU.

TURKEY • 1 ♂, 1 ♀ 14 juv.; Konakli, Macchie Hill, 10 km W of Alanya; 20 May 2005; J. Dolanský leg.; CMU.

Description

For a detailed description, refer to Bosmans (2009).

Distribution

Greece, Cyprus, Turkey.

Zodarion beroni Komnenov & Chatzaki, 2016
Figs 36–37

Zodarion beroni Komnenov & Chatzaki in Komnenov *et al*., 2016: 41, figs 97–111.

Diagnosis

Refer to Komnenov *et al*. (2016).

Material examined

GREECE • 1 ♂; 20 km after Dadia; 660 m a.s.l.; 22 Jun.–21 Jul. 2015; M. Chatzaki leg.; CMU • 6 ♂♂, 1 ♀; 2 km after Pefka/Retziki Suburb; 121 m a.s.l.; 22 Jun.–21 Jul. 2015; M. Chatzaki leg.; CMU • 2 ♂♂; between Aisymi-Mega Dereio, 500 m W.; 389 m a.s.l.; 22 Jul.–26 Aug. 2015; M. Chatzaki leg.; CMU.

Description

For a detailed description, refer to Komnenov *et al*. (2016).

Distribution

Greece.

Zodarion blagoevi Bosmans, 2009
Fig. 38

Zodarion blagoevi Bosmans, 2009: 249, figs 84–87, 140–141.

Zodarion blagoevi – Deltshev *et al.* 2022: 248, figs 2, 6, 10, 14, 20–22, 30, 34, 38, 42, 46, 49, 52, 55.

Diagnosis

Refer to Bosmans (2009).

Material examined

GREECE • 10 ♂♂; Aladjagiola Wetland (N of Chrisoupoli); 41.01° N, 24.703° E; 25 Jun. 2006; M. Schröder leg.; CMU.

Description

For a detailed description, refer to Bosmans (2009).

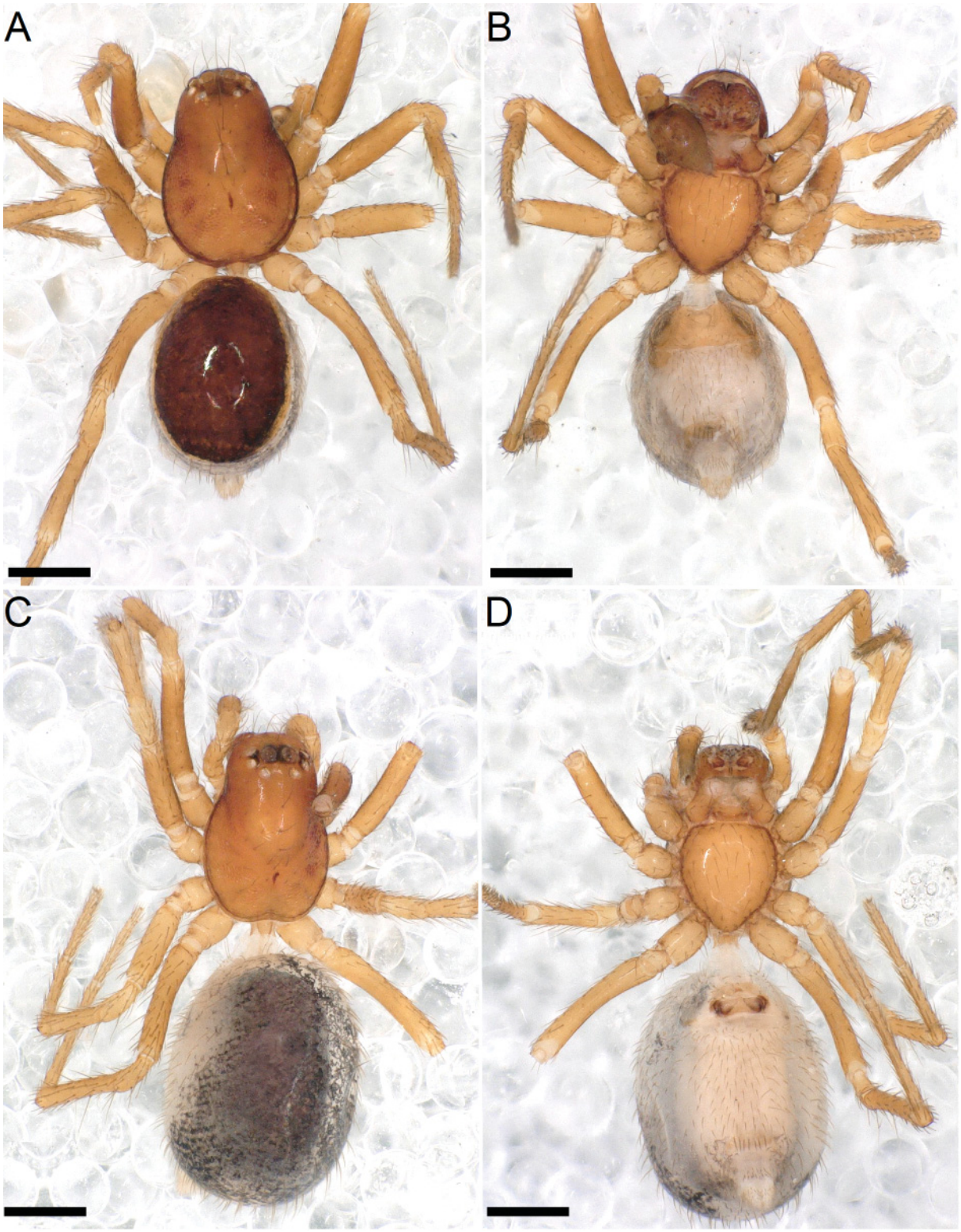

Fig. 36. Habitus of *Zodarion beroni* Komnenov & Chatzaki, 2016 (CMU). **A–B**. ♂. **C–D**. ♀. **A**. Dorsal view. **B**. Ventral view. **C**. Dorsal view. **D**. Ventral view. Scale bars: 0.4 mm.

Distribution

Bulgaria, Greece.

Zodarion christae Bosmans, 2009
Figs 39–40

Zodarion christae Bosmans, 2009: 284, figs 186–187, 196–197.

Zodarion christae – Coşar *et al*. 2021: 46, figs 1a–f, 2a–e, 3a–b.

Diagnosis

Refer to Bosmans (2009).

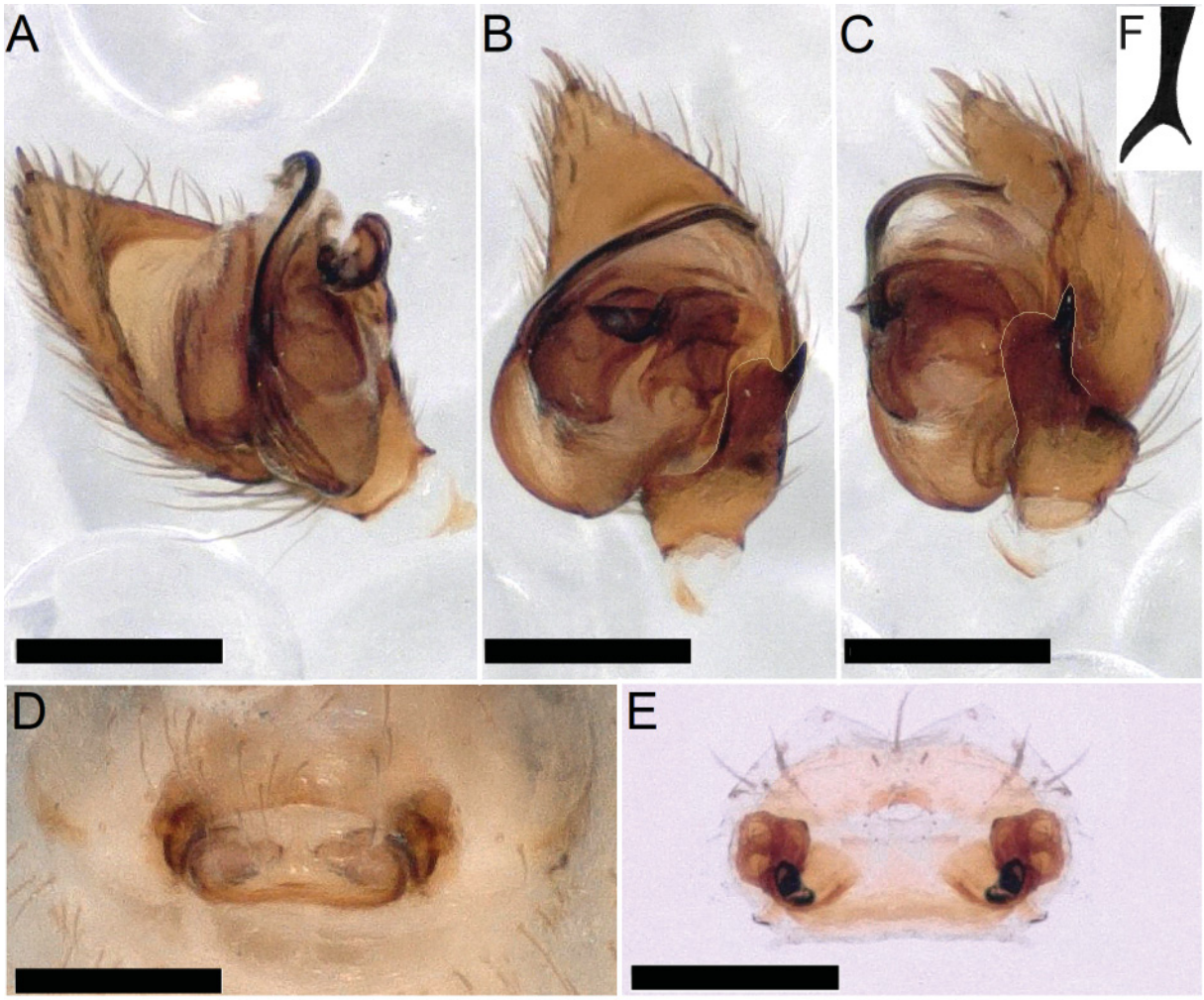

Fig. 37. Copulatory organs of *Zodarion beroni* Komnenov & Chatzaki, 2016 (CMU). **A–C**, **F**. Male palp, with rotated bulb inside. **D–E**. Female copulatory organ. **A**. Prolateral view. **B**. Ventral view. **C**. Retrolateral view. **D**. Intact epigyne, ventral view. **E**. Vulva, ventral view. **F**. Detail of embolus, ventral view. Scale bars: 0.2 mm.

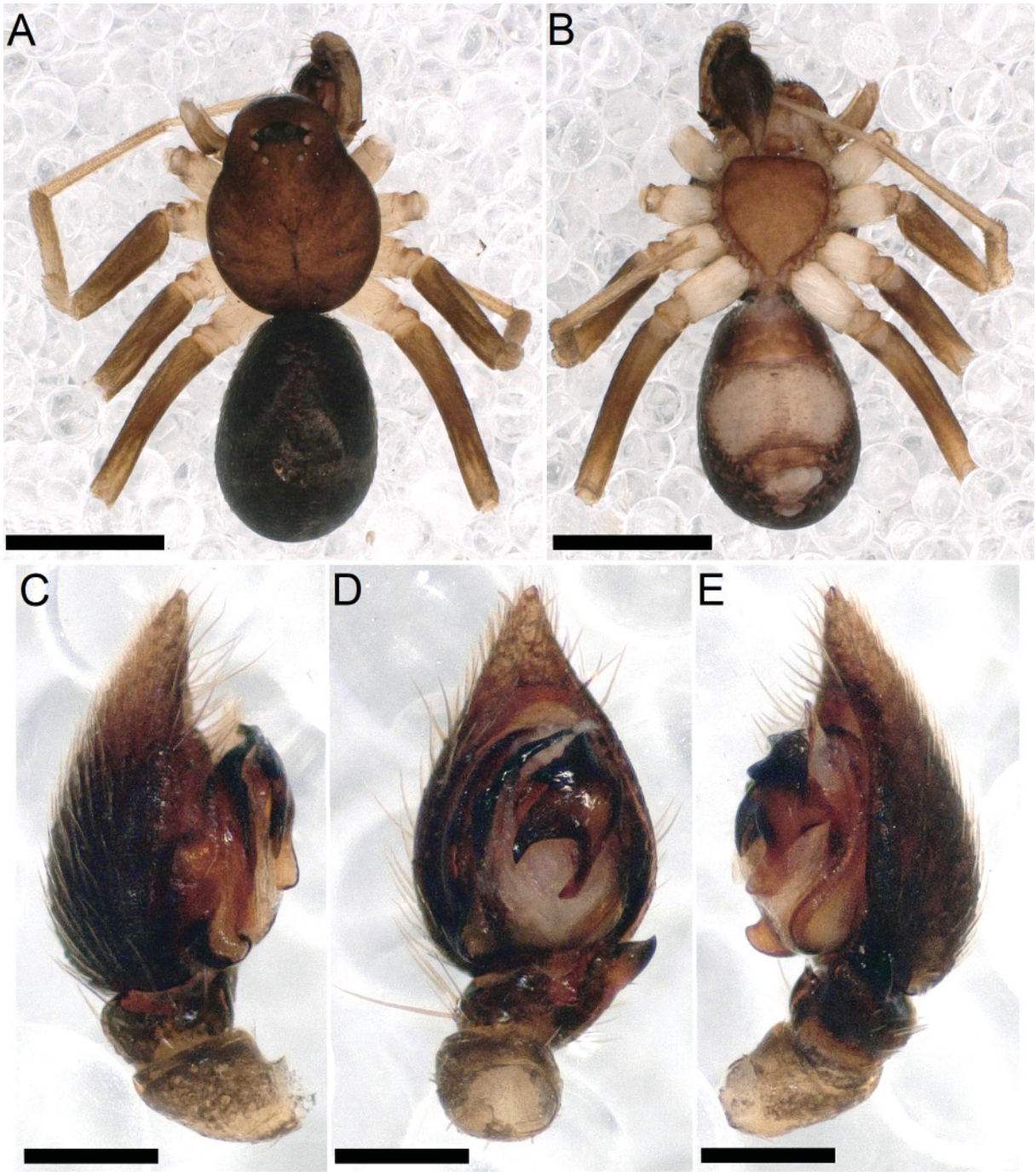

Fig. 38. *Zodarion blagoevi* Bosmans, 2009 (CMU), ♂. **A**. Habitus, dorsal view. **B**. Habitus, ventral view. **C**. Palp, prolateral view. **D**. Palp, ventral view. **E**. Palp, retrolateral view. Scale bars: A–B = 1 mm; C–E = 0.2 mm.

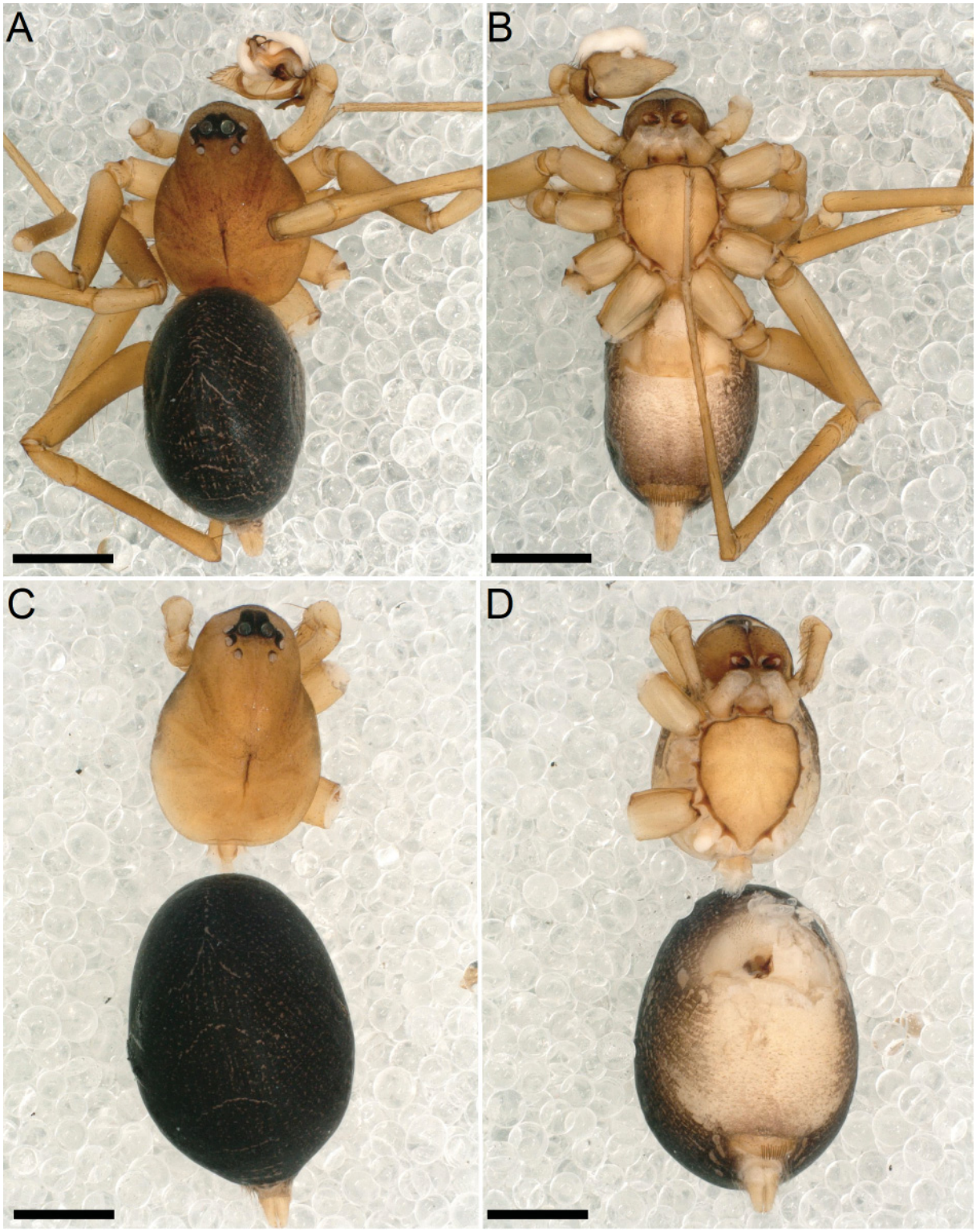

Fig. 39. Habitus of *Zodarion christae* Bosmans, 2009 (CMU). **A–B**. ♂. **C–D**. ♀. **A**. Dorsal view. **B**. Ventral view. **C**. Dorsal view. **D**. Ventral view. Scale bars: 1 mm.

Material examined

TURKEY • 1 ♂, 1 ♀; Isparta, Aksu, Dedegöl Mountain; 37.656° N, 31.291° E; 8 Jul. 2003; M. Řezáč leg.; CMU.

Description

For a detailed description, refer to Bosmans (2009).

Remarks

Due to damage sustained by the median apophyses in the male palps and the epigyne during the clearing process, it was not possible to include photographs of these structures in this study.

Distribution

Greece, Turkey.

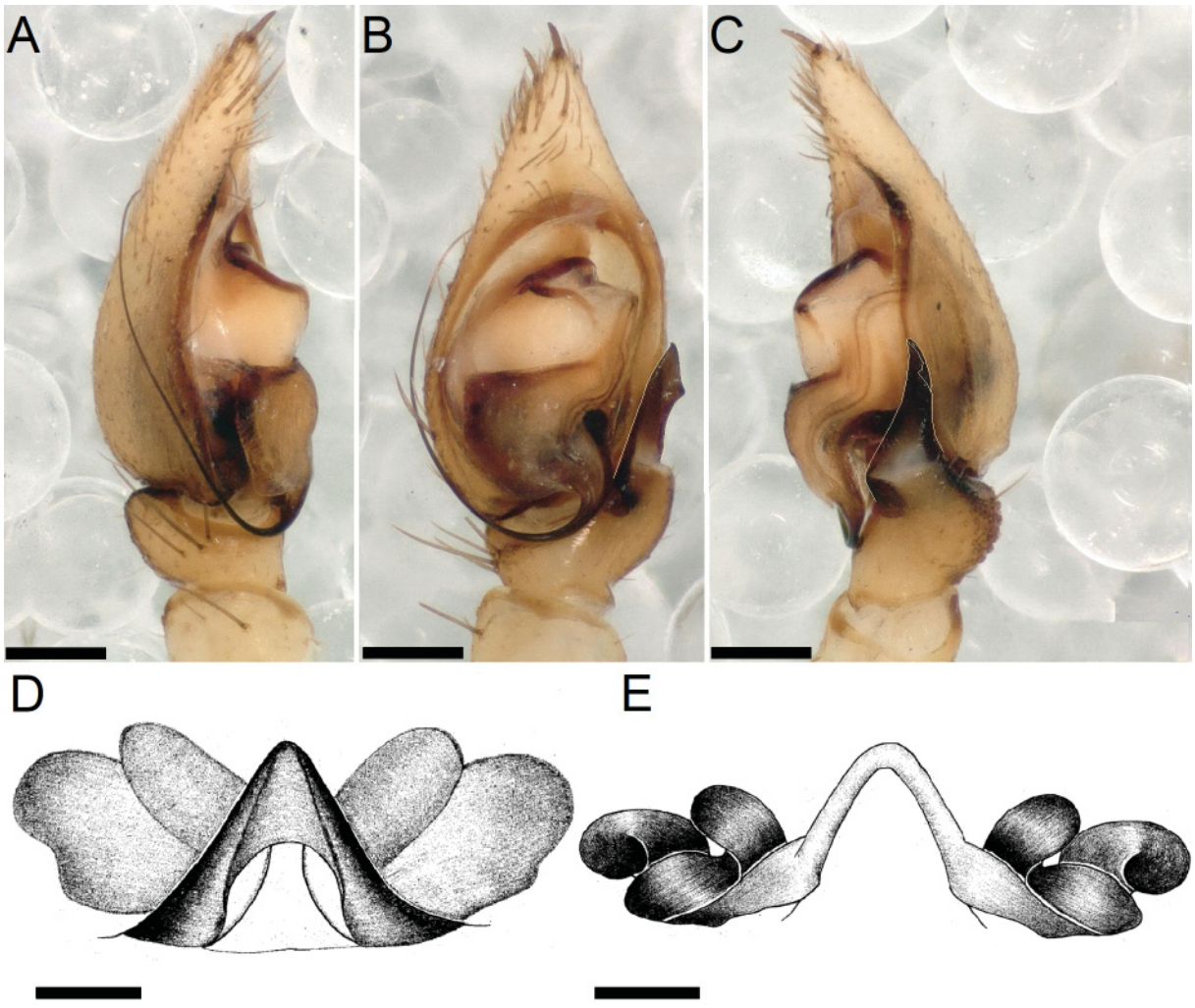

Fig. 40. Copulatory organs of *Zodarion christae* Bosmans, 2009 (CMU). **A–C**. Male palp. **D–E**. Female copulatory organ. **A**. Prolateral view. **B**. Ventral view. **C**. Retrolateral view. **D**. Epigyne, ventral view. **E**. Vulva, ventral view. Scale bars: 0.2 mm.

Zodarion crewsae Coşar, Danışman & Kunt, 2022
Figs 41–42, 106

Zodarion crewsae Coşar *et al*. 2022: 229, figs 1–16.

Diagnosis

Refer to Coşar *et al*. (2022).

Material examined

TURKEY • 1 ♂; Tunceli, Munzur River; 38.957° N, 39.561° E; 22 Jun. 2002; M. Řezáč leg.; CMU.

Description

For a detailed description, refer to Coşar *et al*. (2022).

Remarks

A figure-based comparison of the single specimen from eastern Turkey with specimen from the southern population revealed that the eastern specimen exibited a significantly shorter distal branch of the median apophysis, and a lighter femur I and carapace. However, to accurately classify this population, additional specimens are needed to evaluate whether it represents a new species.

Distribution

Turkey.

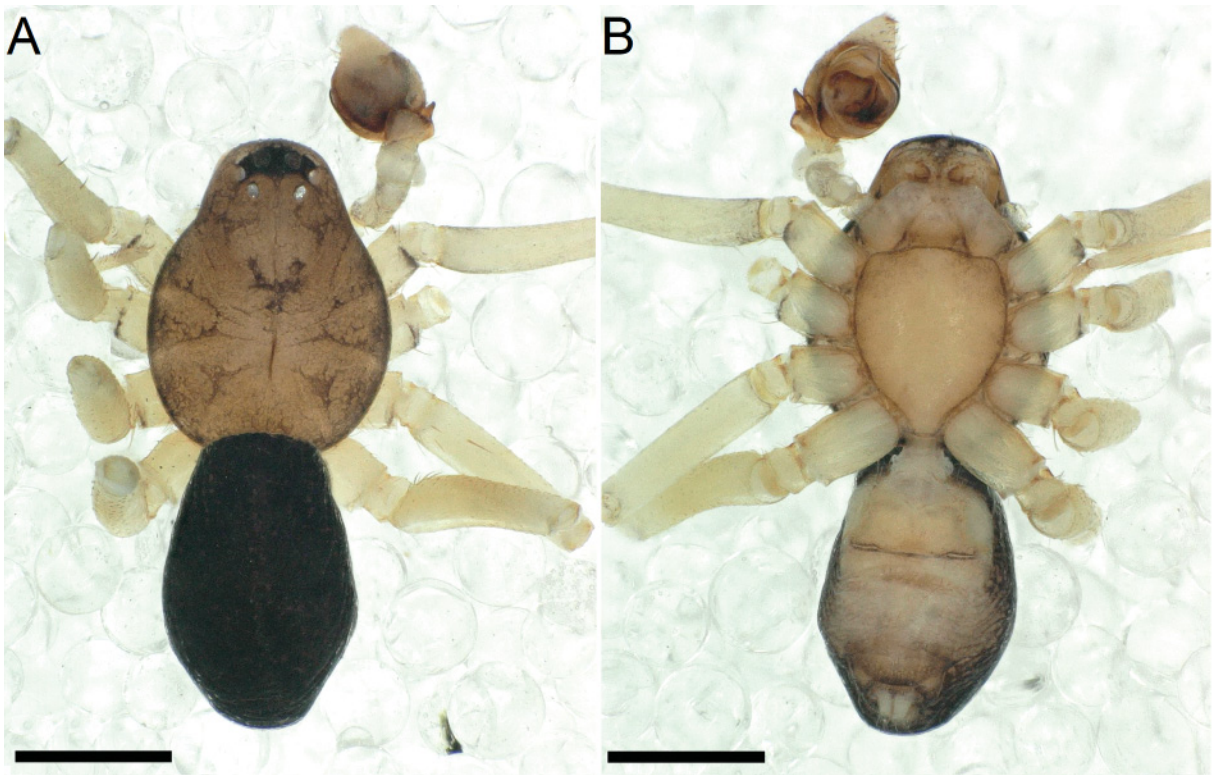

Fig. 41. Habitus of *Zodarion crewsae* Coşar, Danışman & Kunt, 2022 (CMU), ♂. **A**. Dorsal view. **B**. Ventral view. Scale bars: 1 mm.

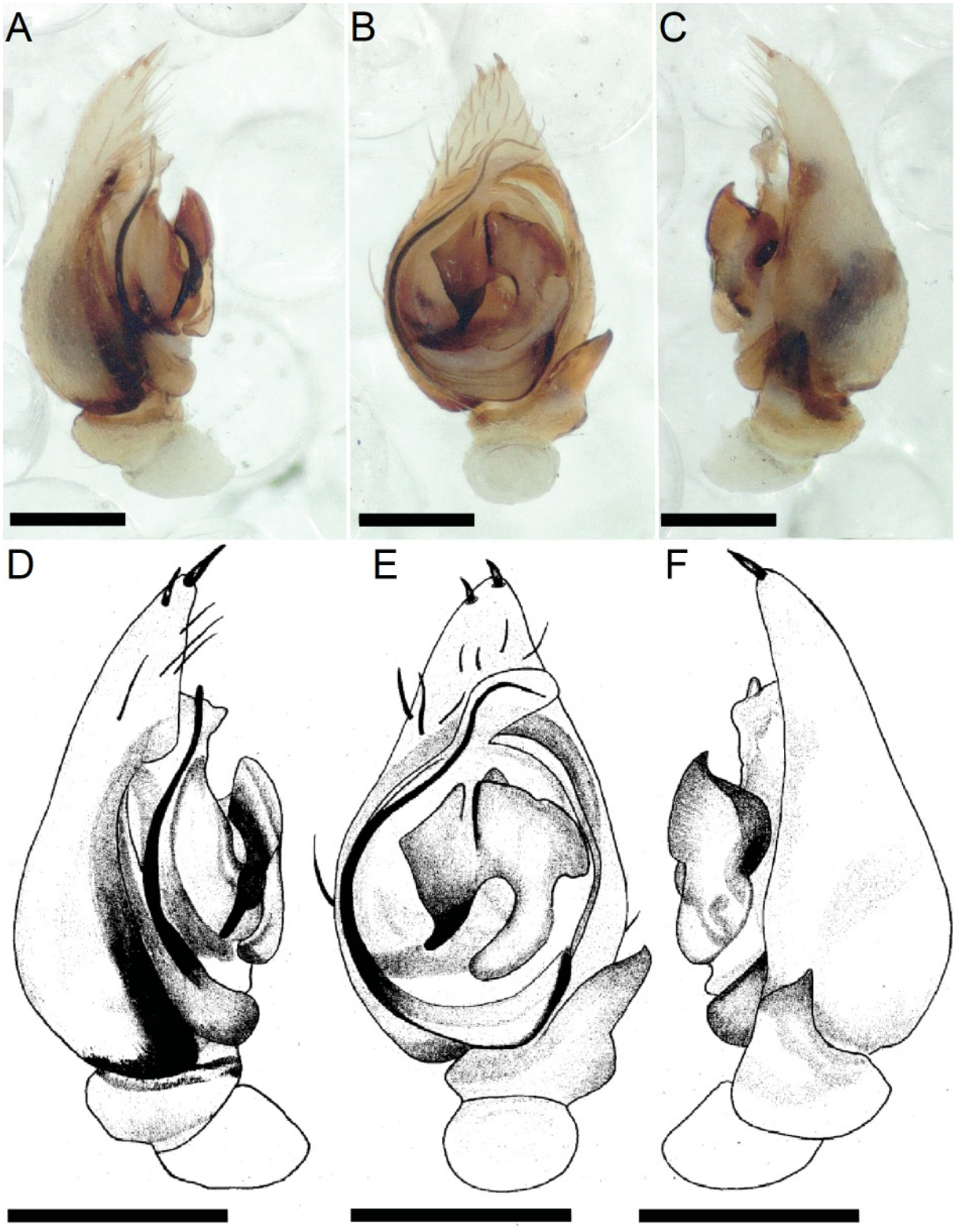

Fig. 42. Male palp of *Zodarion crewsae* Coşar, Danışman & Kunt, 2022 (CMU), ♂. **A**. Prolateral view. **B**. Ventral view. **C**. Retrolateral view. **D**. Prolateral view. **E**. Ventral view. **F**. Retrolateral view. Scale bars: 0.2 mm.

Zodarion cyrenaicum Denis, 1935
Figs 43–46

Zodarion cyrenaicum Denis, 1935a: 100, pl. 1 figs 1–3.

Zodarion cyrenaicum – Levy 1992: 101, figs 103–107.

Diagnosis

Refer to Denis (1935a) and Levy (1992).

Material examined

EGYPT • 2 ♀♀, 1 juv.; Alexandria; MNHN-AR2854.

ISRAEL • 1 juv.; Lehavim; 31.364° N, 34.823° E; 10 Mar. 2001; S. Pekár leg.; CMU • 1 ♂, 66 juv.; same collection data as for preceding; 1 Apr. 2002; S. Pekár leg.; CMU • 1 ♀, 3 juv.; Mashabim; 31.009° N, 34.754° E; 4 Sep. 2002; Y. Lubin leg.; sands; CMU • 1 juv.; same collection data as for preceding; 27 Mar. 2007; S. Pekár leg.; CMU • 1 ♀, 13 juv.; same collection data as for preceding; 5 Sep. 2007; J. Král leg.; CMU • 1 ♀, 19 juv.; same collection data as for preceding; 9–15 Oct. 2009; S. Pekár leg.; CMU • 13 ♂♂, 23 ♀♀; 52 juv.; same collection data as for preceding; 1–9 Sep. 2014; S. Pekár, S. Korenko and E. Líznarová leg.; CMU • 17 ♂♂, 30 ♀♀; 8 juv.; same collection data as for preceding; 2 Apr. 2016; S. Pekár, S. Korenko and E. Líznarová leg.; CMU • 18 ♂♂, 7 ♀♀; 8 juv.; same collection data as for preceding; 1 Apr. 2017; S. Pekár and S. Korenko leg.; CMU • 20 ♂♂, 4 ♀♀; same collection data as for preceding; 5 Apr. 2019; S. Pekár leg.; CMU • 9 ♂♂, 2 ♀♀; same collection data as for preceding; 28 Mar. 2023; S. Pekár and V. Opatová leg.; CMU • 1 juv.; Midreshet Sde Boker; 30.857° N, 34.781° E; 7 Apr. 2019; S. Pekár leg.; CMU • 2 ♂♂, 1 juv.; Hatira; 30.872° N, 34.816° E; 28 Mar. 2023; S. Pekár and V. Opatová leg.; CMU.

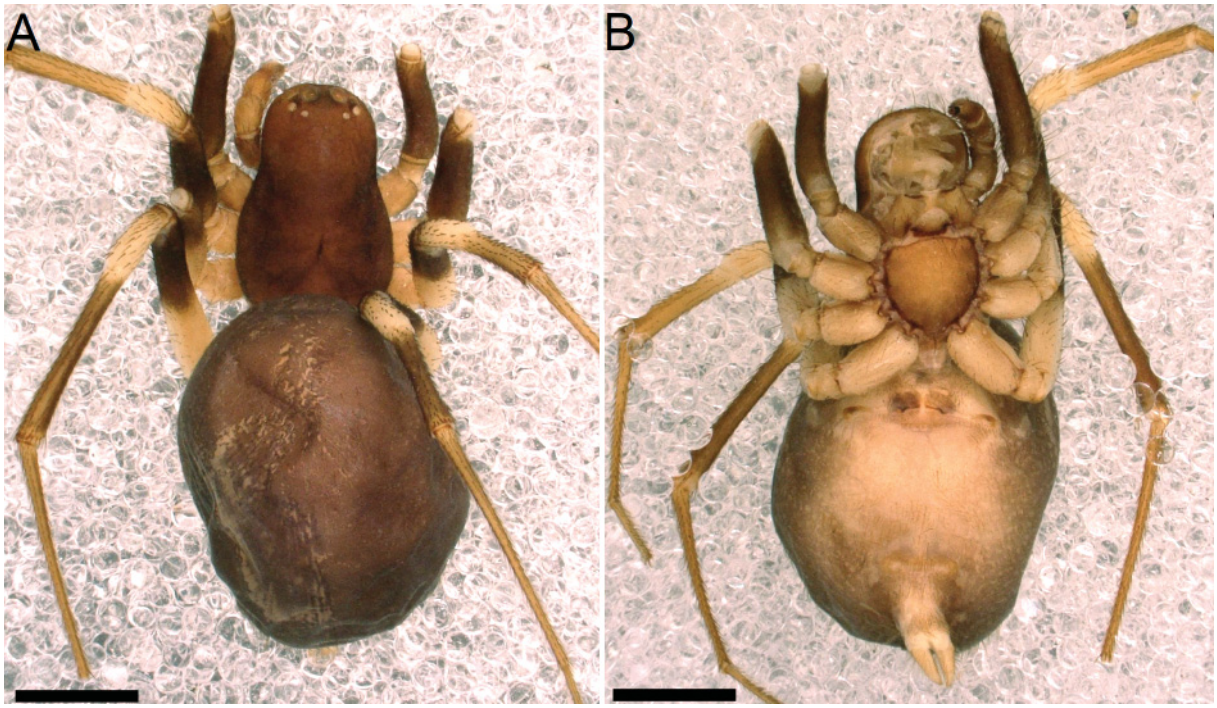

Fig. 43. Habitus of *Zodarion cyrenaicum* Denis, 1935 (MNHN-AR2854), ♀. **A**. Dorsal view. **B**. Ventral view. Scale bars: 1 mm.

Description

For a detailed description, refer to Denis (1935a) and Levy (1992).

Distribution

Libya, Egypt, Israel.

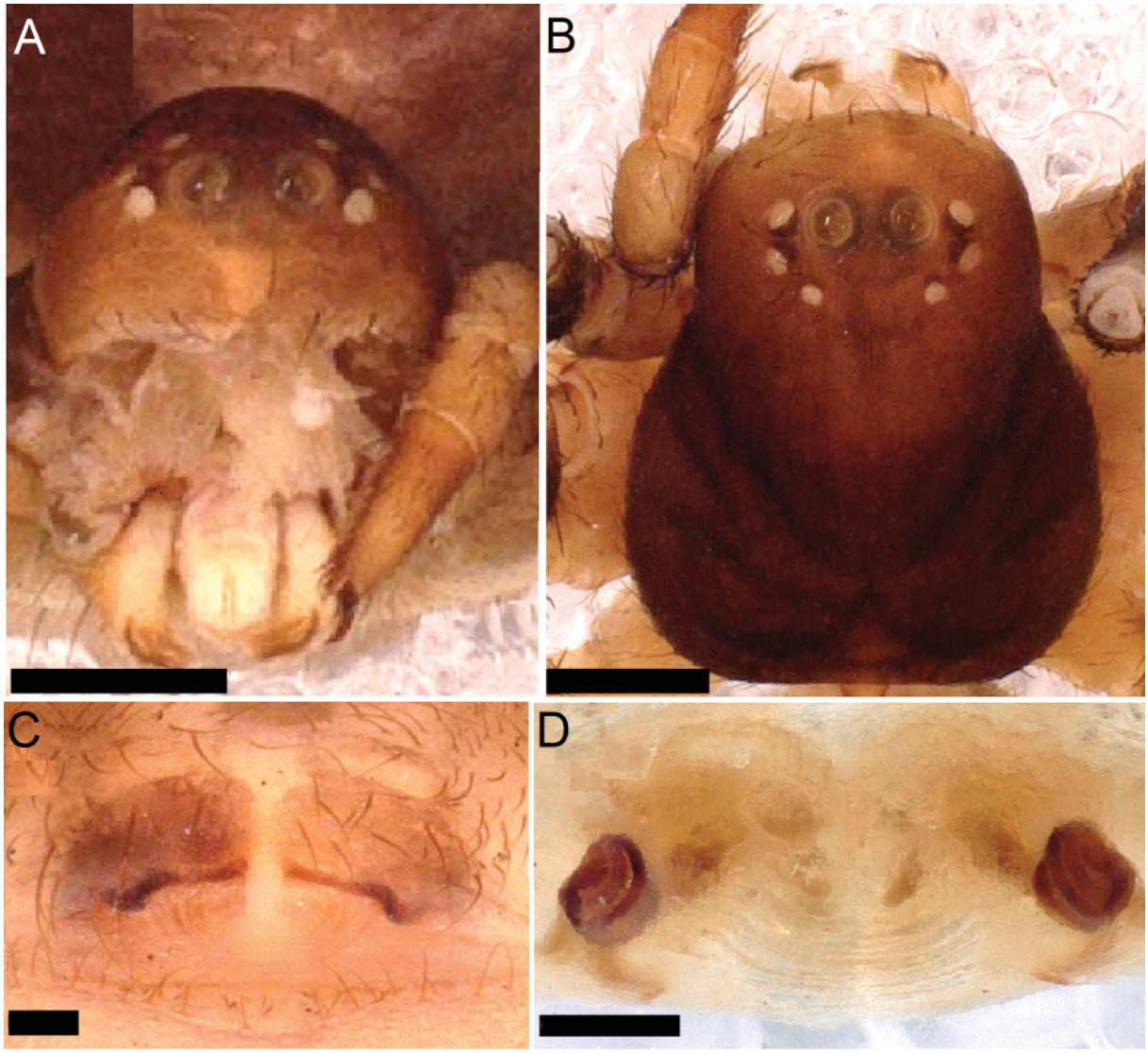

Fig. 44. *Zodarion cyrenaicum* Denis, 1935 (MNHN-AR2854), ♀. **A**. Carapace, frontal view. **B**. Ocular area, dorsal view. **C**. Intact epigyne, ventral view. **D**. Vulva, ventral view. Scale bars: A–B = 1 mm; C–D = 0.2 mm.

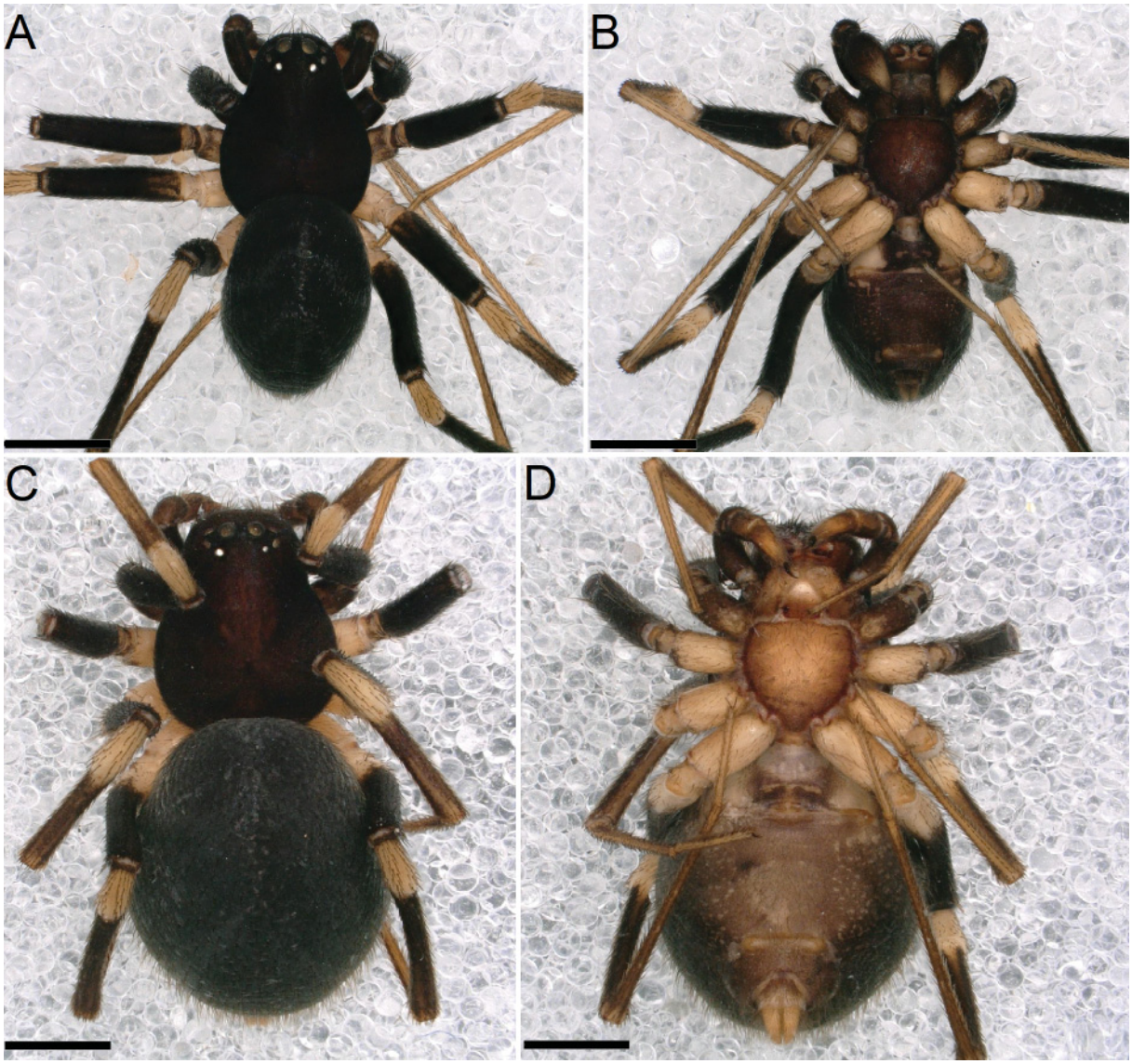

Fig. 45. Habitus of *Zodarion cyrenaicum* Denis, 1935 (CMU). **A–B**. ♂. **C–D**. ♀. **A**. Dorsal view. **B**. Ventral view. **C**. Dorsal view. **D**. Ventral view. Scale bars: 1 mm.

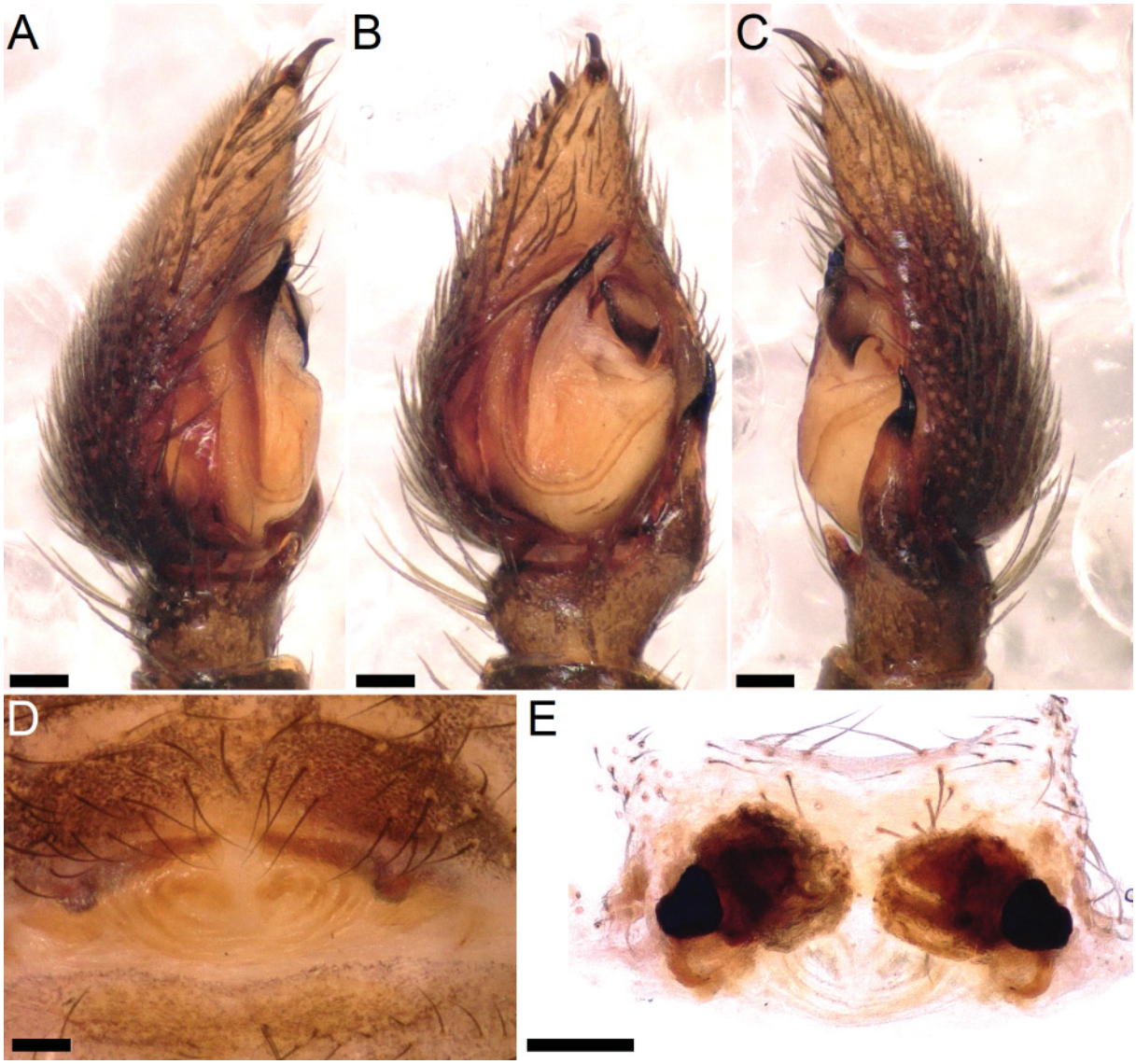

Fig. 46. Copulatory organs of *Zodarion cyrenaicum* Denis, 1935 (CMU). **A–C**. Male palp. **D–E**. Female copulatory organ. **A**. Prolateral view. **B**. Ventral view. **C**. Retrolateral view. **D**. Intact epigyne, ventral view. **E**. Vulva, ventral view. Scale bars: 0.2 mm.

Zodarion expers (O. Pickard-Cambridge, 1876)
Fig. 47

Enyo expers O. Pickard-Cambridge, 1876: 560.

Ranops expers Levy 1992: 105, figs 108–120.
Zodarion expers – Jocqué & Henrard 2020: 199. — Zamani & Marusik 2021: 188, figs 19d–f, 25d–f.

Diagnosis

Refer to Levy (1992).

Type material examined

Holotype
EGYPT • ♀ subadult; Alexandria; Apr. 1864; OUMNH, Bot. 445, tube 13.

Description

For a detailed description, refer to Levy (1992).

Distribution

Egypt, Israel.

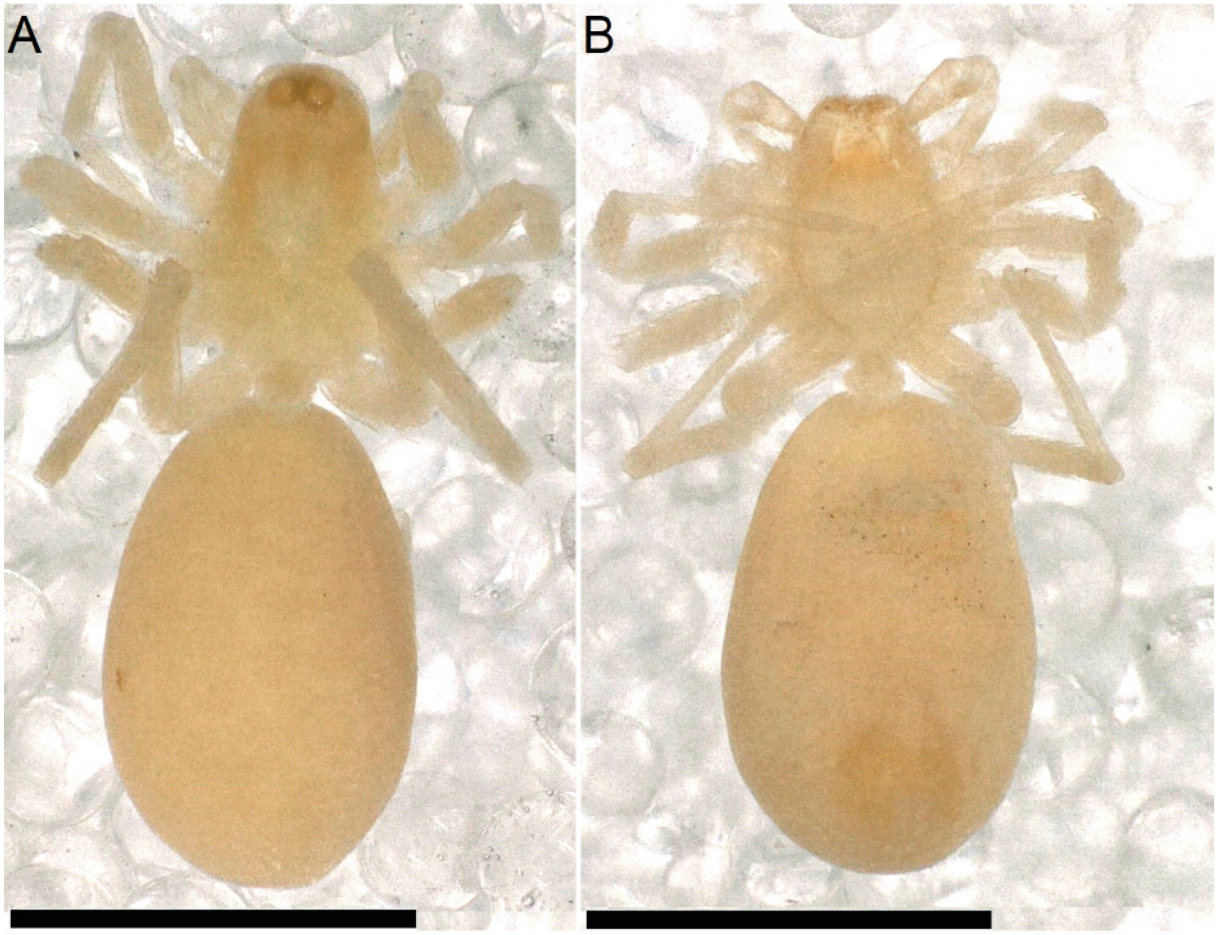

Fig. 47. Habitus of *Zodarion expers* (O. Pickard-Cambridge, 1876), holotype, ♀, subadult (OUMNH). **A**. Dorsal view. **B**. Habitus with detached epigyne, ventral view. Scale bars: 1 mm.

Zodarion frenatum Simon, 1885
Figs 48–49

Zodarion frenatum Simon, 1885: 336.

Zodarion frenatum – Fage 1921: 174, fig. 2. — Denis 1937: 39, pl. 8 figs 65–68. — Wunderlich 1980: 240. — Bosmans 1997: 271, figs 12–13, 85–86; 2009: 286, figs 192–193, 198–199. — Dimitrov 2024: 114, figs 10–14.
Zodarion creticum – Roewer 1928: 119, pl. 2 fig. 37.
Zodarion rhodiense – Caporiacco 1948: 47, fig. 6.

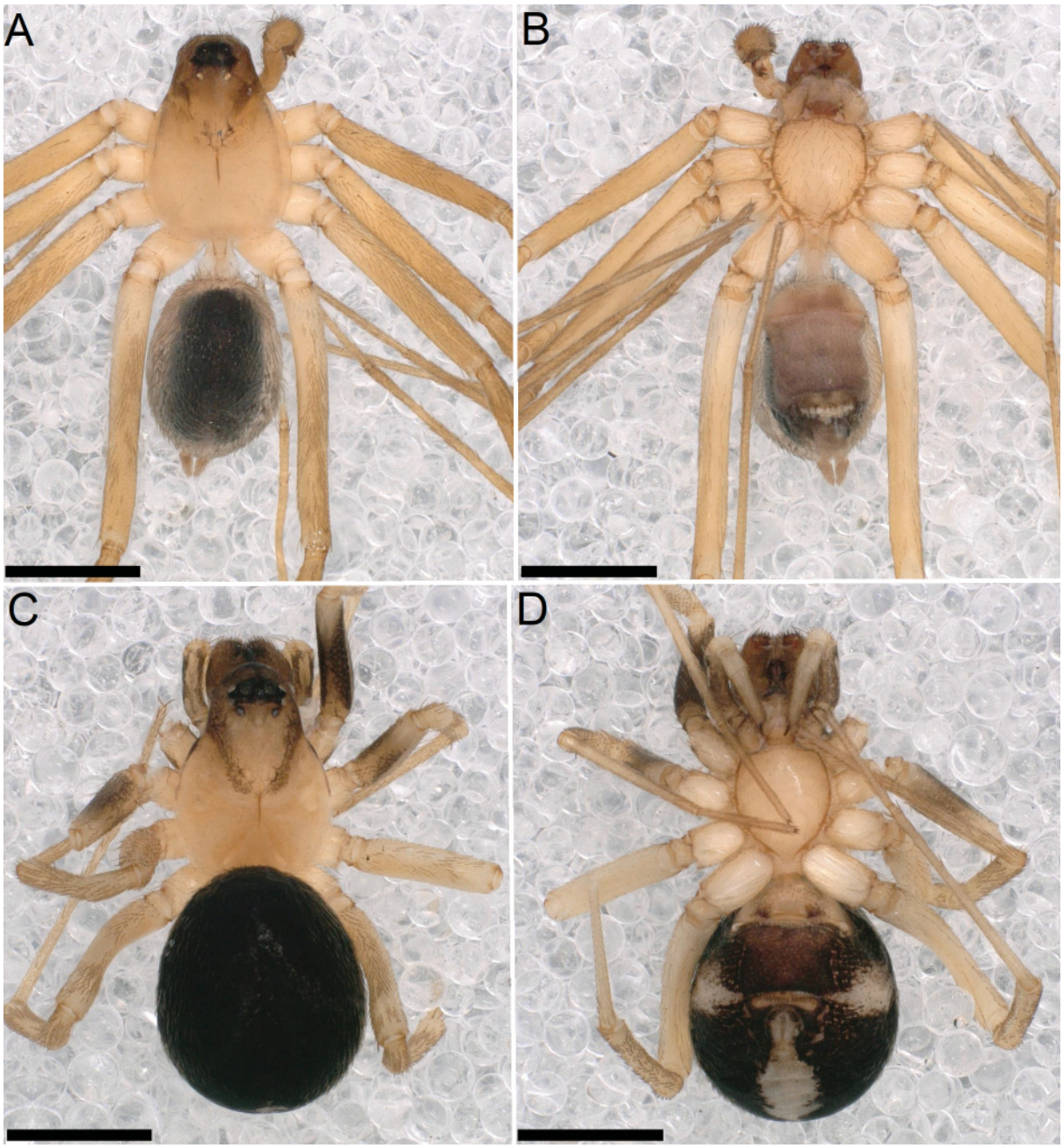

Fig. 48. Habitus of *Zodarion frenatum* Simon, 1885 (CMU). **A–B**. ♂. **C–D**. ♀. **A**. Dorsal view. **B**. Ventral view. **C**. Dorsal view. **D**. Ventral view. Scale bars: 1 mm.

Zodarion rhodiense nigrifemur – Caporiacco 1948: 49.
Zodarion ionicum – Brignoli 1984: 314, figs 41–42.

Diagnosis

Refer to Bosmans (1997).

Type material examined

Paratype

GREECE • 1 juv.; Naxos; E. Keyseling leg.; MNHN-AR2850.

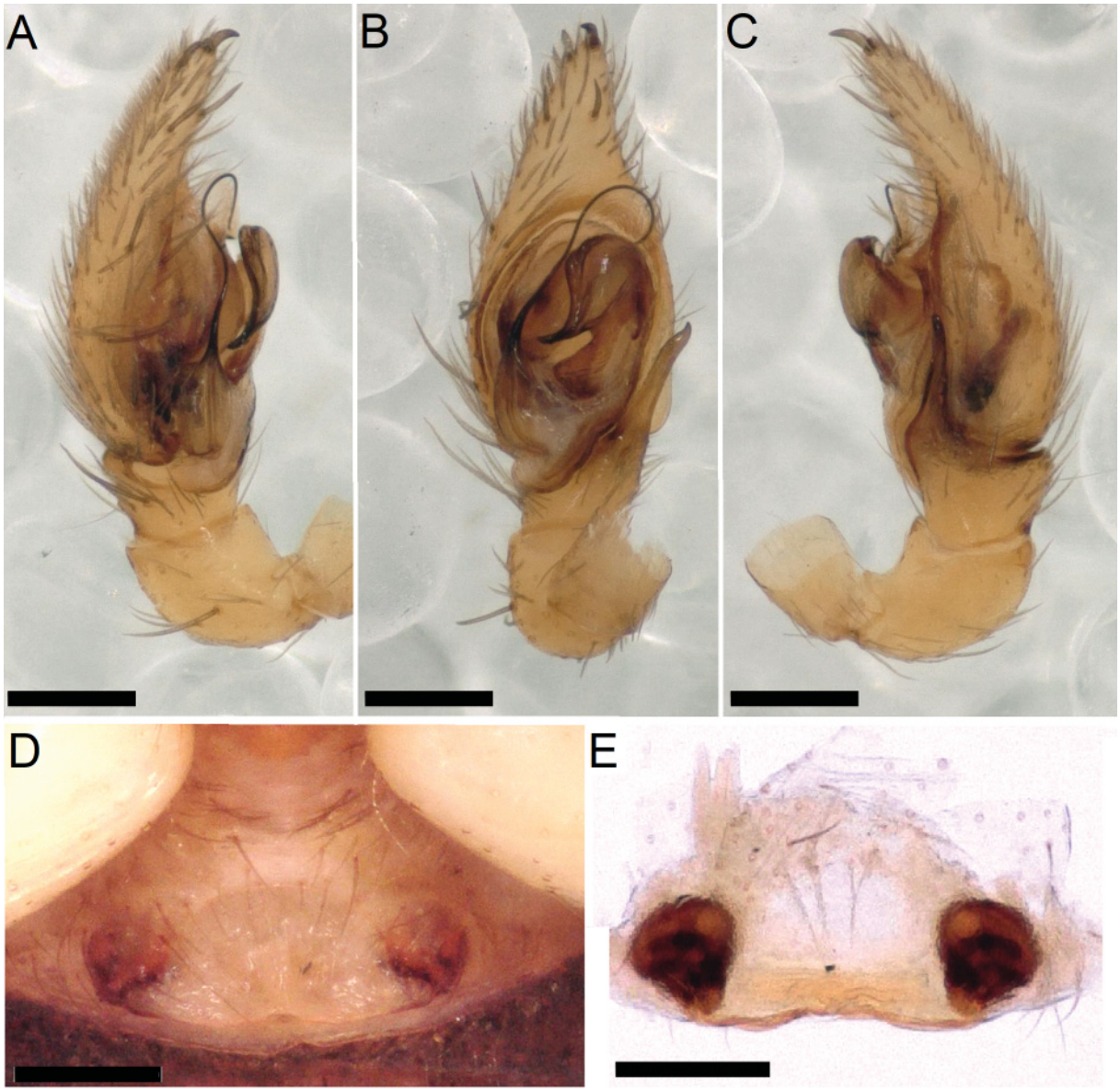

Fig. 49. Copulatory organs of *Zodarion frenatum* Simon, 1885 (CMU). **A–C**. Male palp. **D–E**. Female copulatory organ. **A**. Prolateral view. **B**. Ventral view. **C**. Retrolateral view. **D**. Intact epigyne, ventral view. **E**. Vulva, ventral view. Scale bars: 0.2 mm.

Other material examined

GREECE • 1 ♀, 1 juv.; Volo (St.); MNHN-AR2851 • 1 ♀; 1.5 km after Dadia; 660 m a.s.l.; 14–22 May 2015; M. Chatzaki leg.; CMU • 3 ♂♂, 2 juv.; same collection data as for preceding; 22 Jun.–21 Jul. 2015; M. Chatzaki leg.; CMU • 2 ♂♂, 1 ♀, 1 juv.; 2 km after Pefka/Retziki Suburb; 121 m a.s.l.; 16 May–22 Jun. 2015; M. Chatzaki leg.; CMU • 1 ♀; same collection data as for preceding; 22 Jul.–24 Aug. 2015; M. Chatzaki leg.; CMU • 1 ♂; 1.5 km N of Polia; 50 m a.s.l.; 22 Jul.–26 Aug. 2015; M. Chatzaki leg.; CMU.

Description

For a detailed description, refer to Bosmans (1997).

Remarks

Even though Bosmans (1997) did not examine the type of *Z. frenatum*, he reported that the holotype tube (MNHN-AR2850) contained one male and one juvenile. However, our examination of the tube revealed only a single juvenile specimen, suggesting that the holotype male is probably lost. Furthermore, while Fage (1921) and Bosmans (1997) recorded a single female in tube MNHN-AR2851, we identified two specimens, including one female and one juvenile.

Distribution

Italy, Albania, North Macedonia, Bulgaria, Greece, Turkey.

Zodarion geshur Levy, 2007
Figs 50–51

Zodarion geshur Levy 2007: 13, figs 33–37.

Diagnosis

Refer to Levy (2007).

Type material examined

Holotype
ISRAEL • ♂; Geshur, S Golan (217/240 .3. J); May 1998; R. Sharon leg.; HUJ 15215.

Paratype
ISRAEL • 1 ♀; same collection data as for holotype; HUJ 15215.

Description

For a detailed description, refer to Levy (2007).

Remarks

Although Levy (2007) noted that the type specimens were collected in May 1996, the label indicates May 1998.

Distribution

Israel.

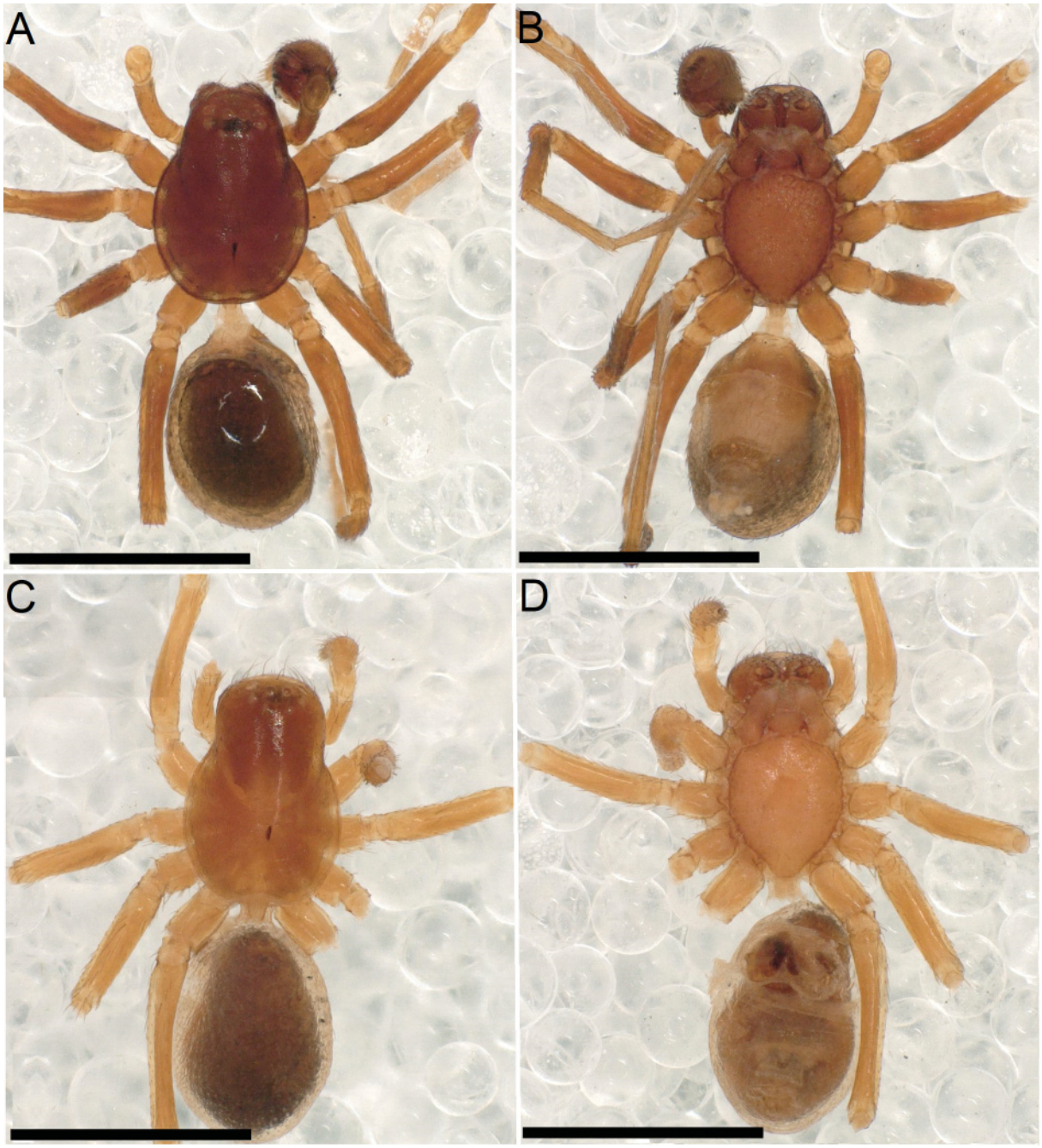

Fig. 50. Habitus of *Zodarion geshur* Levy, 2007. **A–B**. Holotype, ♂ (HUJ 15215). **C–D**. Paratype, ♀ (HUJ 15215). **A**. Dorsal view. **B**. Ventral view. **C**. Dorsal view. **D**. Ventral view. Scale bars: 1 mm.

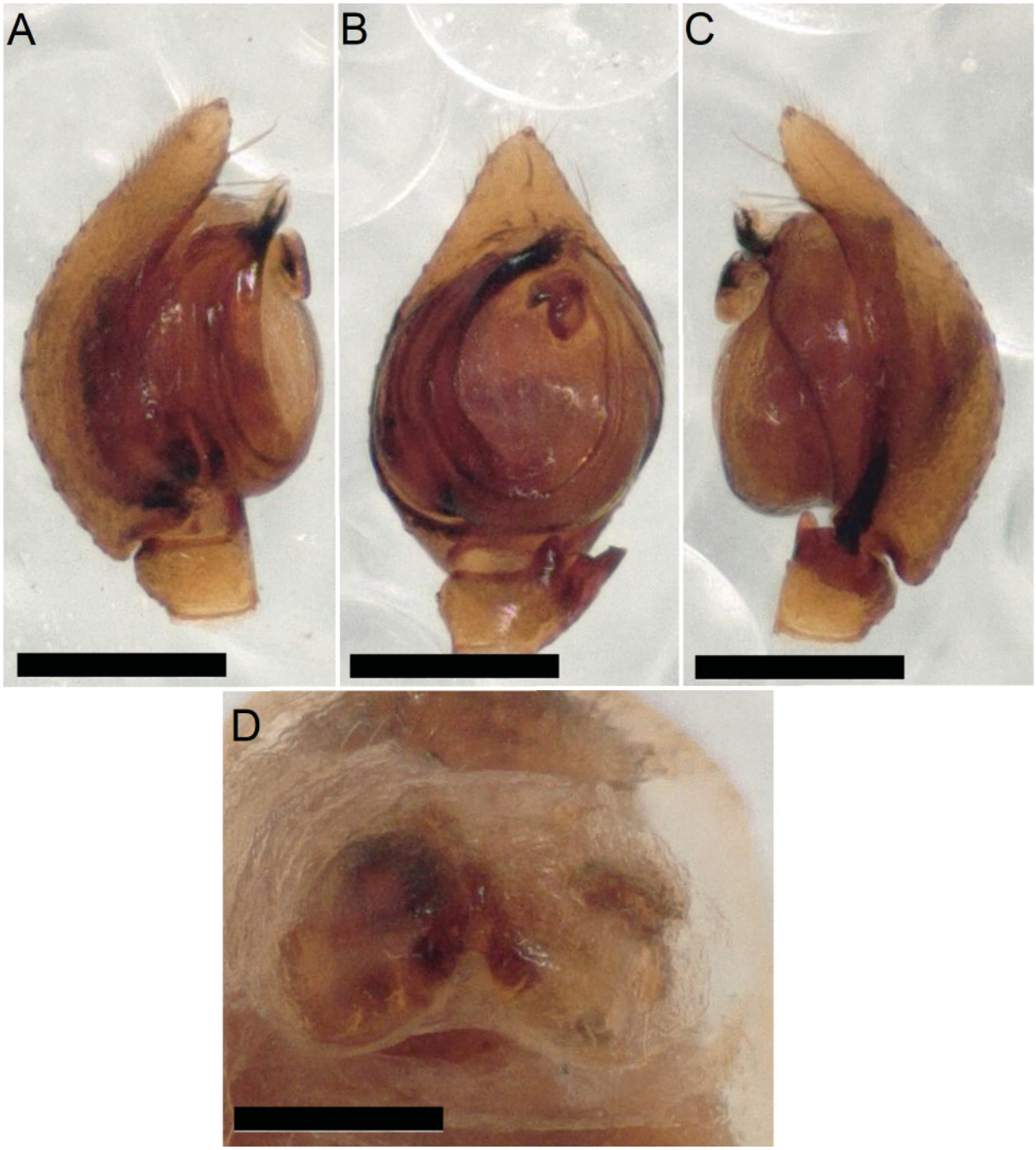

Fig. 51. Copulatory organs of *Zodarion geshur* Levy, 2007. **A–C**. Holotype, male palp (HUJ 15215). **D**. Paratype, female intact epigyne (HUJ 15215). **A**. Prolateral view. **B**. Ventral view. **C**. Retrolateral view. **D**. Ventral view. Scale bars: 0.2 mm.

Zodarion granulatum Kulczyński, 1908
Figs 52–53, 105

Zodarion granulatum Kulczyński, 1908: 59, pl. 2 figs 4, 10.

Zodarion granulatum – Levy 1992: 92, figs 72–84. — Bosmans 2009: 275, figs 170–171, 178–179. — Lecigne & Henrard 2022: 37, fig. 5e, h. — Bosmans & Gavalas 2023: 33, fig. 21a–e. — Dimitrov 2024: 114, fig. 18.
Zodarion parashi – Wunderlich 2022: 48, figs 105–106.

Diagnosis

Refer to Bosmans (2009) and Lecigne & Henrard (2022).

Type material examined

Holotype (*Zodarion parashi*)
GREECE • ♂; Eastern Aegean Island Naxos; 25.57° N, 37.0.37° E; 20 Jul. 1982; L. Parashi leg.; ZMH A0014216.

Material examined

CYPRUS • 1 ♂ (subadult); Nicosia, Olympus, Moutoulas Mountain; 34.977° N, 32.828° E; 800 m a.s.l.; 25 Apr. 2022; S. Pekár, S. Shafaie, V. Šoltýsová and O. Michálek leg.; CMU.

GREECE • 1 ♂; Aladjagiola Wetland (N Chrisoupoli); 28 Jun. 2008; M. Schröder leg.; CMU.

SYRIA • 1 ♂; Aln Al-Zarah, near Idlib, Canyon of Oronthes; 18 Mar. 2001; M. Řezáč leg.; CMU • 1 ♀; Mashta Al-Helu, Odem Forest; 3 Apr. 2001; M. Řezáč leg.; CMU.

Description

For a detailed description, refer to Bosmans (2009).

Remarks

The length and arrangement of the PVS differ between males and females. Male specimens possess significantly longer PVS, which are arranged in a somewhat radiating pattern (Fig. 52B), whereas females have shorter PVS arranged parallel to each other (Fig. 52D). Moreover, the single male specimen from Syria exhibits a smaller PMA compared to the specimen from Greece, along with a more slender embolar tip.

Distribution

This species was previously recorded in Greece, Cyprus, Turkey, Lebanon, and Israel (World Spider Catalog 2025). This is the first report of this species from Syria

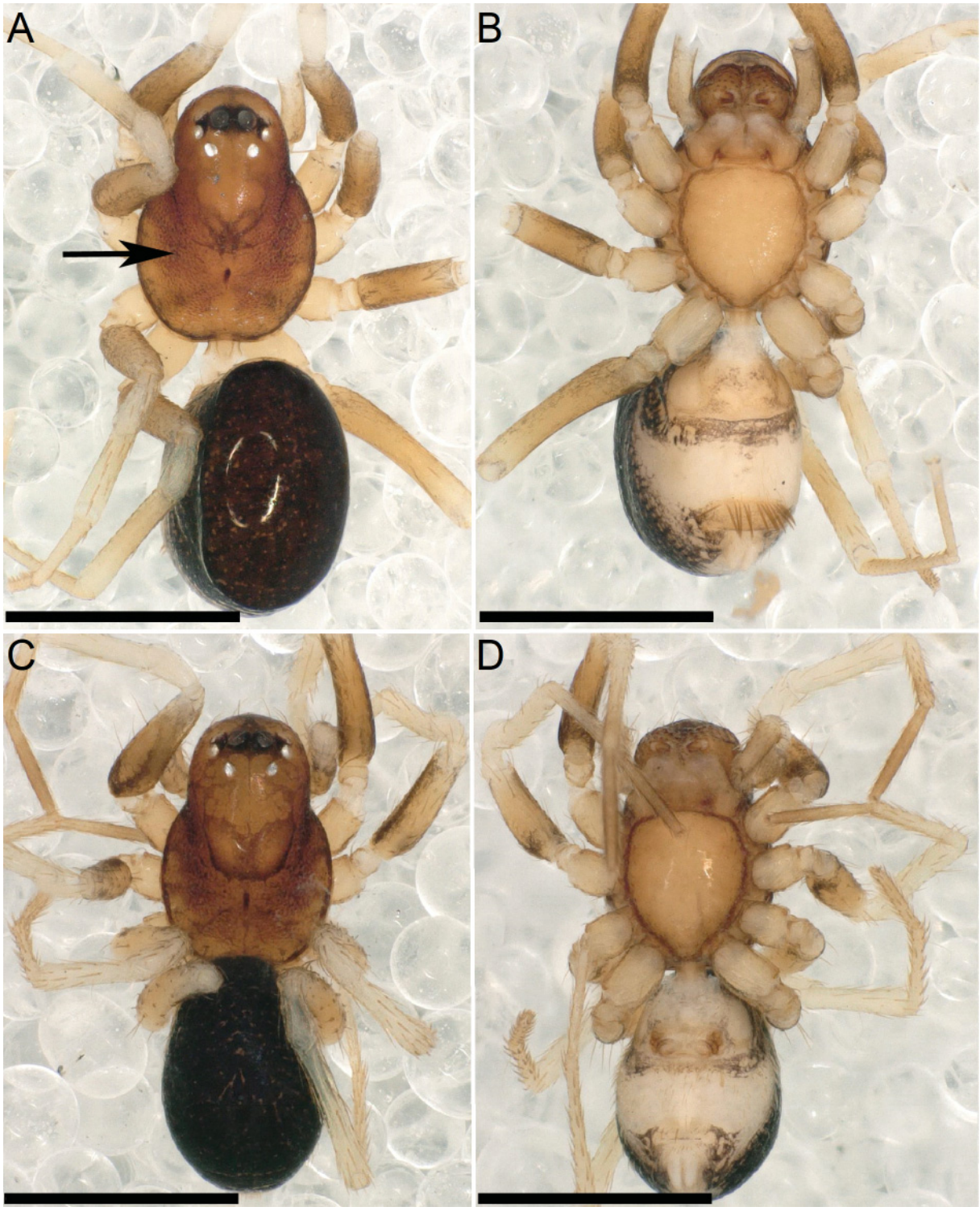

Fig. 52. Habitus of *Zodarion granulatum* Kulczyński, 1908 (CMU). **A–B**. ♂. **C–D**. ♀. **A**. Dorsal view, arrow indicates granulations. **B**. Ventral view. **C**. Dorsal view. **D**. Ventral view. Scale bars: 1 mm.

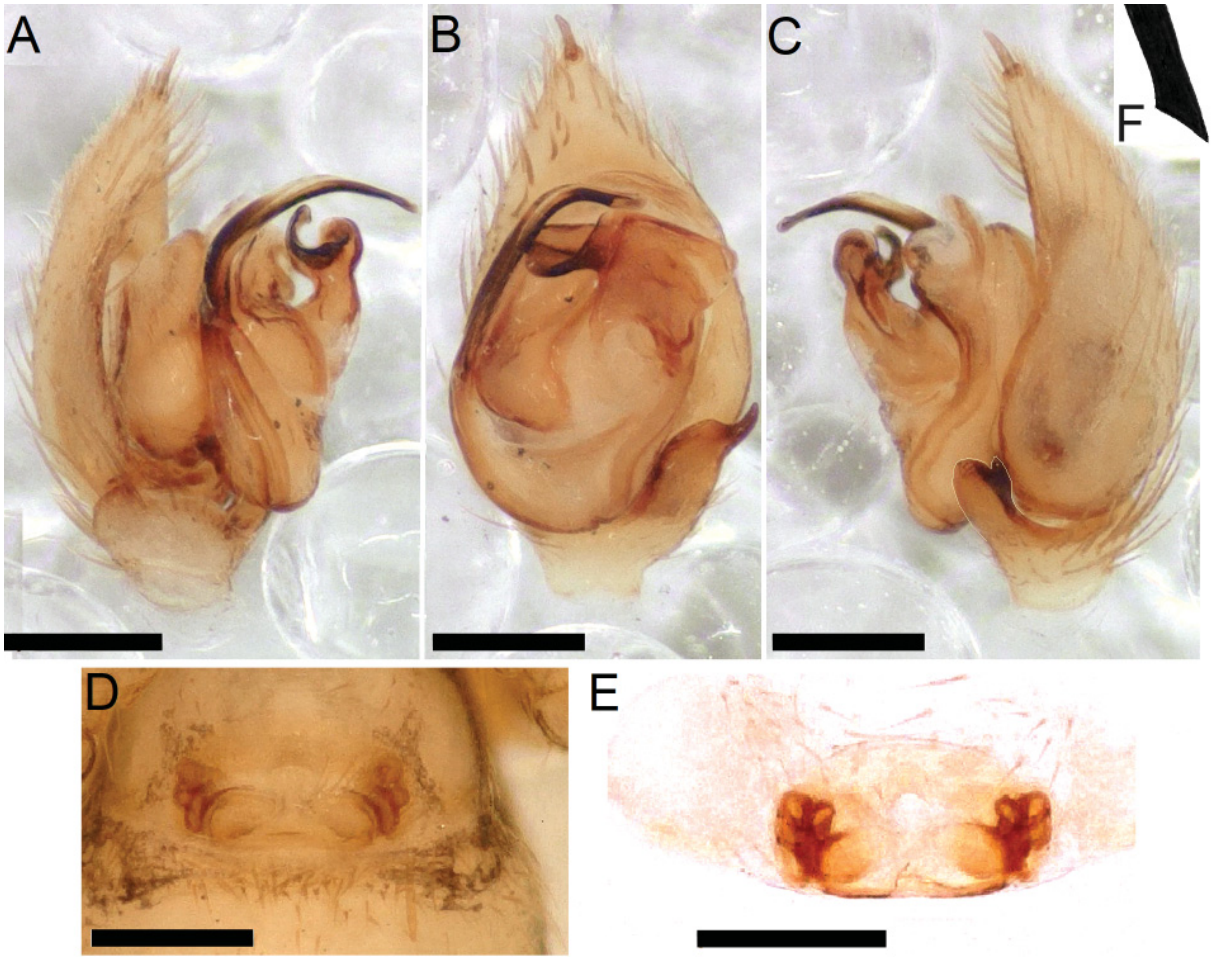

Fig. 53. Copulatory organs of *Zodarion granulatum* Kulczyński, 1908 (CMU). **A–C, F**. Male palp. **D–E**. Female copulatory organ. **A**. Prolateral view. **B**. Ventral view. **C**. Retrolateral view. **D**. Intact epigyne, ventral view. **E**. Vulva, ventral view. **F**. Detail of embolus, ventral view. Scale bars: 0.2 mm.

Zodarion hauseri Brignoli, 1984
Figs 54–55

Zodarion hauseri Brignoli, 1984: 312, fig. 40.

Zodarion hauseri – Stefanovska *et al.* 2008: 37, figs 5–9. — Bosmans 2009: 251, figs 92–95, 144–145. — Naumova *et al.* 2017: 480, figs 28–30.

Diagnosis

Refer to Bosmans (2009).

Material examined

GREECE • 1 ♂; Aladjagiola Wetland (N of Chrisoupoli); 25 May 2008; M. Schröder leg.; CMU • 5 ♂♂; Ergatikes; 37.721° N, 24.04° E; 18 May 2023; D. Ortiz and S. Pekár leg.; CMU • 1 ♂; Oulintzi; 37.946° N, 23.834° E; 18 May 2023; D. Ortiz and S. Pekár leg.; CMU • 3 ♂♂, 3 ♀♀; Ano Vakalopoulo;

37.996° N, 23.922° E; 18 May 2023; D. Ortiz and S. Pekár leg.; CMU • 2 ♂♂, 1 ♀; Livadia; 38.448° N, 22.866° E; 24 May 2023; D. Ortiz and S. Pekár leg.; CMU.

Description

For a detailed description, refer to Bosmans (2009).

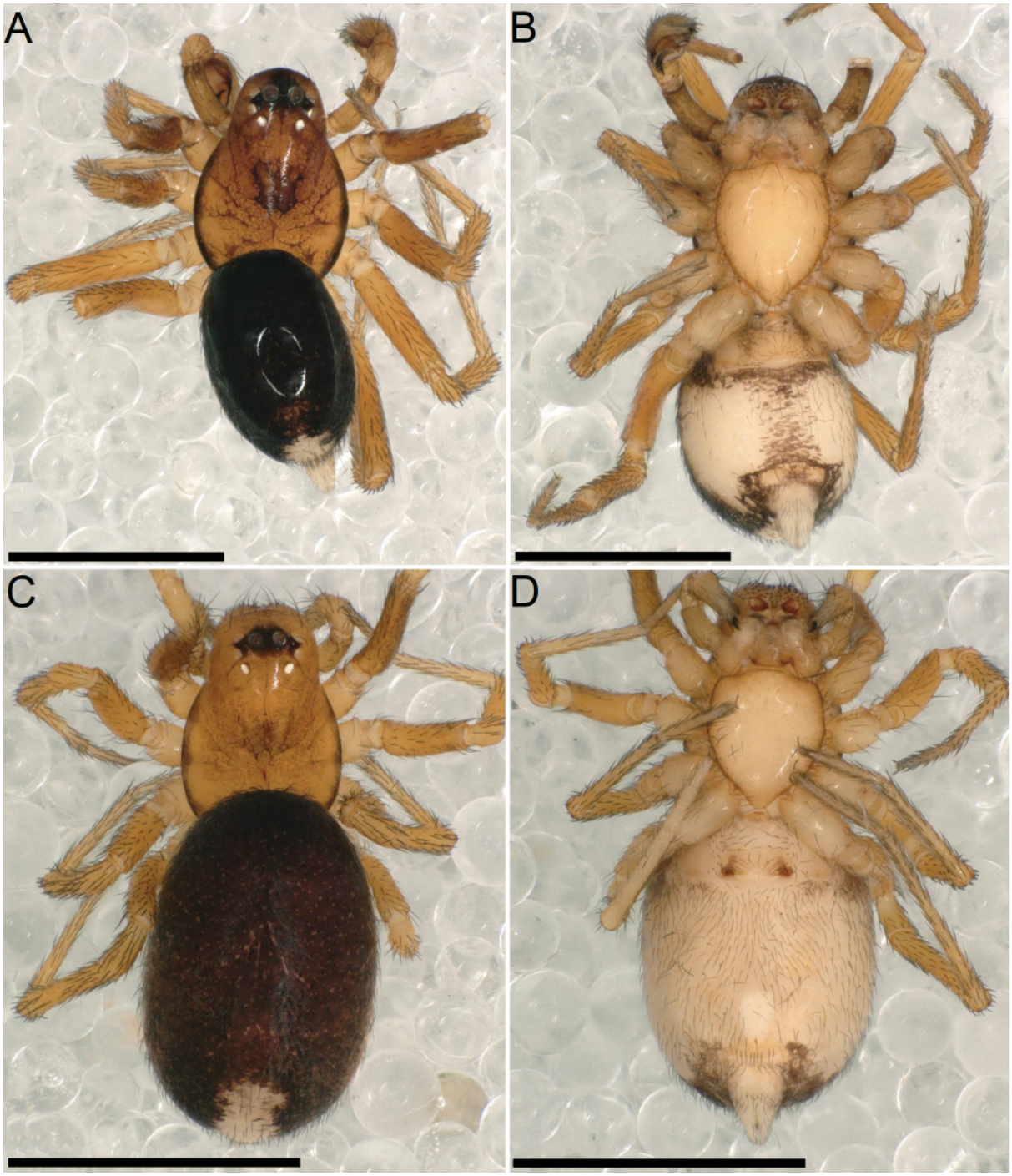

Fig. 54. Habitus of *Zodarion hauseri* Brignoli, 1984 (CMU). **A–B**. ♂. **C–D**. ♀. **A**. Dorsal view. **B**. Ventral view. **C**. Dorsal view. **D**. Ventral view. Scale bars: 1 mm.

Distribution

North Macedonia, Bulgaria, Greece.

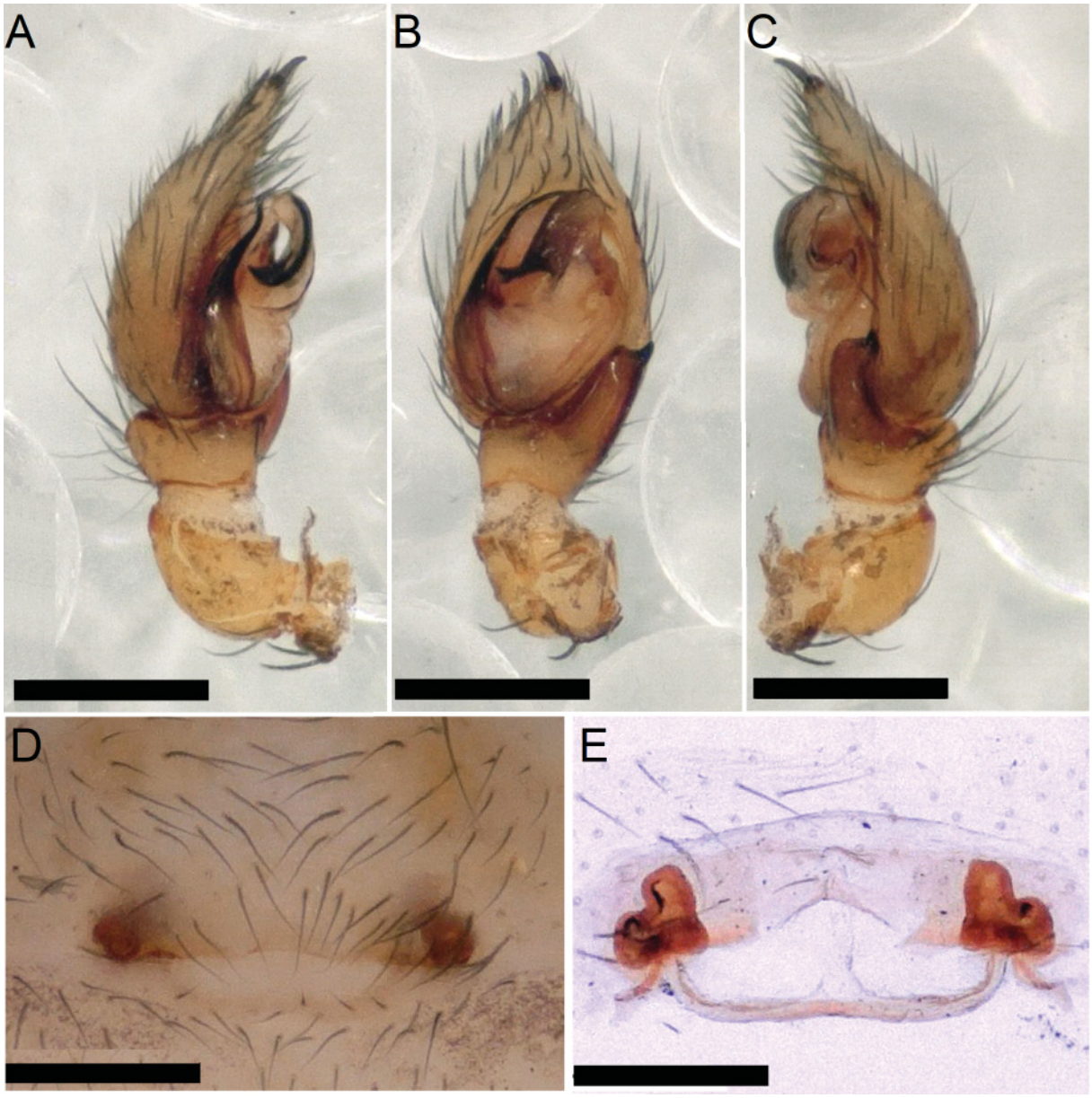

Fig. 55. Copulatory organs of *Zodarion hauseri* Brignoli, 1984 (CMU). **A–C**. Male palp. **D–E**. Female copulatory organ. **A**. Prolateral view. **B**. Ventral view. **C**. Retrolateral view. **D**. Intact epigyne, ventral view. **E**. Vulva, ventral view. Scale bars: 0.2 mm.

Zodarion jakubi Shafaie & Pekár sp. nov.
urn:lsid:zoobank.org:act:3386636C-2078-4D3A-A564-66A25F5C75AC
Figs 56–58, 106

Diagnosis

Closely related to *Zodarion simplex* Jocqué, 2011 by similar median and tibial apophyses, but differs by a stouter retrolateral tibial apophysis (cf. Fig. 57C, F and Jocqué 2011: fig. 8), and the embolar tip gently curved distally (vs not curved, cf. Fig. 57B, 57E and Jocqué 2011: fig. 7). The female specimen can be distinguished from other species by simple, fusiform atria of epigyne (Fig. 58A–B).

Etymology

The specific name is dedicated to Jakub Pekár, the second author's son, who co-collected the material of this new species.

Type material

Holotype

OMAN • ♂; Wadi Bani Habib; 23.069° N, 57.604° E; 652 m a.s.l.; 31 Jan. 2023; J. Pekár leg.; NMP P6A 7506.

Paratypes

OMAN • 2 ♀♀; same collection data as for holotype; NMP P6A 7507, NMP P6A 7508.

Other material examined

OMAN • 14 juv.; same collection data as for holotype; CMU • 1 ♂, 1 ♀; Wadi Ghul; 23.205° N, 57.213° E; 1031 m a.s.l.; 13 Feb. 2022; S. Pekár leg.; CMU • 1 ♀, 4 juv.; Misfah; 23.228° N, 57.135° E; 1000 m a.s.l.; 28 Jan. 2023; S. Pekár leg.; CMU.

Description

Male (holotype NMP P6A 7506)

Habitus (Fig. 56A–B). Carapace, chelicerae, sternum, labium, gnathocoxae and spinnerets pale, with no pattern except for a dark ocular area on carapace; ocular area almost slender. Legs uniformly yellow. Palpal segments pale except cymbium, cymbium light brown anteriorly and pale posteriorly. Abdomen crumpled; dorsum white anteriorly and dark posteriorly, venter pale; PVS present.

Measurements. Total length 2.35; carapace 1.2 long, 0.9 wide. Eye sizes and interdistances: AME 0.13, ALE = PME = PLE 0.07, AME–AME 0.05, AME–ALE 0.02, ALE–ALE 0.3, PME–PME 0.15, PLE–PLE 0.32, PME–PLE 0.03. Legs: I 6.03 (1.45, 0.76, 1.48, 1.04, 1.3), II 5.8 (1.3, 0.72, 1.34, 1.45, 0.99), III 5.02 (1.3, 0.67, 1.01, 1.04, 1), IV 6.9 (1.65, 0.76, 1.56, 1.61, 1.32). Palp: 1.24 (0.42, 0.22, 0.1, 0.5).

Palp (Fig. 57A–F). RTA triangular, with a dentate tip. Cymbium elongated, cymbial tip as long as bulb. Tegulum simple, without any posterior process. Median apophysis sickle-shaped. Embolus simple, embolar tip slightly curved distally.

Female (paratype NMP P6A 7507)

Habitus (Fig. 56C–D). Prosoma entirely similar to that of male. Abdomen light brown dorsally and pale ventrally; PVS present.

Measurements. Total length 2.63; carapace 1.24 long, 0.93 wide. Eye sizes and interdistances: AME 0.14, ALE = PME = PLE 0.07, AME–AME 0.05, AME–ALE 0.03, ALE–ALE 0.33, PME–PME 0.17, PLE–PLE 0.37, PME–PLE 0.03. Legs: I (1.76, 0.38, 1.33, 1.52, tarsus missing), II (1.6, other segments

missing), III 5.36 (1.47, 0.29, 1.26, 1.56, 0.78), IV (2.02, other segments missing). Palp: 1.12 (0.43, 0.16, 0.1, 0.56).

Epigyne (Fig. 58A–D). Epigyne with fusiform atria. Posterior margin of epigyne distinctly incised and covered by a medium-sized hood; spermathecae small, divergent and separated by 5.46 times their diameter. Vulva very simple, comprising a pair of large and fusiform wings, situated obliquely downward to each other and ended to spermathecal heads.

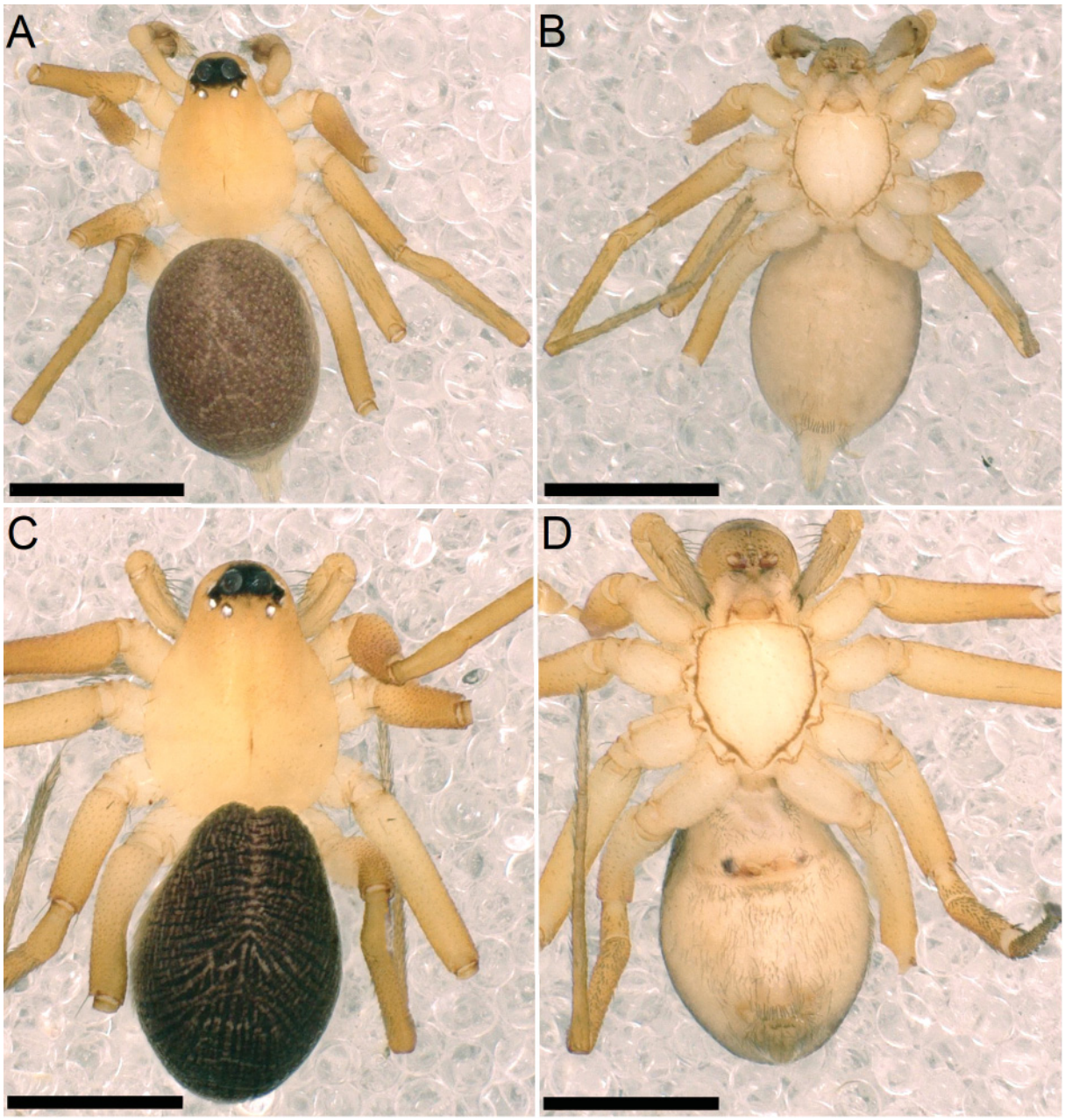

Fig. 56. Habitus of *Zodarion jakubi* Shafaie & Pekár sp. nov. **A–B**. Holotype, ♂ (NMP P6A 7506). **C–D**. Paratype, ♀ (NMP P6A 7507). **A**. Dorsal view. **B**. Ventral view. **C**. Dorsal view. **D**. Ventral view. Scale bars: 1 mm.

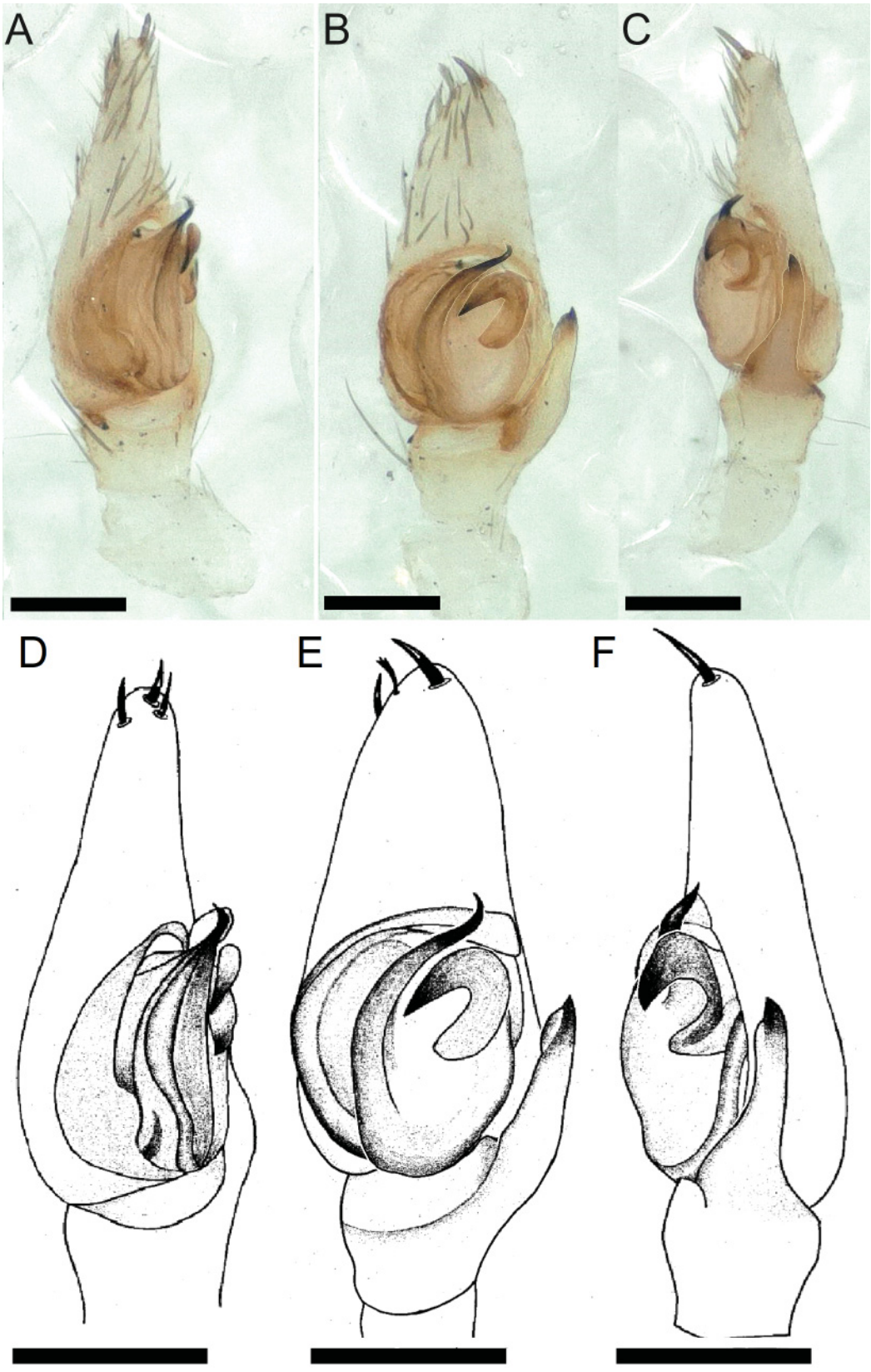

Fig. 57. Male palp of *Zodarion jakubi* Shafaie & Pekár sp. nov., holotype (NMP P6A 7506). **A**. Prolateral view. **B**. Ventral view. **C**. Retrolateral view. **D**. Prolateral view. **E**. Ventral view. **F**. Retrolateral view. Scale bars: 0.2 mm.

Size variation

Total body length 2.35–2.66 in males (N=2) and 2.63–3.53 in females (N=4). Carapace length/width 1.2/0.86–0.9 in males and 1.24–1.66/0.93–1.26 in females.

Distribution

At present, known only from Oman. This is the first report of the family Zodariidae in Oman.

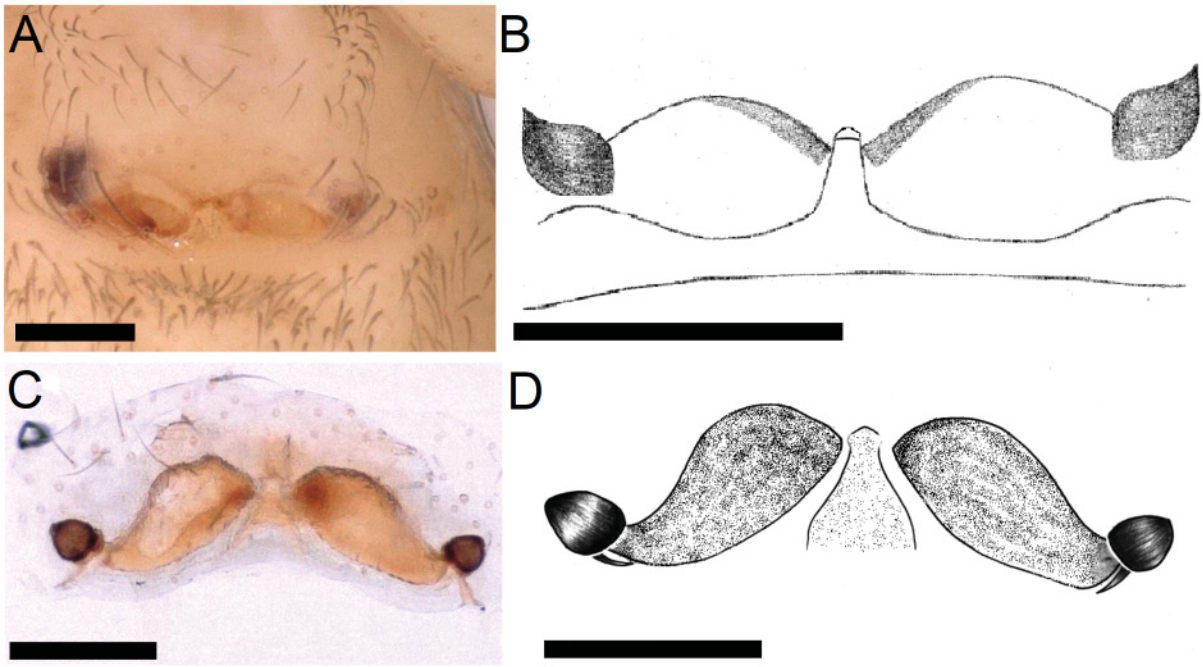

Fig. 58. Female copulatory organ of *Zodarion jakubi* Shafaie & Pekár sp. nov., paratype (NMP P6A 7507). **A**. Intact epigyne, ventral view. **B**. Epigyne, ventral view. **C**. Vulva, ventral view. **D**. Vulva, ventral view. Scale bars: 0.2 mm.

Zodarion jansseni Bosmans, 2009
Fig. 59

Zodarion jansseni Bosmans 2009: 288, figs 162–163.

Diagnosis

Refer to Bosmans (2009).

Material examined

GREECE • 1 ♀; Amfissa, Oros Lidorikin; 11 Jun. 1991; P.M. Giachino and D. Vailati leg.; MSNB.

Description

For a detailed description of female, refer to Bosmans (2009).

Distribution

Greece.

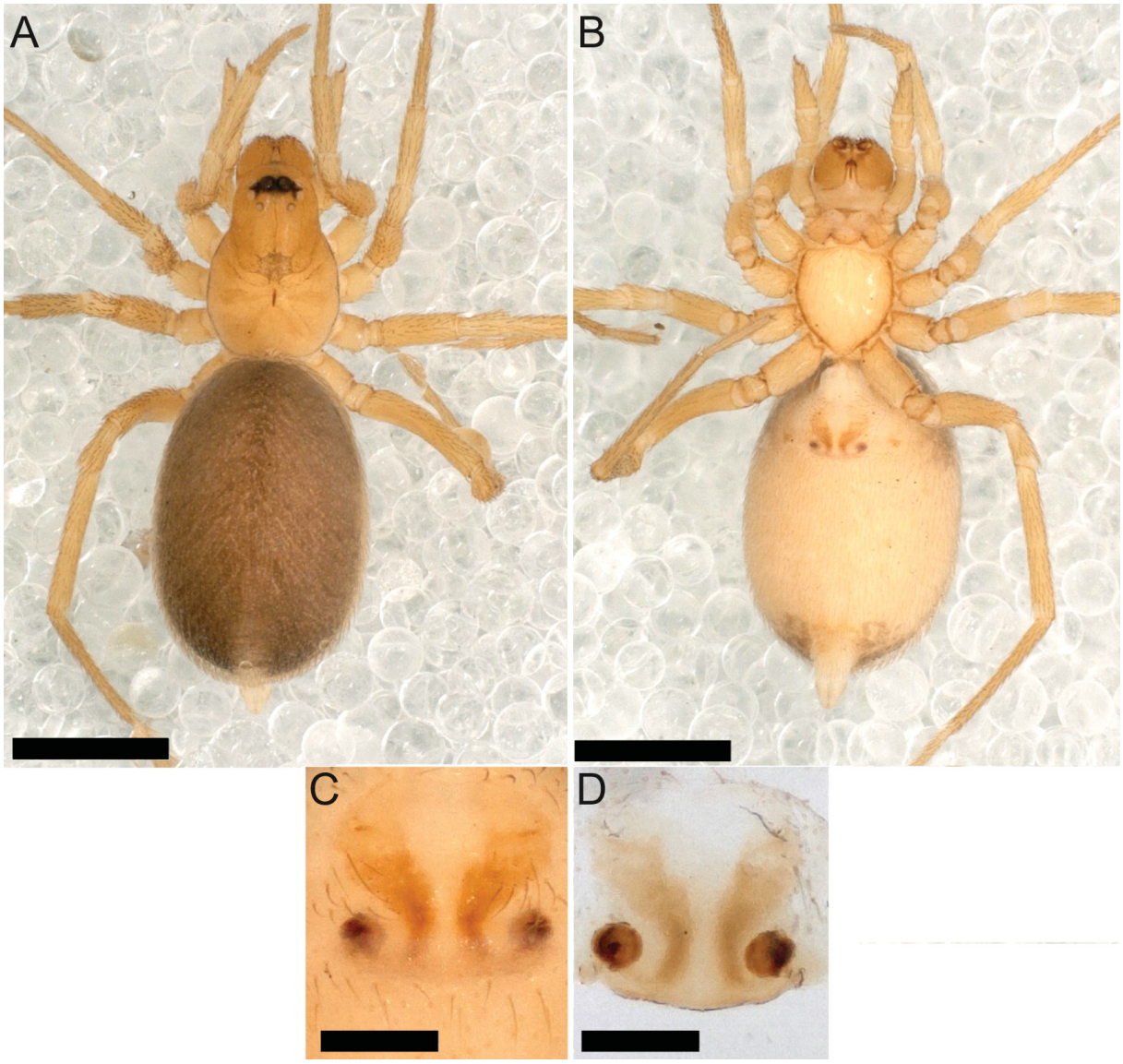

Fig. 59. *Zodarion jansseni* Bosmans, 2009 (MSNB), ♀. **A**. Habitus, dorsal view. **B**. Habitus, ventral view. **C**. Epigyne, ventral view. **D**. Vulva, ventral view. Scale bars: A–B = 1 mm; C–D = 0.2 mm.

Zodarion judaeorum Levy, 1992
Figs 60–61

Zodarion judaeorum Levy, 1992: 98, figs 98–102.

Diagnosis

Refer to Levy (1992).

Type material examined

Holotype

ISRAEL • ♂; Jerusalem; 11 May 1991; G. Levy leg.; HUJ 14565.

Paratype

ISRAEL • 1 ♀; same collection data as for holotype; 7 May 1991; HUJ 14564.

Description

For a detailed description, refer to Levy (1992).

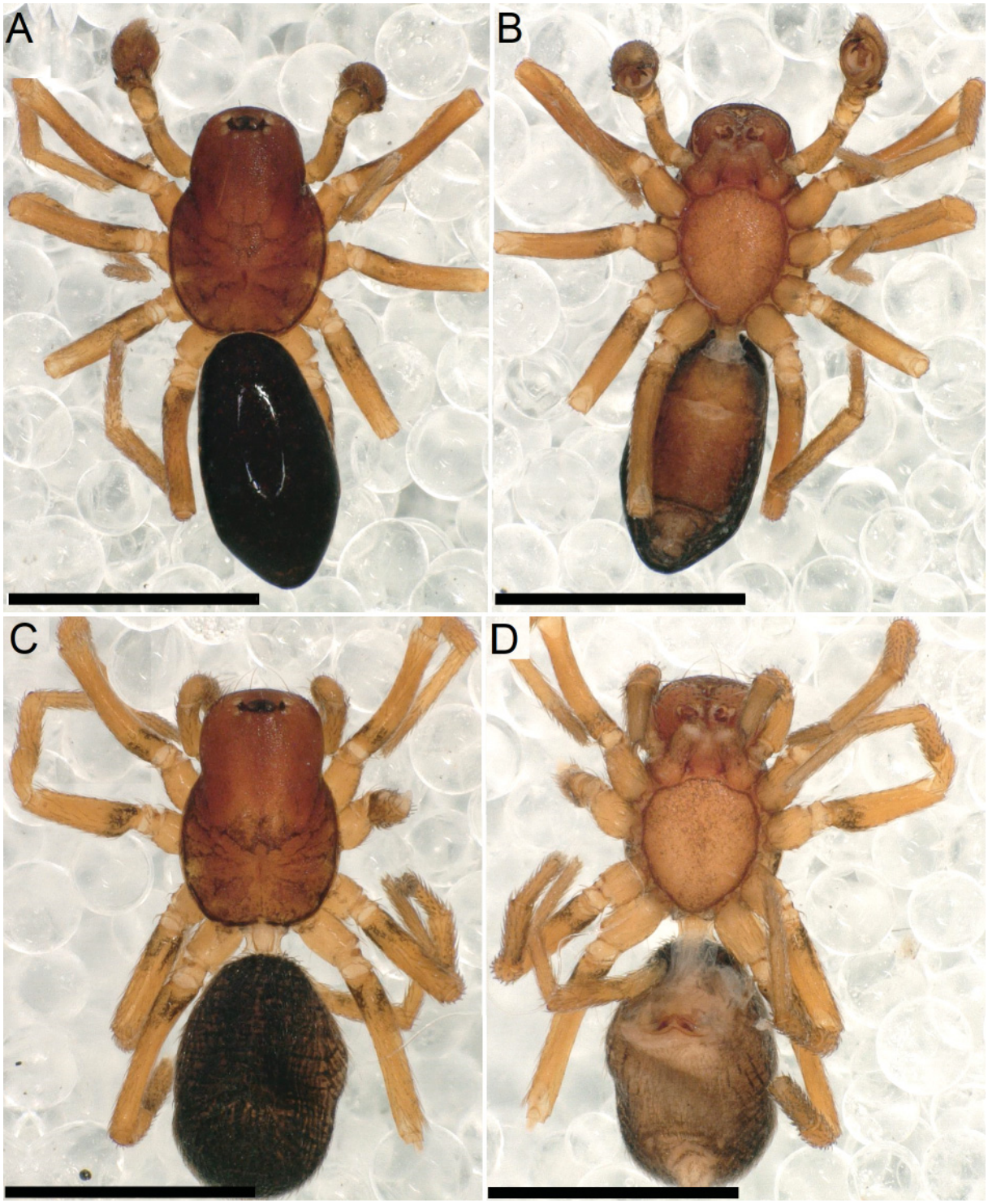

Fig. 60. Habitus of *Zodarion judaeorum* Levy, 1992. **A–B**. Holotype, ♂ (HUJ 14565). **C–D**. Paratype, ♀ (HUJ 14564). **A**. Dorsal view. **B**. Ventral view. **C**. Dorsal view. **D**. Ventral view. Scale bars: 1 mm.

Remarks

The overall body size, morphology, and male palp structure of *Z. judaeorum* closely resemble those observed in the genus *Palaestina*. However, *Z. judaeorum* lacks the coarse cheliceral dentition that serves as the distinguishing feature of *Palaestina*. Further investigation is necessary to clarify the phylogenetic relationship between *Z. judaeorum* and *Palaestina*.

Distribution

Israel.

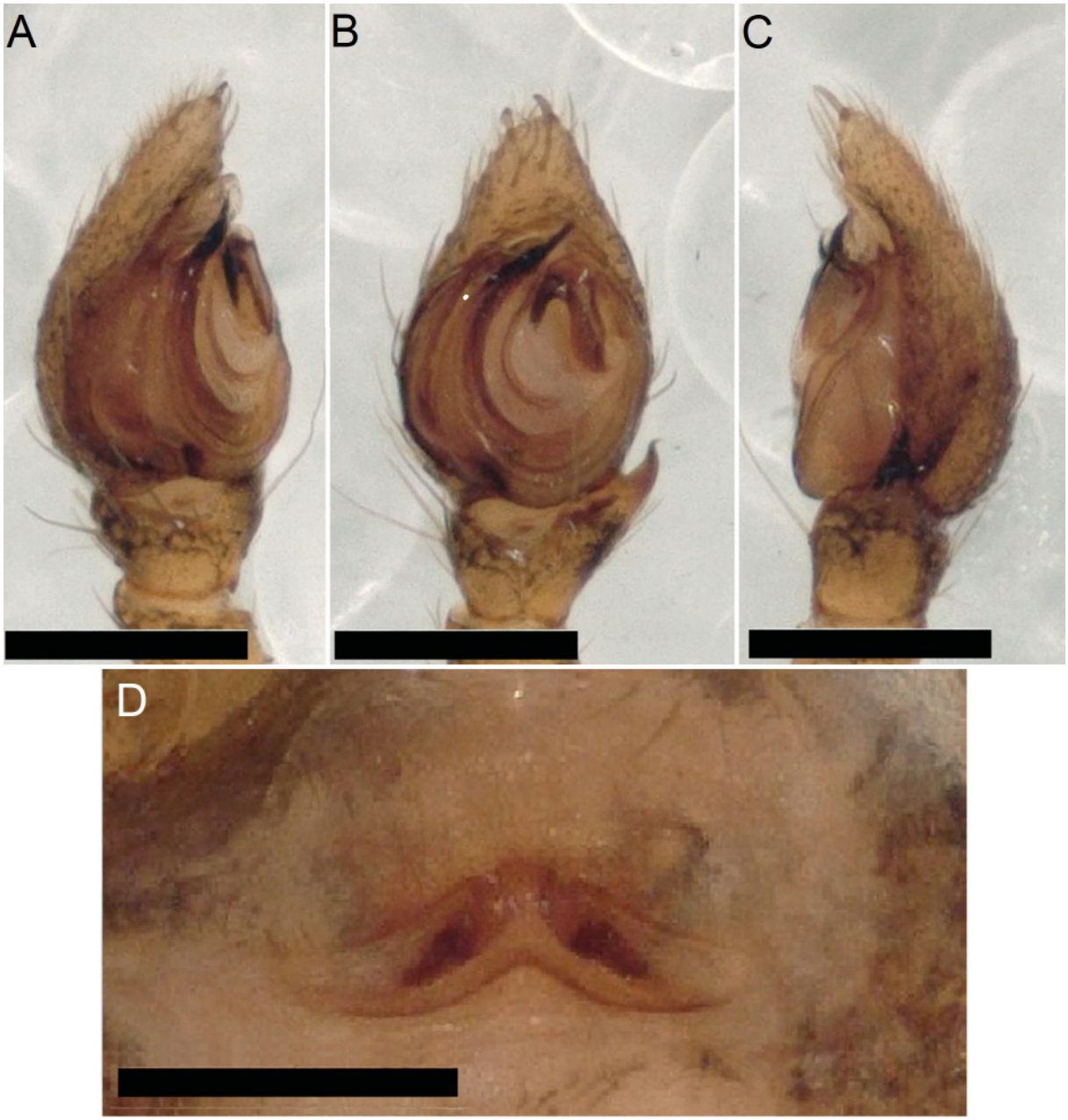

Fig. 61. Copulatory organs of *Zodarion judaeorum* Levy, 1992. **A–C**. Holotype, male palp (HUJ 14565). **D**. Paratype, female intact epigyne (HUJ 14564). **A**. Prolateral view. **B**. Ventral view. **C**. Retrolateral view. **D**. Ventral view. Scale bars: 0.2 mm.

Zodarion karpathos Bosmans, 2009
Figs 62, 105

Zodarion karpathos Bosmans, 2009: 253, figs 96–99.

Diagnosis

Refer to Bosmans (2009).

Type material examined

Holotype
GREECE • ♂; Dodekanisa, Karpathos, Volada; 20 Sep. 2000; B. Knoflach & K. Thaler leg.; NMBE-AR4144.

Paratype
GREECE • 1 ♂; same collection data as for holotype; NMBE-AR4144.

Other material examined

TURKEY • 2 ♂♂; Isparta, Eğridir, surrounding of Eğridir Lake; 37.921° N, 30.918° E; 946 m a.s.l.; 10 Jun. 2007; O. Seyyar leg.; CMU.

Description

For a detailed description of male, refer to Bosmans (2009).

Distribution

This species was previously recorded in Greece (World Spider Catalog 2025). This is the first report of this species from Turkey, and represents, therefore, the easternmost occurrence of this species.

Zodarion killini Bosmans, 2009
Fig. 63

Zodarion killini Bosmans, 2009: 289, figs 164–165.

Diagnosis

Refer to Bosmans (2009).

Type material examined (holotype not examined)

Paratypes
GREECE • 2 ♀♀; Peloponnisos, Korinthia, Oros Killini, Pheneos Pass; 880 m a.s.l.; 19 Sep. 1993; B. Knoflach leg.; NMBE-AR4158.

Paratype
GREECE • 1 ♂ (subadult); same collection data as for holotype; NMBE-AR4158.

Description

For a detailed description of female, refer to Bosmans (2009).

Distribution

Greece.

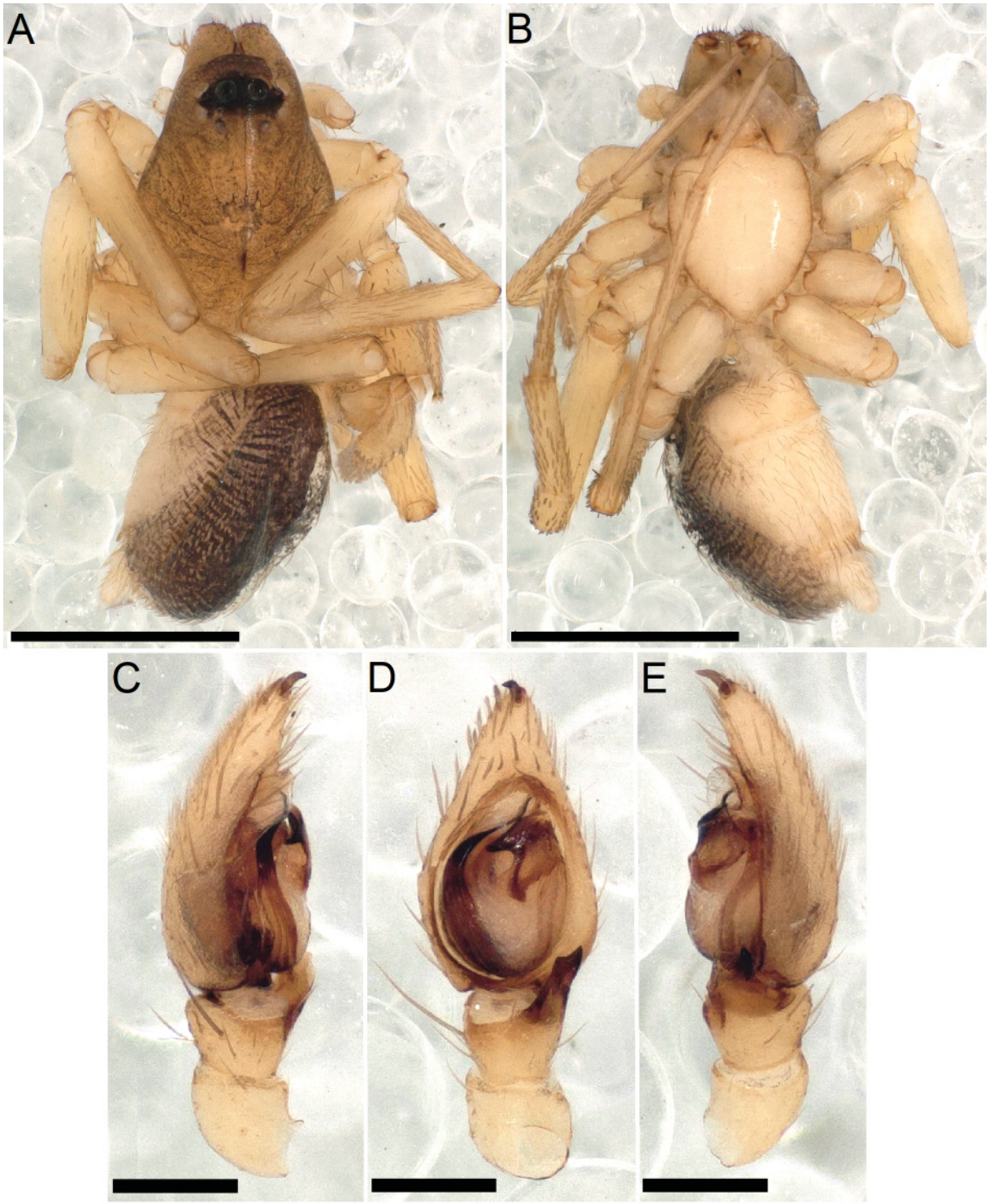

Fig. 62. *Zodarion karpathos* Bosmans, 2009, holotype, ♂ (NMBE-AR4144). **A**. Habitus, dorsal view. **B**. Habitus, ventral view. **C**. Palp, prolateral view. **D**. Palp, ventral view. **E**. Palp, retrolateral view. Scale bars: A–B = 1 mm; C–E = 0.2 mm.

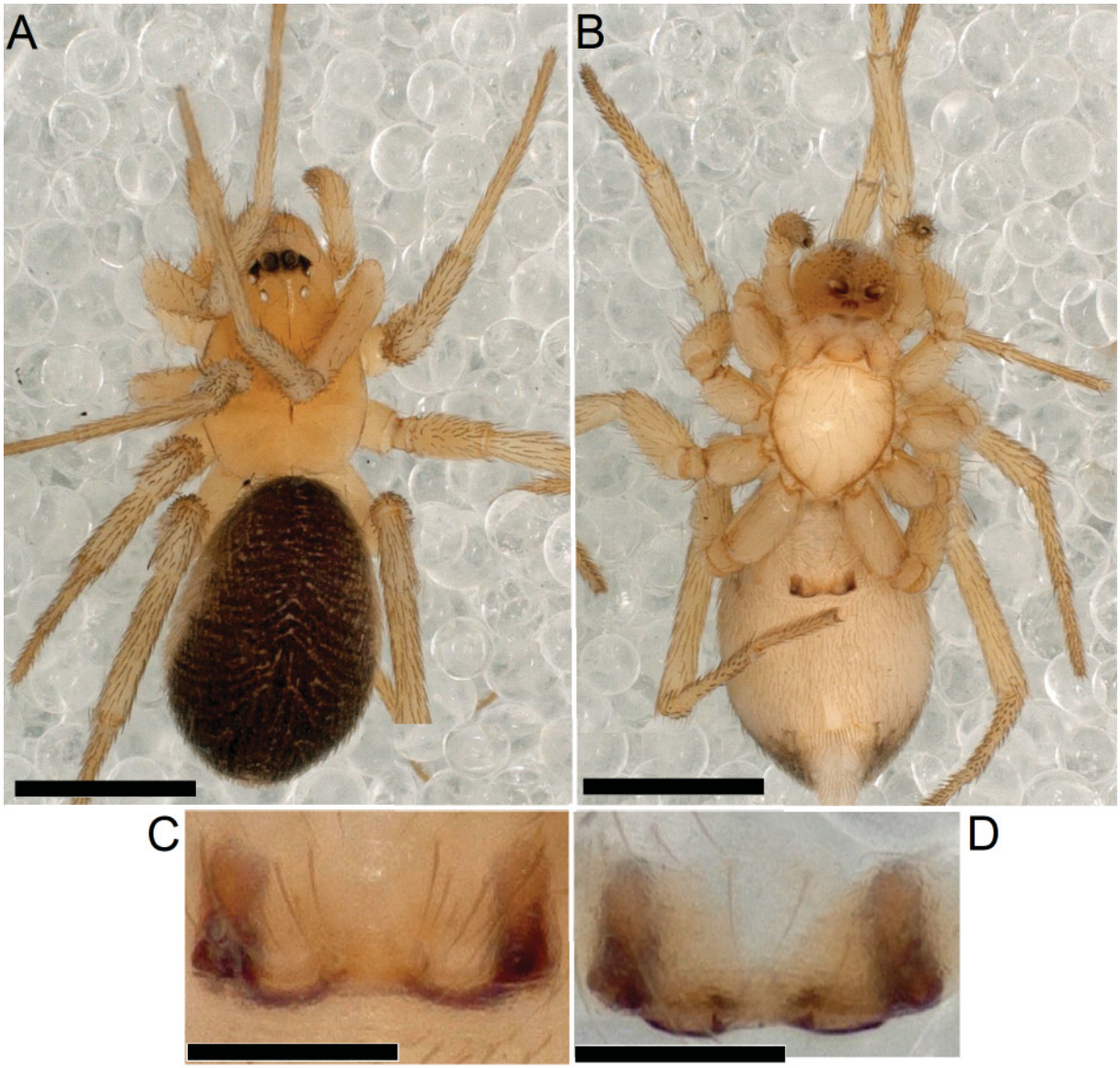

Fig. 63. *Zodarion killini* Bosmans, 2009, paratype, ♀ (NMBE-AR4158). **A**. Habitus, dorsal view. **B**. Habitus, ventral view. **C**. Intact epigyne, ventral view. **D**. Vulva, ventral view. Scale bars: A–B = 1 mm; C–D = 0.2 mm.

Zodarion konradi Bosmans, 2009
Figs 64–65

Zodarion graecum Brignoli, 1984: 311, figs 37–39.
Zodarion konradi Bosmans, 2009: 268, figs 132–133, 160–161.

Diagnosis

Refer to Bosmans (2009).

Type material examined

Holotype

GREECE • ♂; Peloponnisos, Lakonia, Oros Taigetos, Aghios Elias; 2400 m a.s.l.; 26 Sep. 1985; B. Knoflach and K. Thaler leg.; NMBE-AR3668.

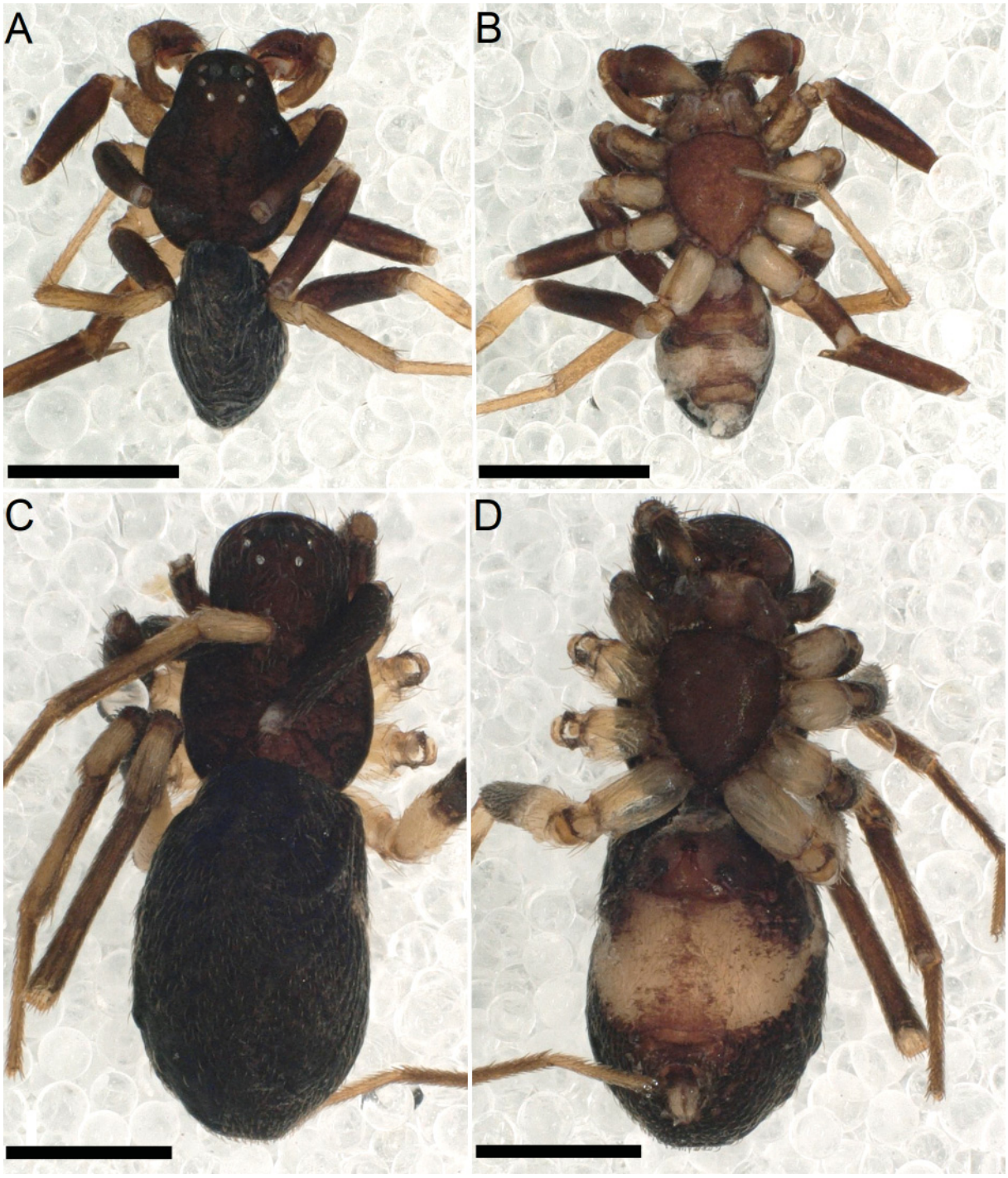

Fig. 64. Habitus of *Zodarion konradi* Bosmans, 2009. **A–B**. Holotype, ♂ (NMBE-AR3668). **C–D**. Paratype, ♀ (NMBE-AR3668). **A**. Dorsal view. **B**. Ventral view. **C**. Dorsal view. **D**. Ventral view. Scale bars: 1 mm.

Paratype

GREECE • ♀; Oros Taigetos, Moni Panaghia Giatrissa; 1100 m a.s.l.; 30 Sep. 1991; B. Knoflach and K. Thaler leg.; NMBE-AR3668.

Other material examined

GREECE • 1 ♀; Corfu, Agios Georgios; 8 Apr. 2004; F. Šťáhlavský leg.; CMU.

Description

For a detailed description, refer to Bosmans (2009).

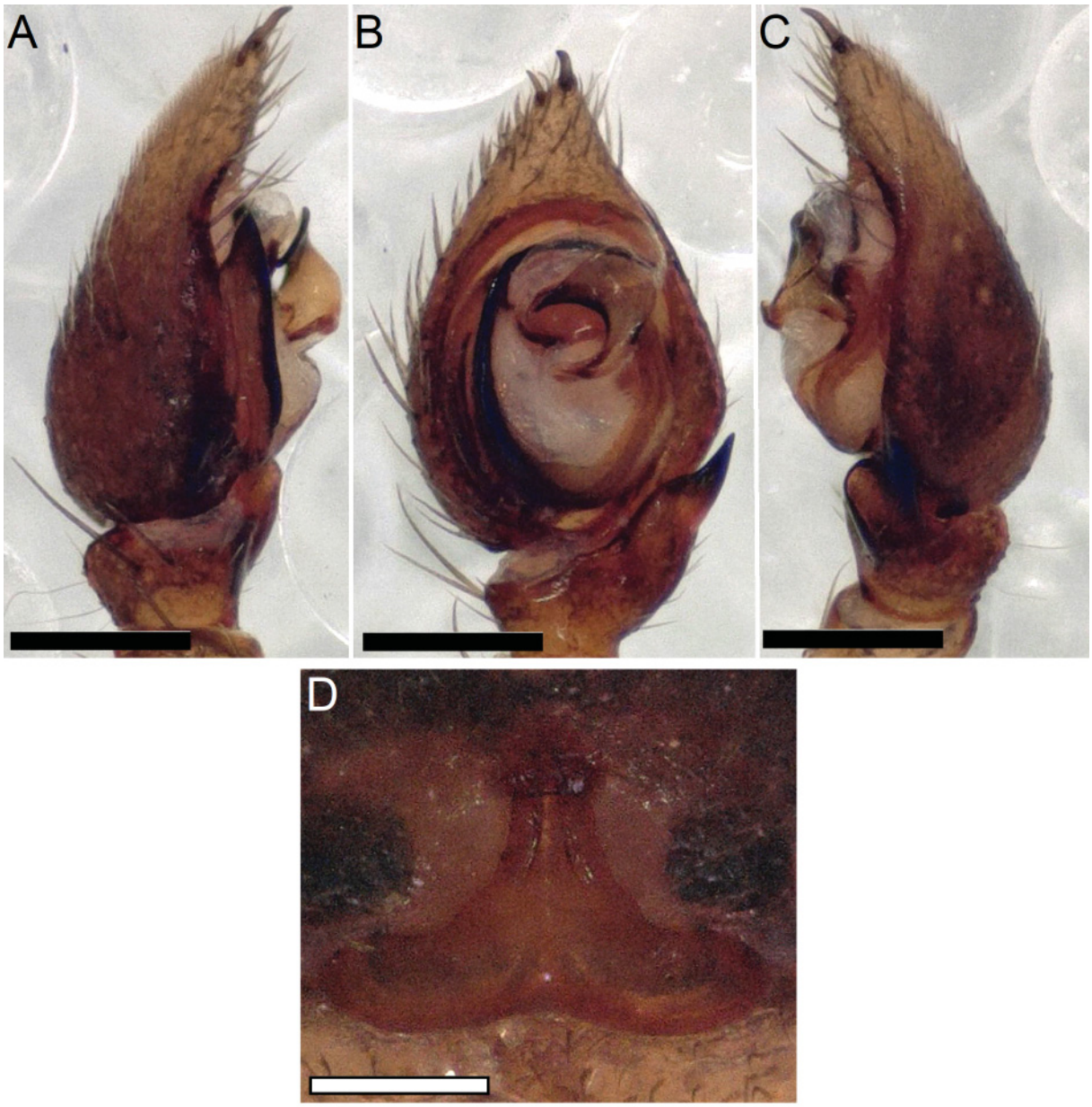

Fig. 65. Copulatory organs of *Zodarion konradi* Bosmans, 2009. **A–C**. Holotype, male palp (NMBE-AR3668). **D**. Paratype, female intact epigyne (NMBE-AR3668). **A**. Prolateral view. **B**. Ventral view. **C**. Retrolateral view. **D**. Ventral view. Scale bars: 0.2 mm.

Remarks

As the prosoma of the specimen was missing, it could not be photographed.

Distribution

North Macedonia, Greece.

Zodarion kossamos Bosmans, 2009
Fig. 66

Zodarion kossamos Bosmans, 2009: 253, figs 100–103, 146–147.

Zodarion kossamos – Lecigne 2011: 75, figs P120–125, S4–5.

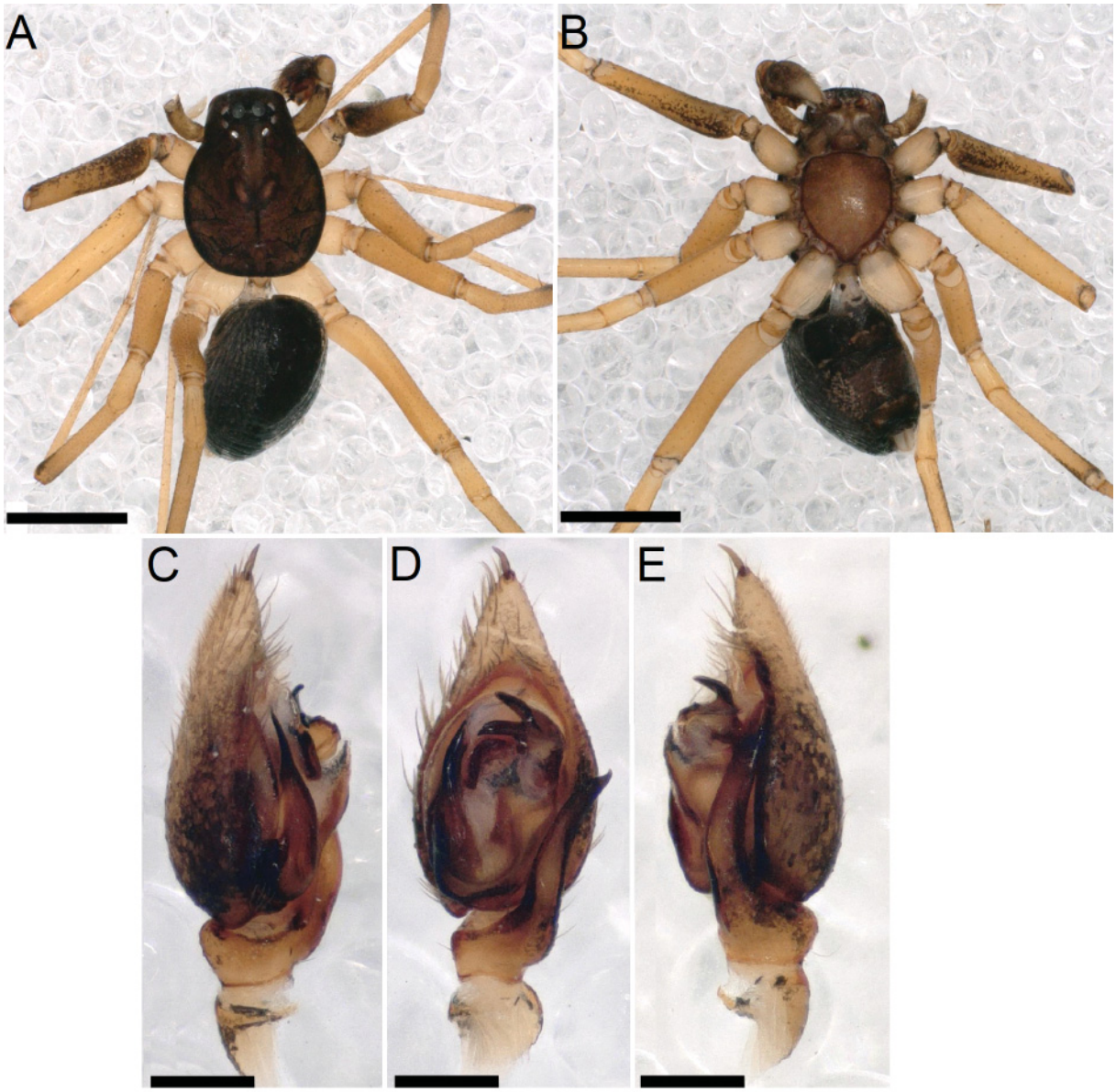

Fig. 66. *Zodarion kossomas* Bosmans, 2009 (CMU), ♂. **A**. Habitus, dorsal view. **B**. Habitus, ventral view. **C**. Palp, prolateral view. **D**. Palp, ventral view. **E**. Palp, retrolateral view. Scale bars: A–B = 1 mm; C–E = 0.2 mm.

Diagnosis

Refer to Bosmans (2009).

Material examined

GREECE • 1 ♂; Kos, Kefalos; 36.744° N, 26.970° E; 100 m a.s.l.; 18 Aug. 2010; A. Exnerová leg.; CMU.

TURKEY • 2 ♂♂; Antalya, Akseki, surrounding of Altınbeşik Cave; 37.034° N, 31.635° E; 471 m a.s.l.; 17 Apr. 2008; O. Seyyar leg.; CMU.

Description

For a detailed description, refer to Bosmans (2009).

Distribution

Greece, Turkey.

Zodarion levyi Shafaie & Pekár sp. nov.
urn:lsid:zoobank.org:act:F5D64ED9-3627-4905-A456-134F362A4231
Figs 67–69, 106

Diagnosis

This new species is most similar to *Z. beroni* by the small body size and asymmetrically bi-concave embolar tip (Fig. 68G vs Fig. 37F) but can be distinguished by the following characters: (1) a more extended prolateral process of median apophysis (vs elongated, cf. Fig. 68B, E and Fig. 37B); and (2) slightly convergent embolar arms (vs divergent arms, cf. Fig. 68G and Fig. 37F). Females of *Z. levyi* sp. nov. can be recognized from the other members of the *thoni*-group by an extended median septum (Fig. 69A–B), whereas it is less extended in *Z. beroni* (Fig. 37D), *Z. granulatum* (Fig. 53D), *Z. namrun* (Fig. 82A–B), *Z. reticulatum* (Fig. 90D), *Z. rhodiense* (Fig. 92D), and *Z. thoni* (Fig. 96D).

Etymology

This species is named after the late Gershom Levy, an Israeli arachnologist.

Type material

Holotype

ISRAEL • ♂; Odem Forest, Golan Heights; 1 May 1996; J. Levy leg.; HUJINV-Ar 21303.

Paratype

ISRAEL • 1 ♀; same collection data as for holotype; HUJINV-Ar 21304.

Other material examined

ISRAEL • 1 ♀; same collection data as for holotype; CMU • 3 ♀♀; Odem Forest; 33.206° N, 35.736° E; 29 Mar. 2023; S. Pekár and V. Opatová leg.; CMU • 1 ♀; same collection data as for preceding; 4 May 2023; M. Řezáč leg.; CMU • 1 ♂, 1 ♀; Har Hermon; 33.288° N, 35.764° E; 5 May 2023; M. Řezáč leg.; CMU.

SYRIA • 1 ♂; W Homs, Al-Zarah; 28 Mar. 2001; O. Řezáč leg.; CMU.

Description

Male (holotype HUJINV-Ar 21303)

Habitus (Fig. 67A–B). Carapace and chelicerae light brown; mouthparts basally light brown and apically pale; sternum yellow. All legs yellow. Palpal segments yellow. Abdomen dorsally black, with a shiny, black scutum, venter of abdomen and spinnerets slightly dirty yellow; PVS present.

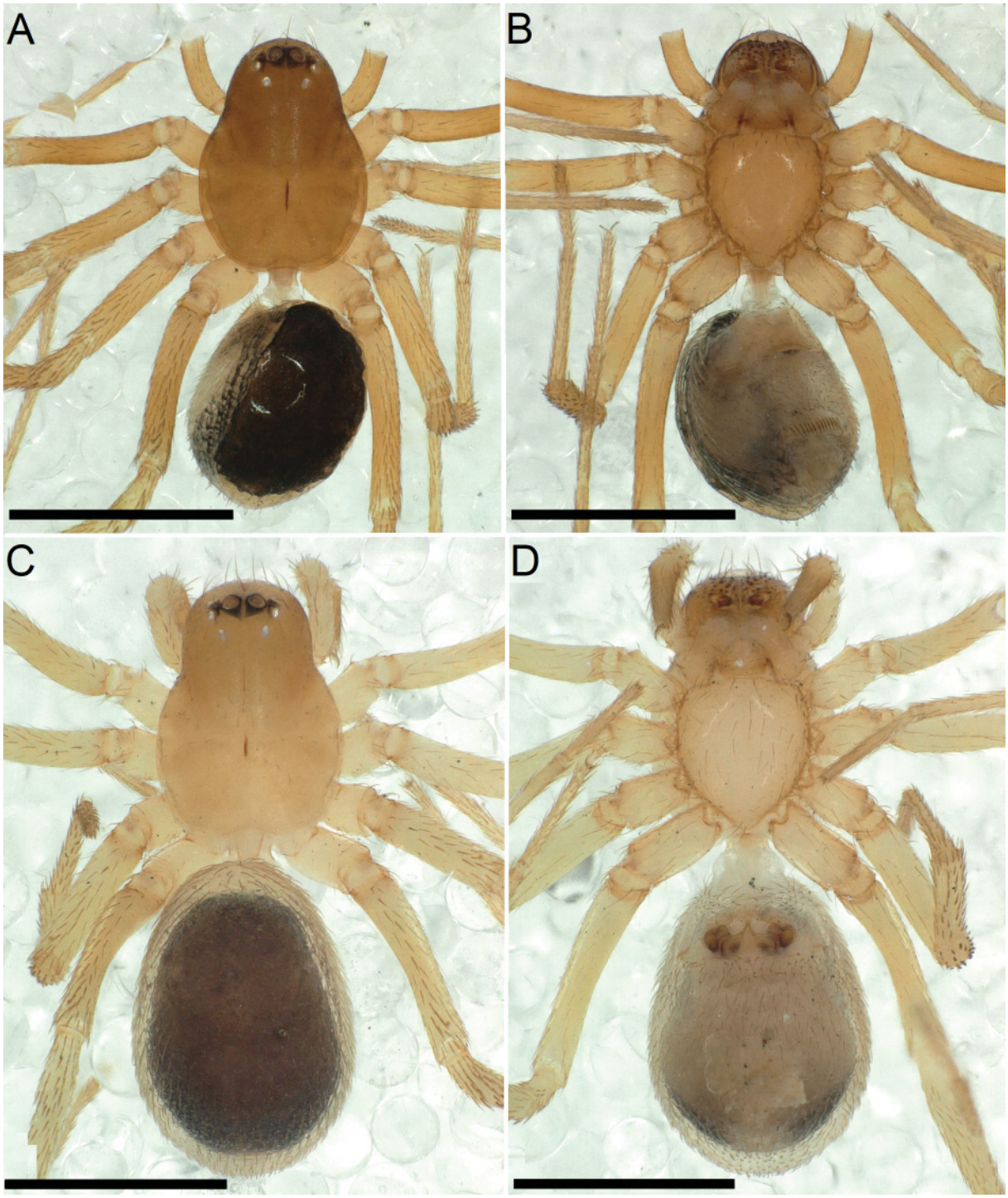

Fig. 67. Habitus of *Zodarion levyi* Shafaie & Pekár sp. nov. **A–B**. Holotype, ♂ (HUJINV-Ar 21303). **C–D**. Paratype, ♀ (HUJINV-Ar 21304). **A**. Dorsal view. **B**. Ventral view. **C**. Dorsal view. **D**. Ventral view. Scale bars: 1 mm.

Measurements. Total length 2.44; carapace 1.25 long, 0.89 wide. Clypeus 0.14 high. Eye sizes and interdistances: AME 0.13, ALE = PME 0.09, PLE 0.08, AME–AME 0.05, AME–ALE 0.03, ALE–ALE 0.29, AME–PME 0.05, PME–PME 0.33, PME–PLE 0.05, PLE–PLE 0.26, ALE–PLE 0.1. Legs: I 3.55 (0.99, 0.39, 0.72, 0.89, 0.56), II 2.97 (0.82, 0.36, 0.52, 0.75, 0.52), III 2.89 (0.79, 0.33, 0.56, 0.75, 0.46), IV 4.31 (1.15, 0.36, 0.92, 1.22, 0.66). Palp: 0.89 (0.29, 0.13, 0.05, 0.42).

Palp (Fig. 68A–G). RTA broad, with a claw-shaped extension. Median apophysis broad, rectangular, with an oval leaf-shaped PMA. Embolus short, with a bifurcated tip including two convergent arms.

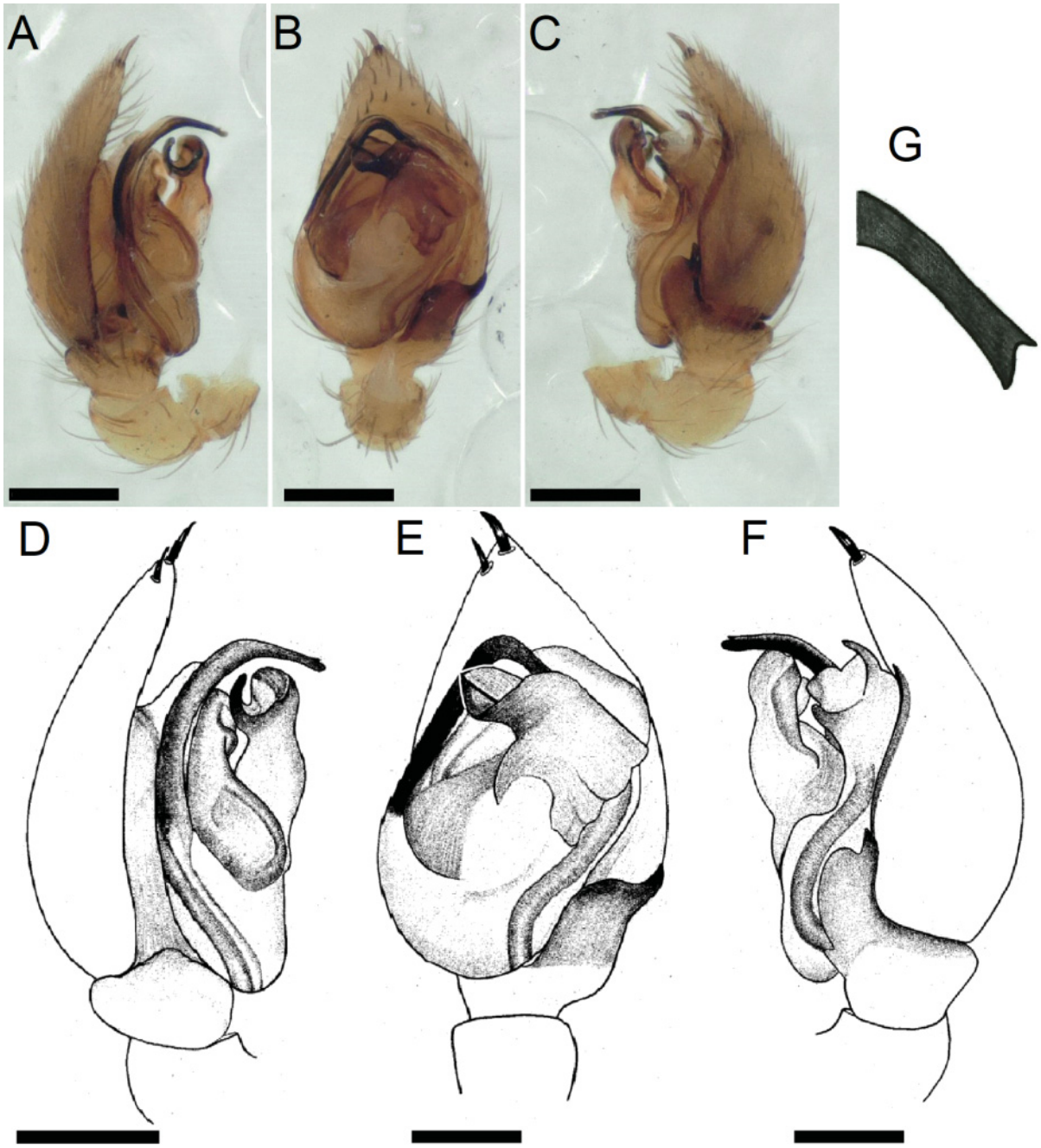

Fig. 68. Male palp of *Zodarion levyi* Shafaie & Pekár sp. nov., holotype (HUJINV-Ar 21303). **A**. Prolateral view. **B**. Ventral view. **C**. Retrolateral view. **D**. Prolateral view. **E**. Ventral view. **F**. Retrolateral view. **G**. Embolar tip, ventral view. Scale bars: 0.2 mm.

Female (paratype HUJINV-Ar 21304)

Habitus (Fig. 67C–D). Carapace, chelicerae and palp yellow; mouthparts, sternum, spinnerets, legs and abdomen ventrally pale. Abdomen dorsum brownish without scutum; PVS present.

Measurements. Total length 2.9; carapace 1.25 long, 0.89 wide. Clypeus 0.14 high. Eye sizes and interdistances: AME 0.12, ALE = PME 0.1, PLE 0.09, AME–AME 0.09, AME–ALE 0.03, ALE–ALE 0.36, AME–PME 0.09, PME–PME 0.39, PME–PLE 0.09, PLE–PLE 0.23, ALE–PLE 0.15. Legs: I 3.25 (0.89, 0.36, 0.62, 0.79, 0.59), II 2.85 (0.75, 0.29, 0.59, 0.66, 0.56), III 2.98 (0.79, 0.39, 0.52, 0.79, 0.49), IV 4.28 (1.32, 0.46, 0.66, 1.25, 0.59). Palp: 0.98 (0.31, 0.14, 0.07, 0.46).

Epigyne (Fig. 69A–D). Epigyne comprising a clearly distinctive, transverse brace-shaped median septum, with deep copulatory openings, anteriorly covered by a hooded, emarginated arch and laterally surrounded by coiled spermathecae running divergently, visible by transparency. Vulva comprises divergent spermathecal ducts terminally expanded inward.

Size variation

Total body length 2.44–3.06, carapace length/width 1.25–1.53/0.89–1.06 in males (N = 2). Total body length 2.8–2.9, carapace length/width 1.25–1.33/0.86–0.89 in females (N = 2).

Distribution

Israel and Syria.

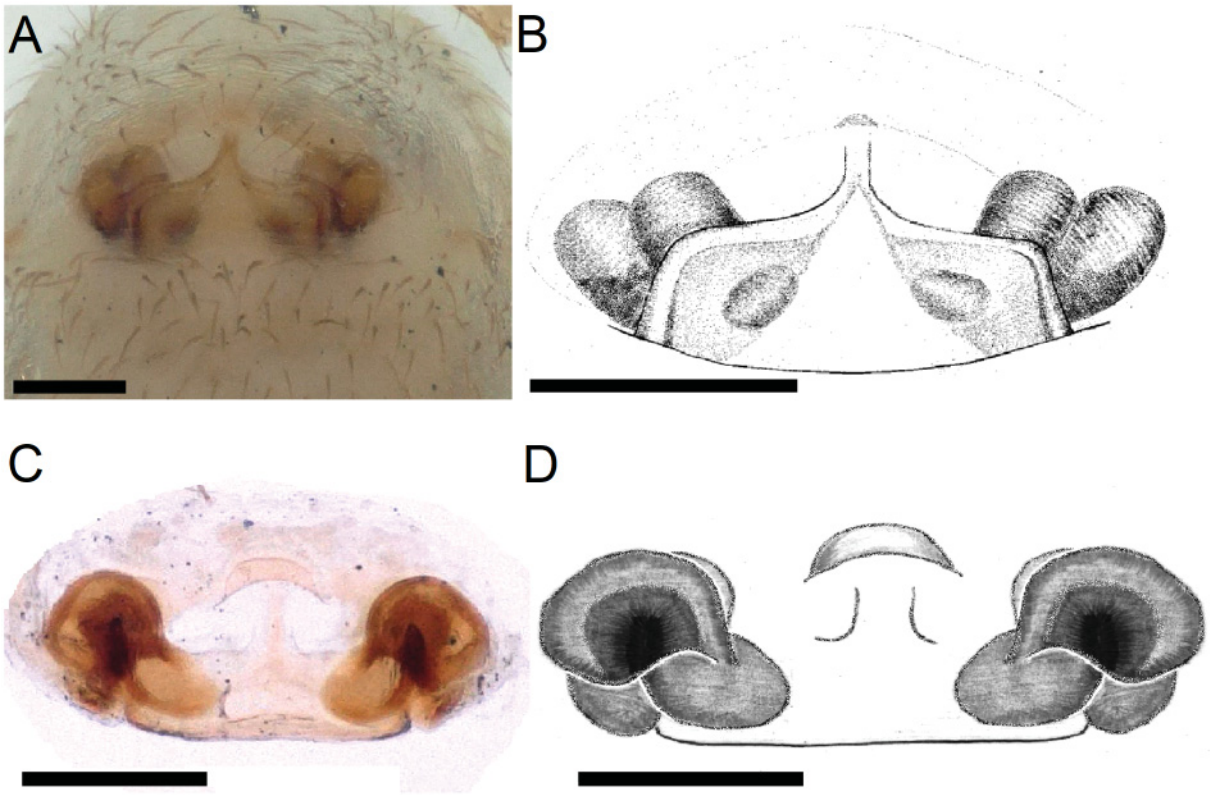

Fig. 69. Female copulatory organ of *Zodarion levyi* Shafaie & Pekár sp. nov., paratype (HUJINV-Ar 21304). **A**. Intact epigyne, ventral view. **B**. Epigyne, ventral view. **C**. Vulva, ventral view. **D**. Vulva, ventral view. Scale bars: 0.2 mm.

Zodarion luctuosum (O. Pickard-Cambridge, 1872)
Figs 70–71

Enyo luctuosa O. Pickard-Cambridge, 1872: 270.

Zodarion luctuosum – Kulczyński 1911: 26, pl. 1 fig. 24. — Denis 1937: 13, pl. 2 figs 12–14. — Levy 1992: 88, figs 62–66.

Diagnosis

Refer to Levy (1992).

Type material examined

Syntypes

ISRAEL • 4 ♂♂, 2 ♀♀, 1 juv.; Jericho; OUMNH, Bot. 441, tube 1.

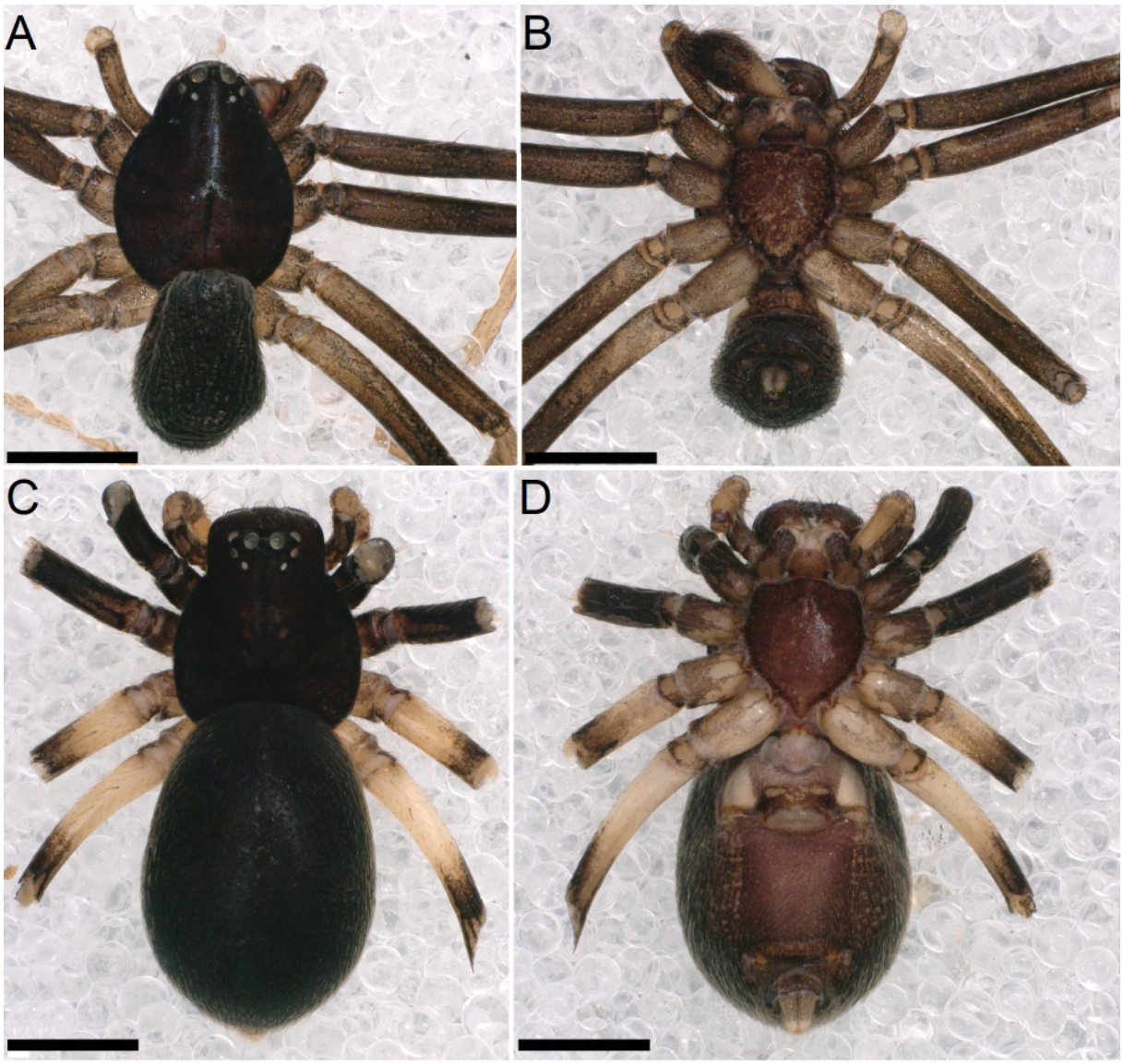

Fig. 70. Habitus of *Zodarion luctuosum* (O. Pickard-Cambridge, 1872) (CMU). **A–B**. ♂. **C–D**. ♀. **A**. Dorsal view. **B**. Ventral view. **C**. Dorsal view. **D**. Ventral view. Scale bars: 1 mm.

Other material examined

ISRAEL • 5 ♂♂; Midreshet Sde Boker; 30.857° N, 34.781° E; 1 Apr. 2001; S. Pekár leg.; CMU • 1 ♂, 2 ♀♀; s. loc.; 1 Apr. 2001; S. Pekár leg.; CMU • 3 ♀♀; Har Amasa; 31.345° N, 35.122° E; 5 Apr. 2016; S. Korenko leg.; CMU • 6 ♂♂, 2 ♀♀, 2 juv.; Arad; 31.267° N, 35.218° E; 5 Apr. 2019; S. Pekár leg.; CMU.

PALESTINE • 1 ♀; Jericho or Bethlehem; MNHN-AR2849.

Description

For a detailed description, refer to Levy (1992).

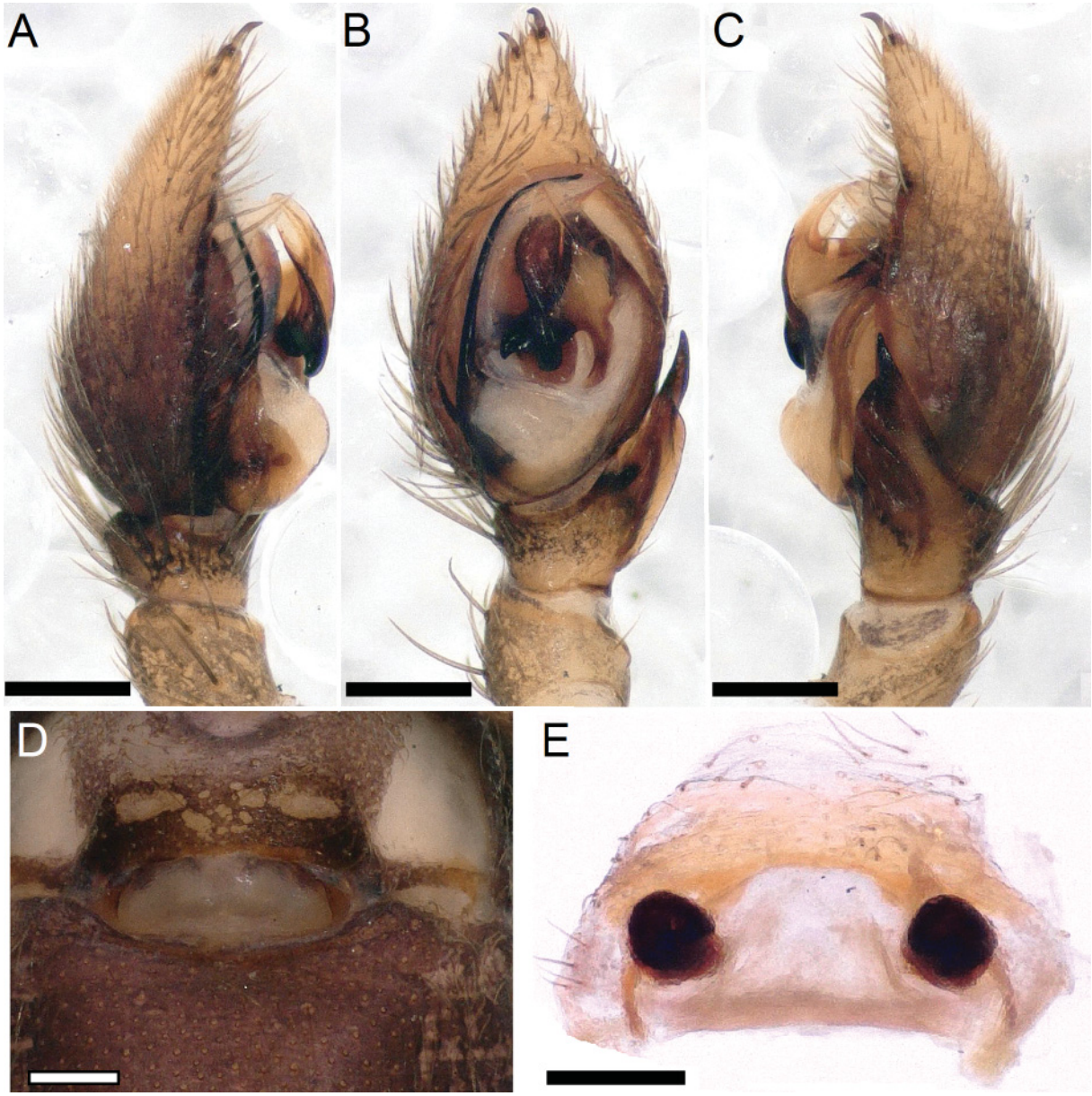

Fig. 71. Copulatory organs of *Zodarion luctuosum* (O. Pickard-Cambridge, 1872) (CMU). **A–C**. Male palp. **D–E**. Female copulatory organ.**A**. Prolateral view. **B**. Ventral view. **C**. Retrolateral view. **D**. Intact epigyne, ventral view. **E**. Vulva, ventral view. Scale bars: 0.2 mm.

Remarks

Among the specimens in Simon's collection labeled as *Z. longipes* (MNHN-AR2849), we identified a single female specimen of *Z. luctuosum*.

Distribution

Israel, Palestine.

Zodarion lutipes (O. Pickard-Cambridge, 1872)
Figs 72–75

Enyo lutipes O. Pickard-Cambridge, 1872: 272.

Zodarion lutipes – Kulczyński 1911: 26, pl. 1 figs 25–26. — Denis 1937: 38, pl. 8 fig. 64. — Levy 1992: 89, figs 67–71. — Bosmans 2009: 281, figs 184–185, 194–195. — Al-Khazali 2022: 380, figs 1–4.
Zodarion atriceps – Kulczyński 1911: 26, pl. 1 fig. 23.
Zodarion nitidum – Denis 1937: 6; 1962: 31, fig. 2 (partially misidentified).
Acanthinozodium lutipes – Ono & Jocqué 1986: 6.

Diagnosis

Refer to Levy (1992).

Type material examined

Syntypes

ISRAEL • 4 ♂♂, 4 ♀♀, 1 juv.; Jerusalem; OUMNH, Bot. 441, tube 3.

Other material examined

ISRAEL • 1 ♂, 6 ♀♀, 1 juv.; Jerusalem; MNHN-AR2857 • 2 juv.; Lehavim; 31.364° N, 34.823° E; 9 Mar. 2001; S. Pekár leg.; CMU • 10 ♂♂, 3 ♀♀, 4 juv.; same collection data as for preceding; 1 Apr. 2001; S. Pekár leg.; CMU • 1 juv.; Jerusalem, Adullam; 31.641° N, 34.931° E; 29 Mar. 2007; S. Pekár leg.; CMU • 3 ♂♂, 1 juv.; Har Amasa; 31.345° N, 35.122° E; 3 Apr. 2016; S. Pekár and S. Korenko leg.; CMU • 3 ♂♂; Arad; 31.267° N, 35.218° E; 3 Apr. 2017; S. Pekár and S. Korenko leg.; CMU.

PALESTINE • 2 ♂♂; Jericho or Bethlehem; MNHN-AR2849.

Description

For a detailed description, refer to Levy (1992).

Remarks

During the examination of material from Simon's collection, we discovered that several specimens of *Z. lutipes* had been misidentified and labeled as *Z. longipes* and *Z. longipes rubidum*. Moreover, the epigyne of one of these specimens corresponds well with the illustration of *Z. nitidum* provided by Denis (1962) (cf. Fig. 73E and Fig. 73F, respectively).

Distribution

Cyprus, Israel, Lebanon, Jordan, Iran, Iraq, Palestine.

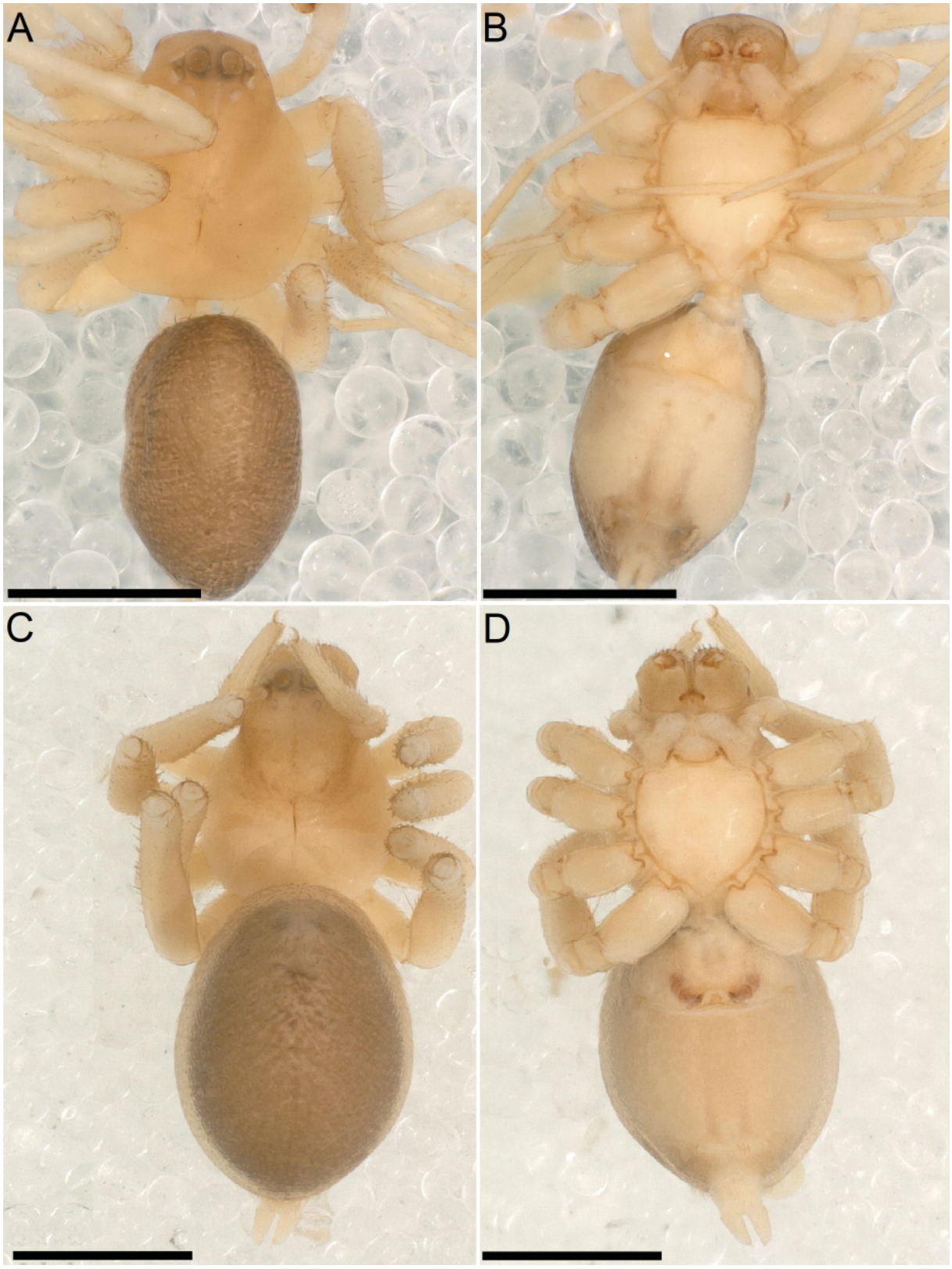

Fig. 72. Habitus of *Zodarion lutipes* (O. Pickard-Cambridge, 1872). **A–B**. Syntype, ♂ (OUMNH). **C–D**. Syntype, ♀ (OUMNH). **A**. Dorsal view. **B**. Ventral view. **C**. Dorsal view. **D**. Ventral view. Scale bars: 1 mm.

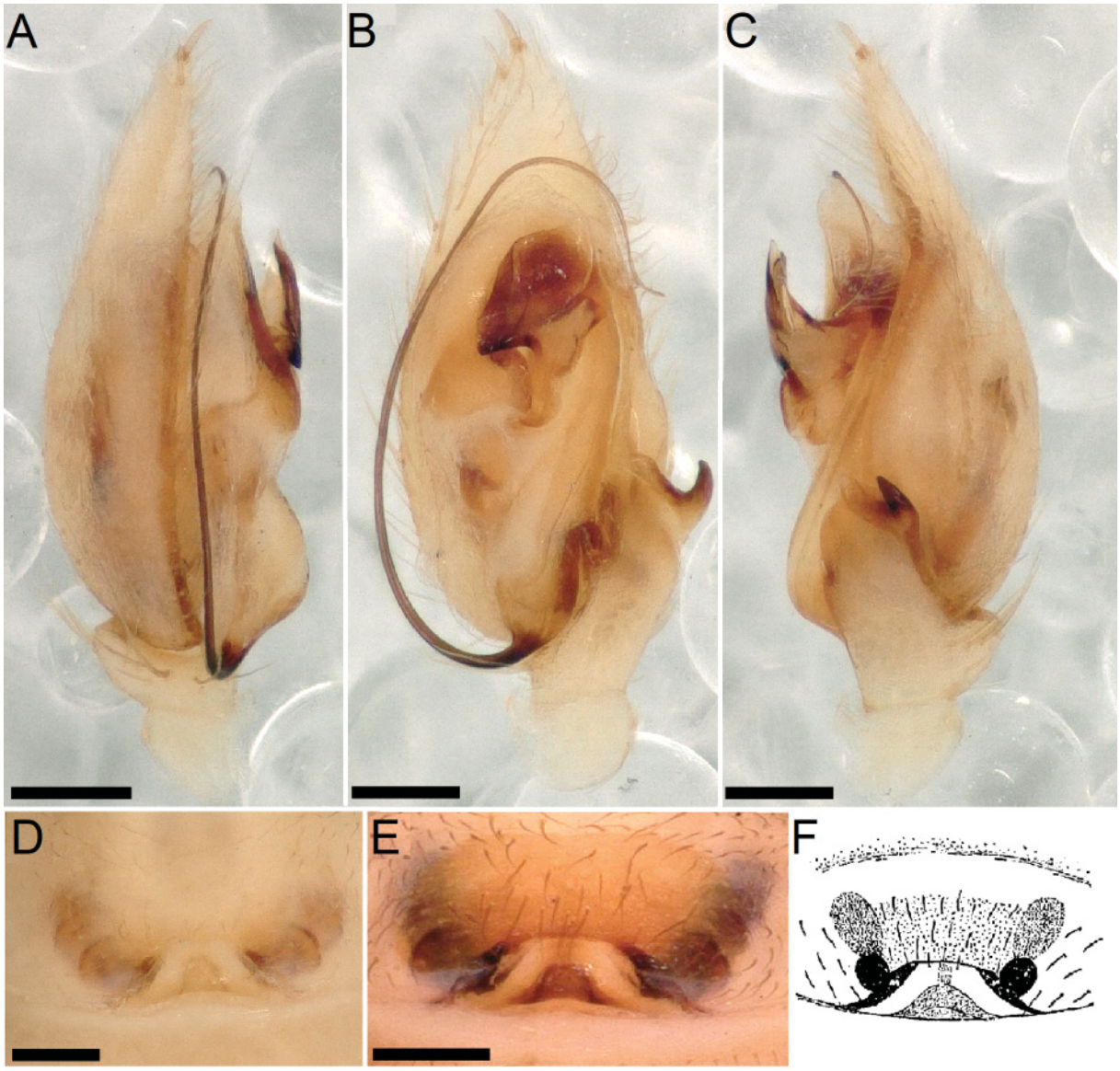

Fig. 73. Copulatory organs of *Zodarion lutipes* (O. Pickard-Cambridge, 1872). **A–C**. Syntype, male palp (OUMNH). **D**. Syntype, female intact epigyne (OUMNH). **E–F**. Female copulatory organ (MNHN-AR2857). **A**. Prolateral view. **B**. Ventral view. **C**. Retrolateral view. **D**. Ventral view. **E**. Intact epigyne, ventral view. **F**. Epigyne, ventral view, after Denis (1962). Scale bars: 0.2 mm. All female specimens from Israel.

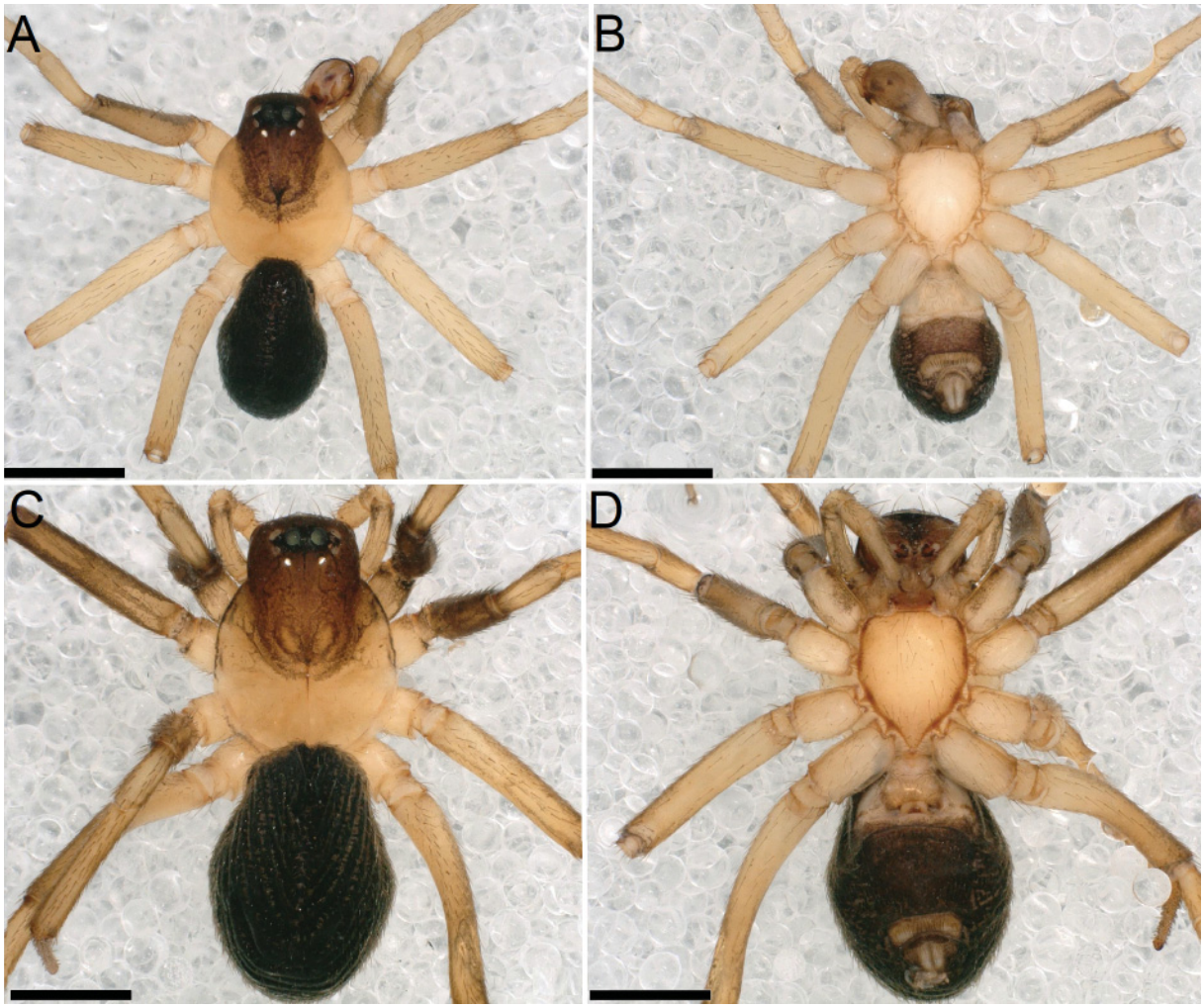

Fig. 74. Habitus of *Zodarion lutipes* (O. Pickard-Cambridge, 1872) (CMU). **A–B**. ♂. **C–D**. ♀. **A**. Dorsal view. **B**. Ventral view. **C**. Dorsal view. **D**. Ventral view. Scale bars: 1 mm.

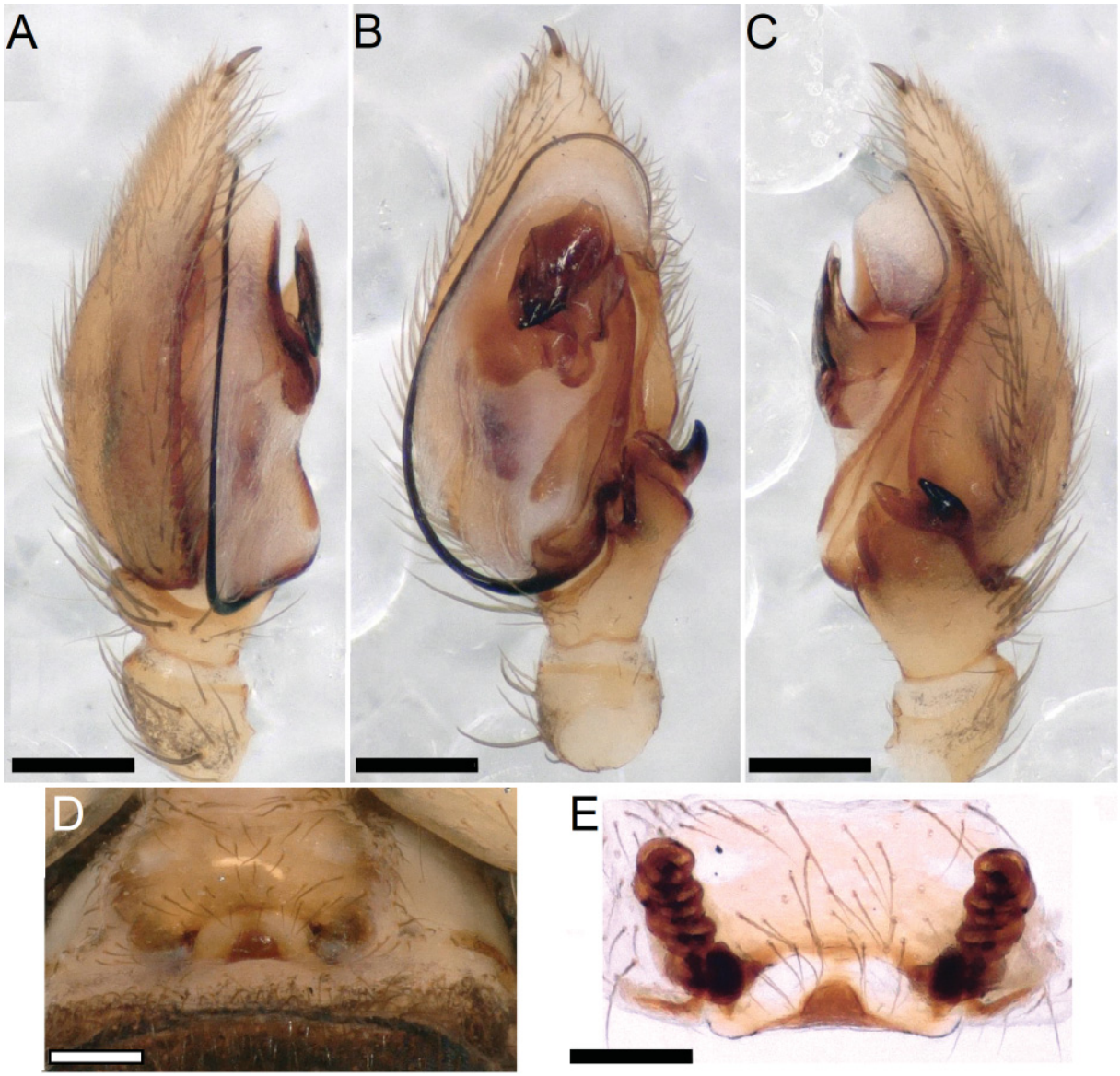

Fig. 75. Copulatory organs of *Zodarion lutipes* (O. Pickard-Cambridge, 1872) (CMU). **A–C**. Male palp. **D–E**. Female copulatory organ. **A**. Prolateral view. **B**. Ventral view. **C**. Retrolateral view. **D**. Intact epigyne, ventral view. **E**. Vulva, ventral view. Scale bars: 0.2 mm.

Zodarion milani Shafaie & Pekár sp. nov.
urn:lsid:zoobank.org:act:6E2ADB03-2768-49EC-8744-4B9488A6DCB7
Figs 76–77, 106

Diagnosis

Males of this new species are similar to those of *Z. rhodiense* in body size and the coloration of the prosoma and legs, but they can be distinguished by their flattened embolar tip and the spine-like appendix (Fig. 77G vs Fig. 92F).

Etymology

The species is named after our colleague, Milan Řezáč, who collected the specimens.

Type material

Holotype
SYRIA • ♂; Mashta Al-Helu; 3 Apr. 2001; M. Řezáč leg.; NMP P6A 7509.

Other material examined

SYRIA • 1 ♂; Al-Qadmus, Al-Kahf Castle; 5 Apr. 2001; M. Řezáč leg.; CMU.

Description

Male (holotype NMP P6A 7509)
Habitus (Fig. 76A–B). Carapace and chelicerae brown; chelicerae with a longitudinal black stripe. Sternum and mouthparts brownish. Cx greyish, black distally; Fe black, with two pairs of longitudinal yellow stripes; Pa I, Ti I–III, Mt and Ta I–IV pale. Pa II–IV and Ti IV pale ventrally and dark laterally. Palpal femur black, with two pairs of orange stripes, patella and tibia pale ventrally and dark laterally, and cymbium brown, with yellow tip. Abdomen dorsum black, with an oval scutum, venter black except for brownish epiandrous; PVS present. Spinnerets black basally and pale apically.

Measurements. Total length 4.55; carapace 2.34 long, 1.58 wide. Clypeus 0.26 high. Eye sizes and interdistances: AME 0.15, ALE = PME 0.1, PLE 0.08, AME–AME 0.06, AME–ALE 0.01, ALE–ALE 0.4, AME–PME 0.07, PME–PME 0.45, PME–PLE 0.1, PLE–PLE 0.27, ALE–PLE 0.2. Legs: I 7.77 (1.98, 0.72, 1.65, 2.14, 1.28), II 7 (1.91, 0.72, 1.38, 1.94, 1.05), III 7.01 (1.91, 0.69, 1.28, 2.14, 0.99), IV 9.64 (2.70, 0.75, 2.24, 2.8, 1.15). Palp: 2.37 (0.85, 0.39, 0.16, 0.95).

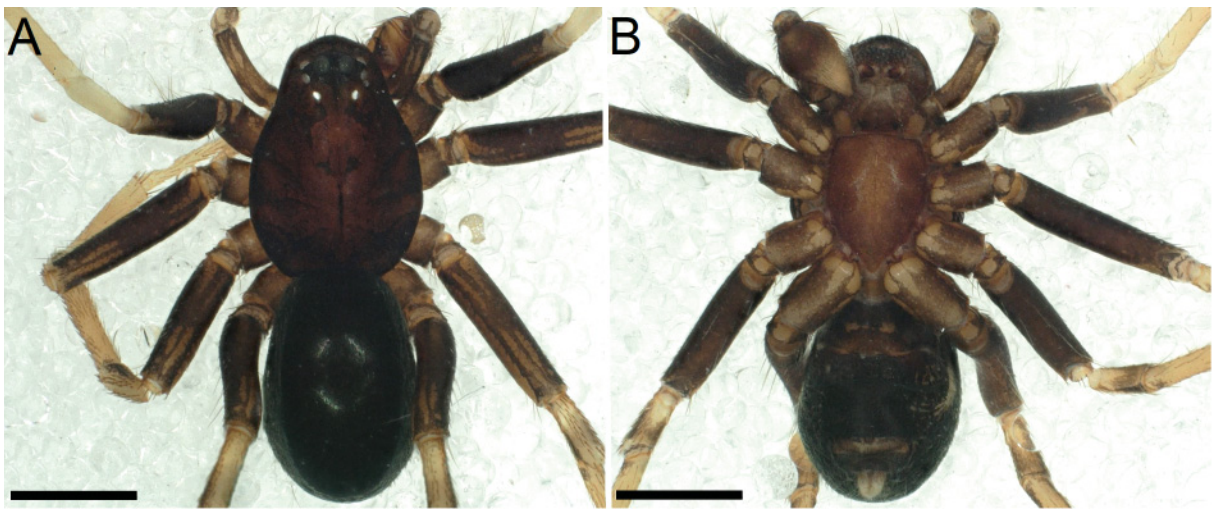

Fig. 76. Habitus of *Zodarion milani* Shafaie & Pekár sp. nov., holotype, ♂ (NMP P6A 7509). **A**. Dorsal view. **B**. Ventral view. Scale bars: 1 mm.

Palp (Fig. 77A–G). RTA broad, with a claw-shaped extension. Median apophysis rectangular, with a beak-shaped PMA, companied by a blunt prolateral extension. Embolus with a flattened embolar tip accompanied by a lateral spine-like appendix.

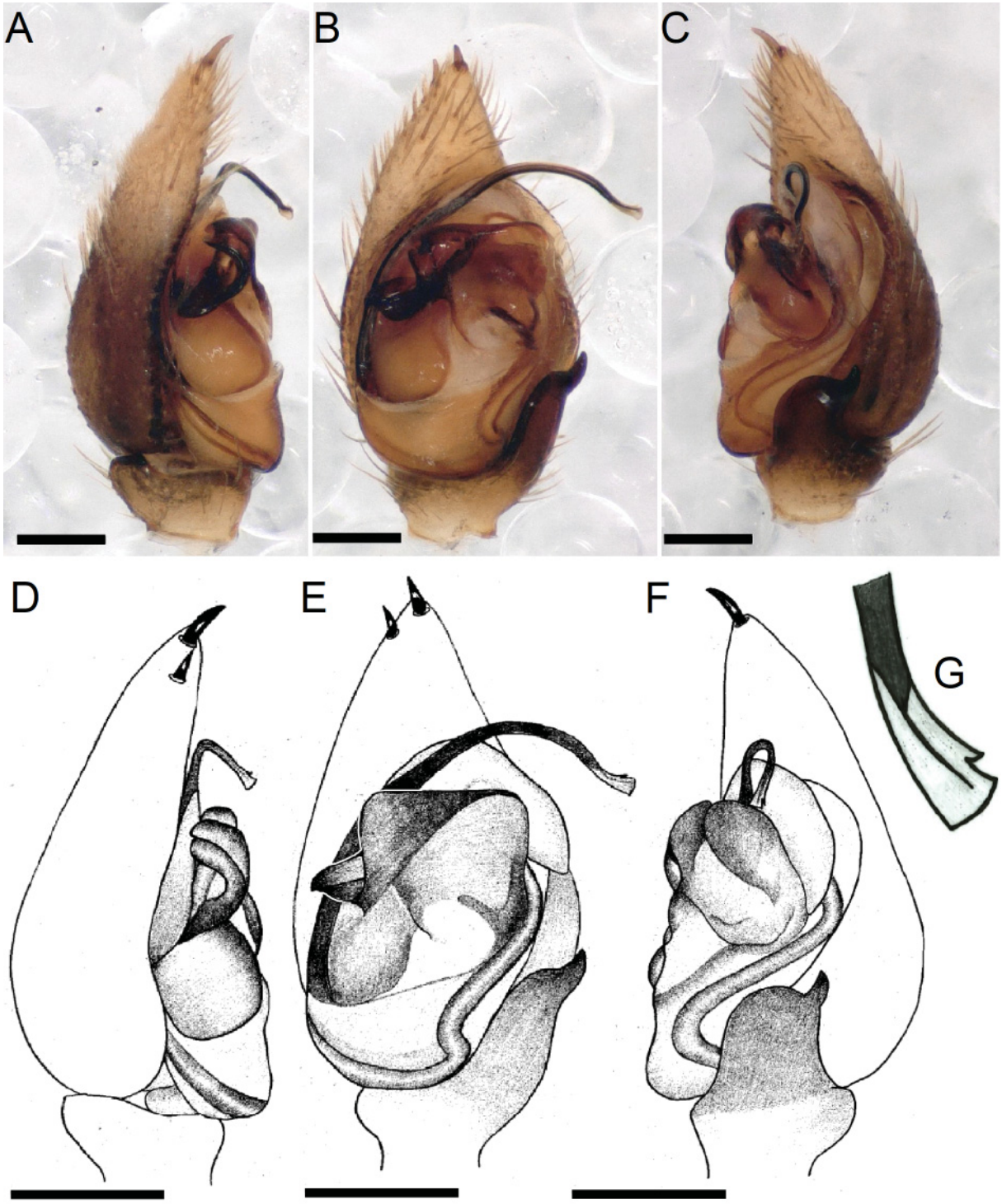

Fig. 77. Male palp of *Zodarion milani* Shafaie & Pekár sp. nov., holotype (NMP P6A 7509). **A**. Prolateral view. **B**. Ventral view. **C**. Retrolateral view. **D**. Prolateral view. **E**. Ventral view. **F**. Retrolateral view. **G**. Embolar tip, ventral view. Scale bars: 0.2 mm.

Female

Unknown.

Size variation

Total body length 4.55–4.57, carapace length/width 2.34–2.35/1.58–1 in males (N = 2).

Distribution

At present, known only from the type locality in Syria.

Zodarion morosum Denis, 1935
Figs 78–79, 105

Zodarion morosum Denis, 1935b: 78, figs 22–24.
Zodarion aegaeum Denis, 1935b: 81, fig. 25.

Zodarion morosum – Karol 1969: 201, figs 1–11. — Deltshev 1987: 19, fig. 1.1–2. — Kovblyuk 2003: 177, figs 1–8, 14–16. — Bosmans 2009: 236, figs 20–22, 54–55. — Lecigne 2011: 75, figs P125–128, S6–7. — Seropian *et al.* 2023: 293, figs 136–137. — Nae 2023: 56, figs 1–6.

Diagnosis

Refer to Bosmans (2009).

Material examined

GREECE • 2 ♀♀; E Olympos, Leptokarya, Olympic River; 9 Jun. 1996; J. Dolanský leg.; CMU • 1 ♀; same collection data as for preceding; 22 Jun. 2008; M. Schröder leg.; CMU • 1 ♂; Aladjagiola Wetland (N of Chrisoupoli); 41.01° N, 24.703° E; 18 Jun. 2004; S. Buchholz leg.; CMU • 1 ♀; same collection data as for preceding; 22 Jun. 2008; M. Schröder leg.; CMU • 4 ♂♂, 1 juv.; Lesvos; 18 May 2006; W. Nentwig leg.; CMU • 14 ♂♂, 2 ♀♀, 1 juv.; same collection data as for preceding; 15 Jun. 2006; W. Nentwig leg.; CMU.

SYRIA • 1 ♀; Latakia; MNHN-AR2857.

Description

For a detailed description, refer to Bosmans (2009).

Remarks

Examination of the material from the Simon collection (MNHN-AR2857) revealed a female specimen of *Z. morosum.*

Distribution

This species was formerly recorded from North Macedonia, Bulgaria, Albania, Greece, Turkey, Ukraine, and Russia (World Spider Catalog 2025); this is the first report of this species from Syria.

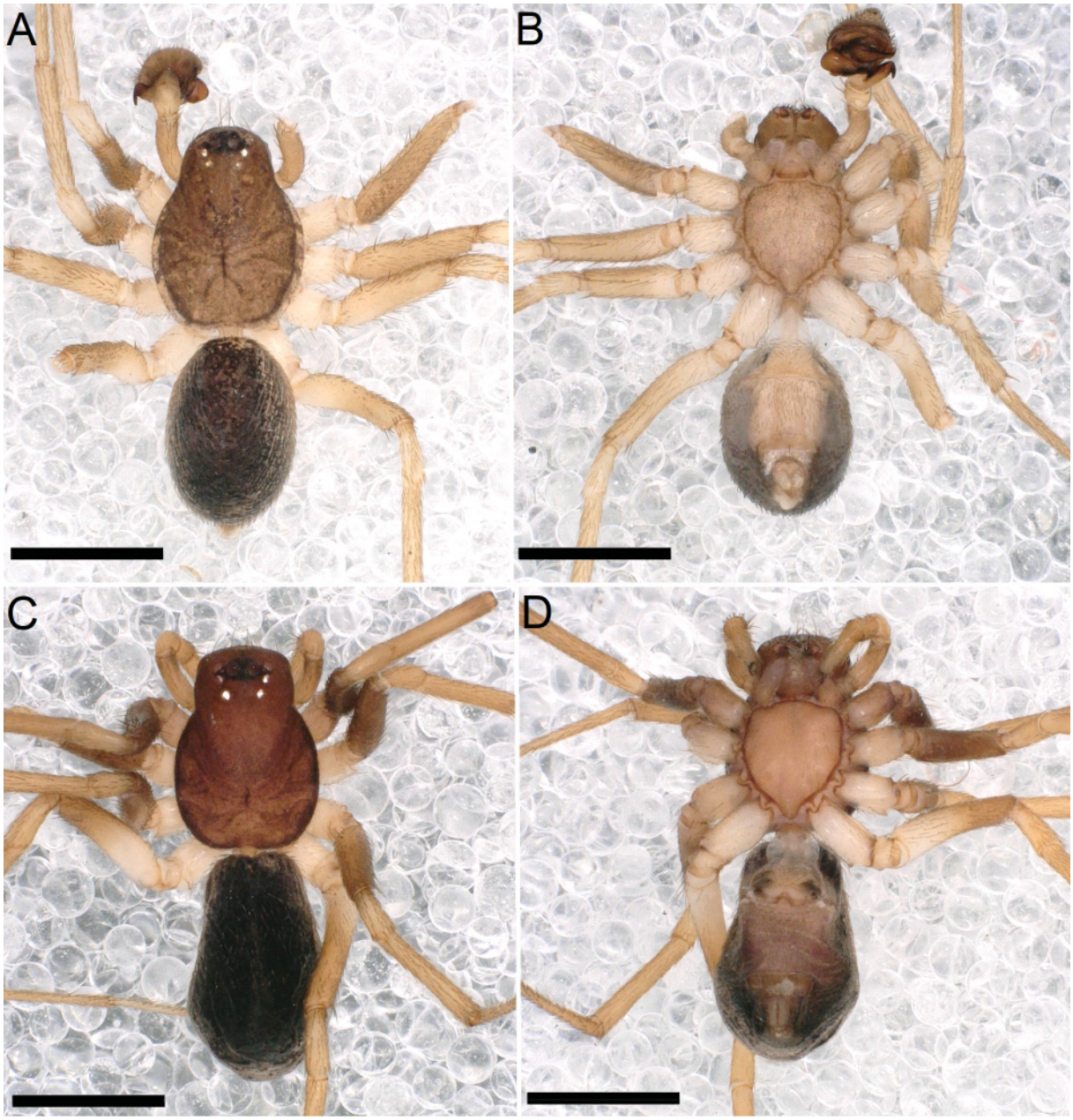

Fig. 78. Habitus of *Zodarion morosum* Denis, 1935 (CMU). **A–B**. ♂. **C–D**. ♀. **A**. Dorsal view. **B**. Ventral view. **C**. Dorsal view. **D**. Ventral view. Scale bars: 1 mm.

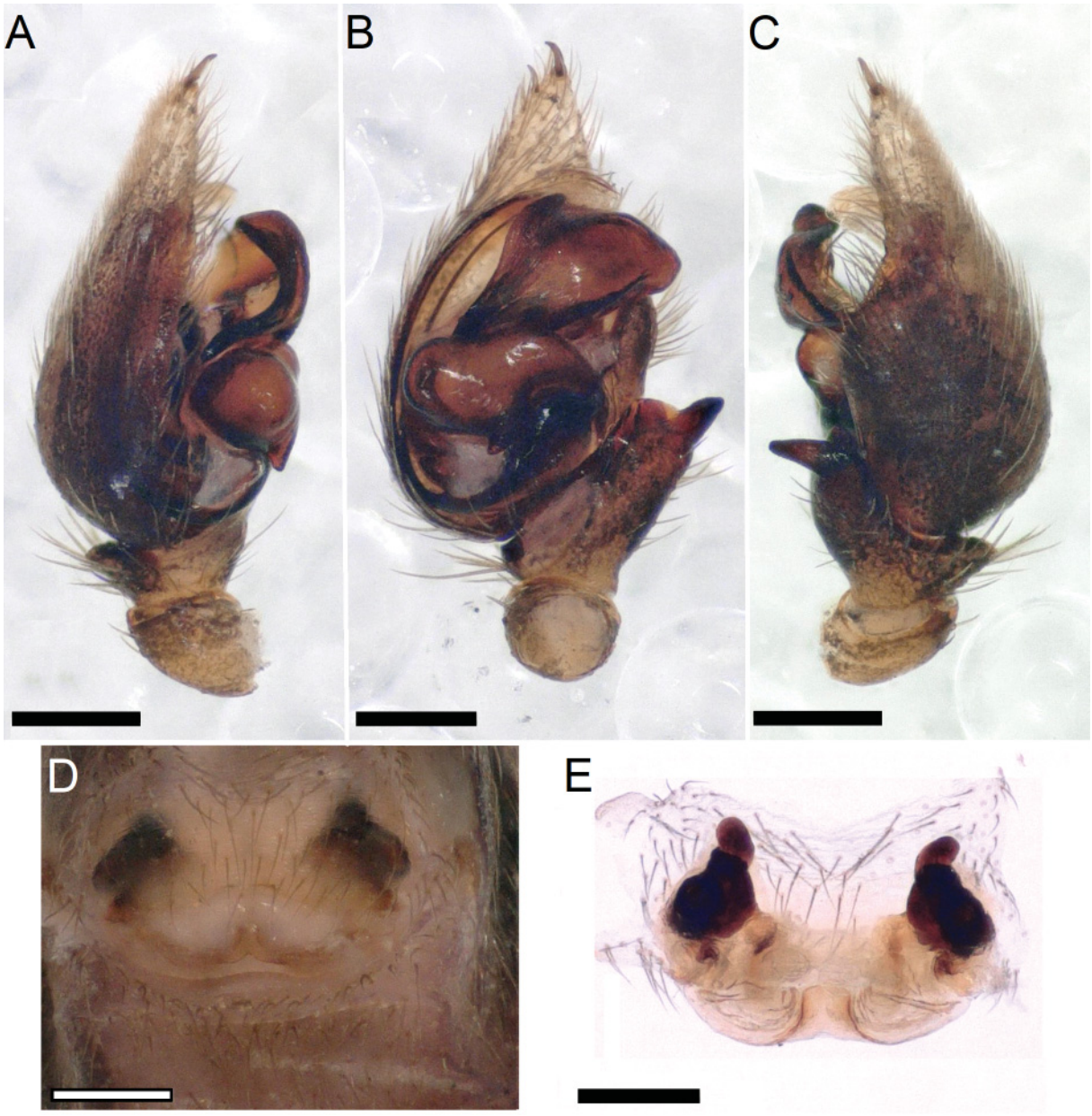

Fig. 79. Copulatory organs of *Zodarion morosum* Denis, 1935 (CMU). **A–C**. Male palp. **D–E**. Female copulatory organ. **A**. Prolateral view. **B**. Ventral view. **C**. Retrolateral view. **D**. Intact epigyne, ventral view. **E**. Vulva, ventral view. Scale bars: 0.2 mm.

Zodarion namrun Dimitrov, 2024
Figs 80–82, 106

Zodarion namrun Dimitrov, 2024: 116, figs 15–17, 19–20.

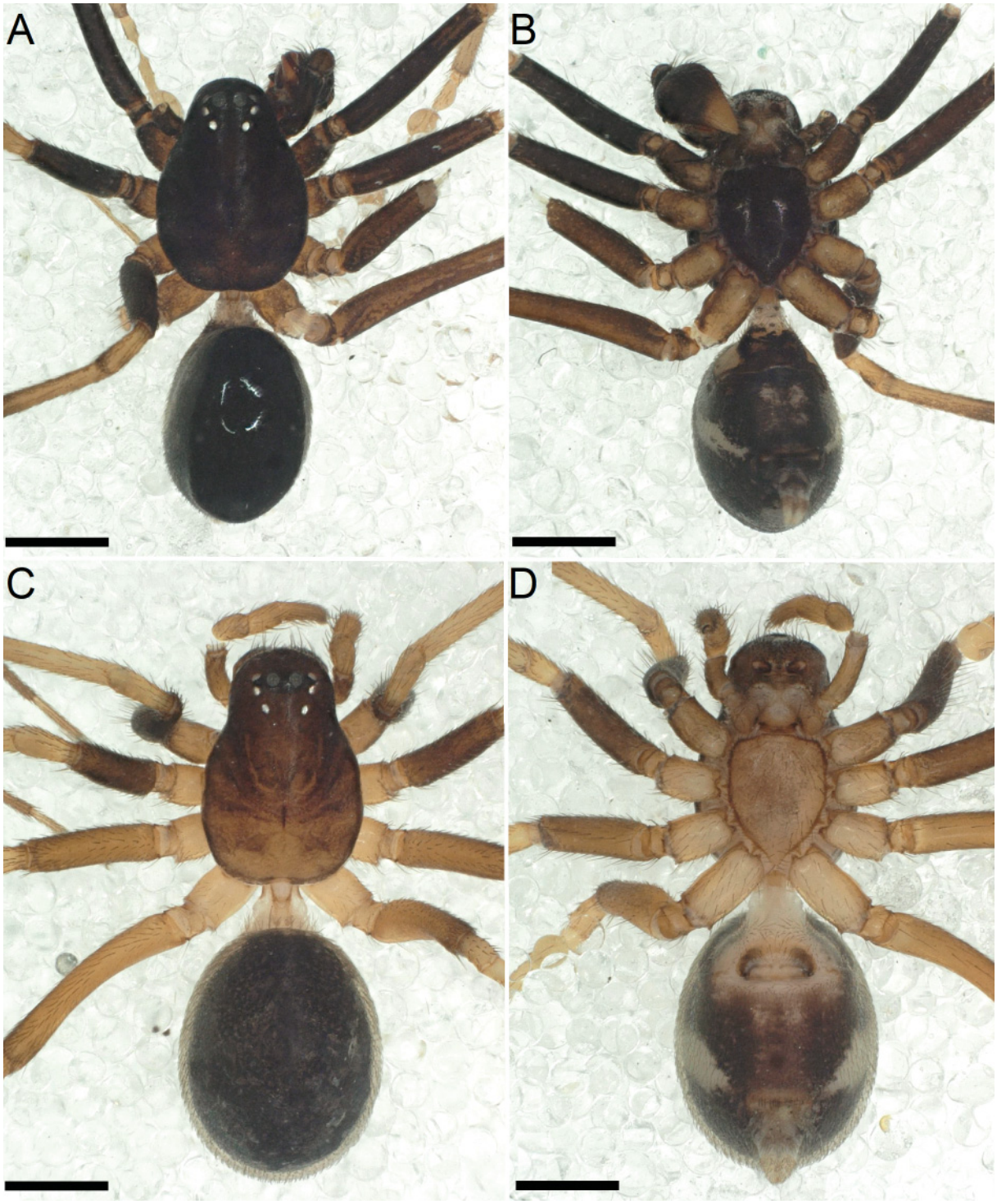

Fig. 80. Habitus of *Zodarion namrun* Dimitrov, 2024. **A–B**. ♂ (NMP P6A 7503). **C–D**. ♀ (NMP P6A 7505). **A**. Dorsal view. **B**. Ventral view. **C**. Dorsal view. **D**. Ventral view. Scale bars: 1 mm.

Diagnosis

For male diagnosis, refer to Dimitrov (2024). The general epigynal shape of *Z. namrun* is similar to that of *Z. thoni*, except for the spermathecae strongly converging posteriorly (vs slightly converging posteriorly, cf. Fig. 82A–B and Fig. 96D) and the size of distal spermathecal ducts (smallest vs with the same size, cf. Fig. 82C and Fig. 96E).

Material examined

TURKEY • 2 ♂♂; Kahramanmaraş, Göksun, Püren Moutain Pass; 37.945° N, 36.511° E; 1518 m a.s.l.; 17 Jun. 2008; O. Seyyar leg.; NMP P6A 7503, NMP P6A 7504 • 1 ♀; same collection data as for preceding; NMP P6A 7505 • 1 ♂; same collection data as for preceding; CMU.

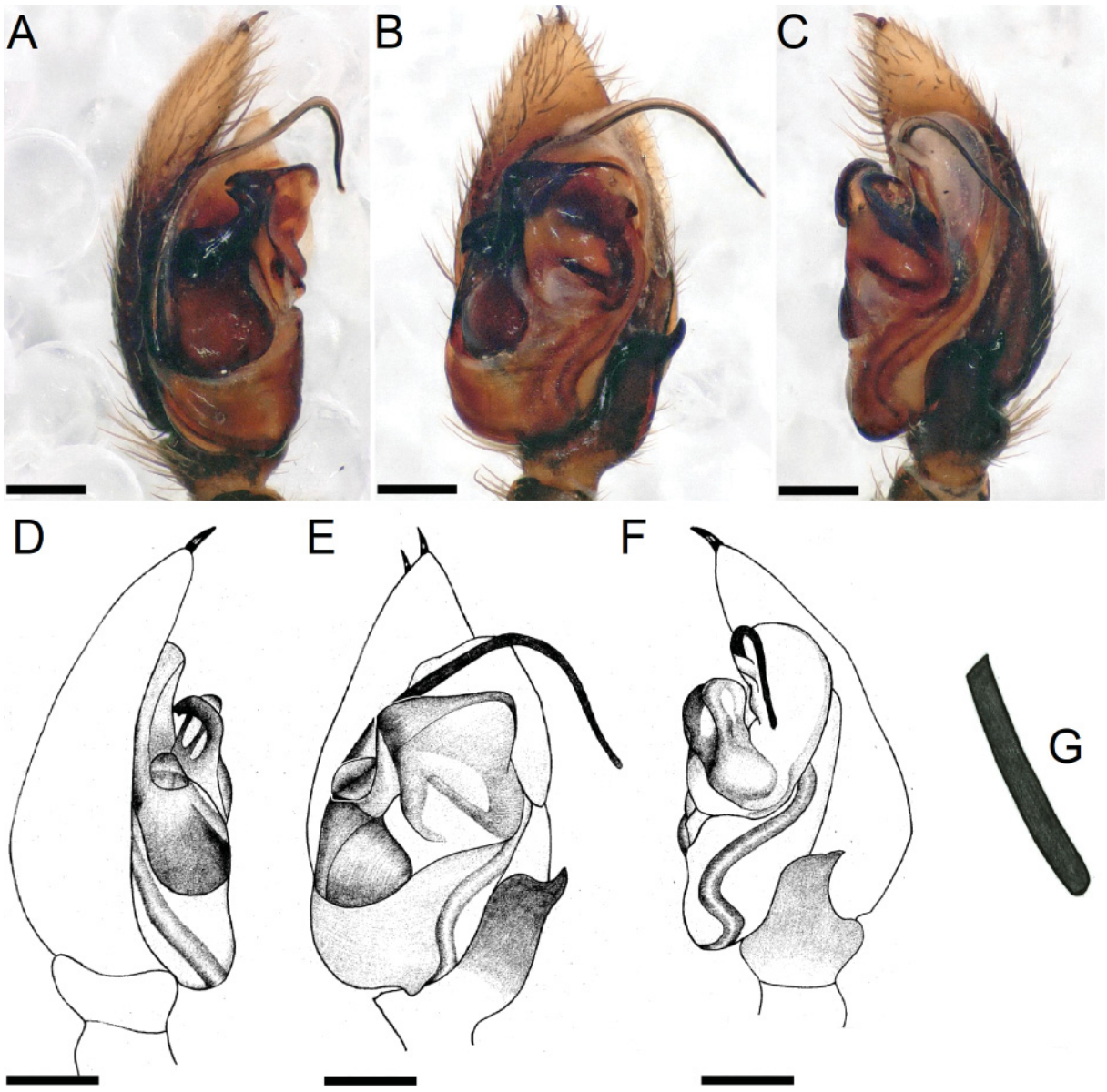

Fig. 81. Male palp of *Zodarion namrun* Dimitrov, 2024 (NMP P6A 7503). **A**. Prolateral view. **B**. Ventral view. **C**. Retrolateral view. **D**. Prolateral view. **E**. Ventral view. **F**. Retrolateral view. **G**. Embolar tip, ventral view. Scale bars: 0.2 mm.

Description

For a detailed description of male, refer to Dimitrov (2024).

Female (NMP P6A 7505)

Habitus (Fig. 80C–D). Carapace distally yellowish-brown, anteriorly brown; clypeus and chelicerae brown; mouthparts yellow basally and pale apically; sternum greyish. All legs yellow except for entirely dark Fe I and II. Palpal segments yellow. Abdomen dorsum black, with no pattern; venter mostly dark except for a pair of pale, converging patches and a light area around the copulatory organ; PVS present. Spinnerets light grey basally, whitish apically.

Measurements. Total length 5.01; carapace 2.21 long, 1.48 wide. Clypeus 0.33 high. Eye sizes and interdistances: AME 0.12, ALE 0.1, PME=PLE 0.08, AME–AME 0.07, AME–ALE 0.02, ALE–ALE 0.41, AME–PME 0.07, PME–PME 0.45, PME–PLE 0.1, PLE–PLE 0.27, ALE–PLE 0.21. Legs: I 6.68 (1.74, 0.66, 1.45, 1.81, 1.02), II 5.96 (1.61, 0.66, 1.12, 1.65, 0.92), III 6.21 (1.81, 0.69, 1.08, 1.81, 0.82), IV 8.25 (2.21, 0.77, 1.94, 2.44, 0.89). Palp: 1.87 (0.69, 0.33, 0.33, 0.52).

Epigyne (Fig. 82A–D). Epigyne with strongly converging spermathecae; vulva comprising three globular, voluminous and convergent bodies, arranged by size from largest to smallest.

Size variation

Total body length 3.56–4.12, carapace length/width 1.8–1.84/1.3–1.42 in males (N=3).

Distribution

At present, known only from Turkey.

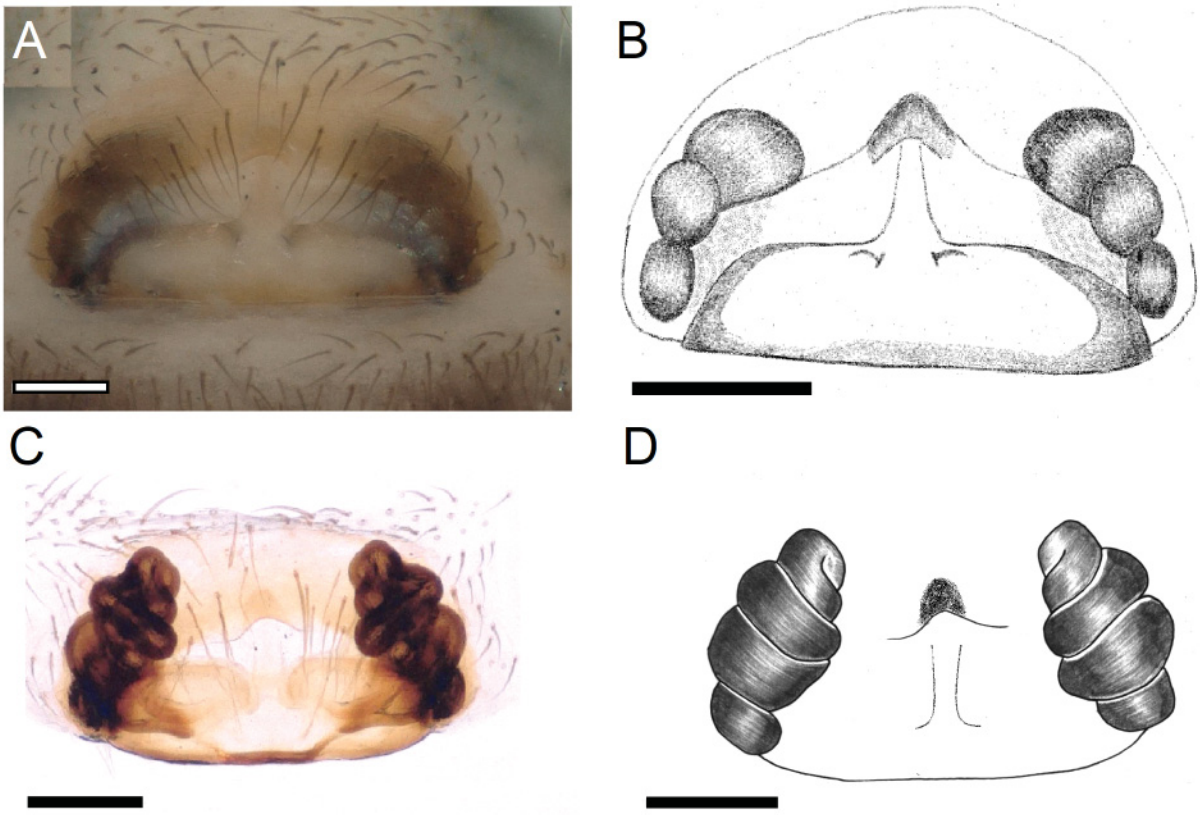

Fig. 82. Female copulatory organ of *Zodarion namrun* Dimitrov, 2024 (NMP P6A 7505). **A**. Intact epigyne, ventral view. **B**. Epigyne, ventral view. **C**. Vulva, ventral view. **D**. Vulva, ventral view. Scale bars: 0.2 mm.

Zodarion nicki Strand, 1914
Figs 83–87, 106

Zodarium nicki Strand, 1914: 181.

Zodarion nicki – Denis 1937: 41.
Zodarion nitidum – Levy 1992: 86 (partially misidentified).

Diagnosis

Refer to the diagnosis for *Z. nitidum*.

Type material examined

Holotype

ISRAEL • ♀; Jaffa-Rehovoth; 25 Jun. 1913; E. Strand leg.; SMF 2969.

Other material examined

ISRAEL • 3 ♂♂; Halukim; 30.854° N, 34.784° E; 16 Apr. 2001; S. Pekár leg.; HUJINV-Ar 21305 to HUJINV-Ar 21307 • 2 ♀♀; same collection data as for preceding, HUJINV-Ar 21308, HUJINV-Ar 21309 • 7 ♂♂, 3 ♀♀, 2 juv.; same collection data as for preceding; S. Pekár leg.; CMU • 1 ♂; same collection data as for preceding; 5 Sep. 2011; S. Korenko leg.; CMU • 51 ♂♂; same collection data as for preceding; 4 Apr. 2016; S. Pekár, S. Korenko and E. Líznarová leg.; CMU • 15 ♂♂, 4 ♀♀, 4 juv.;

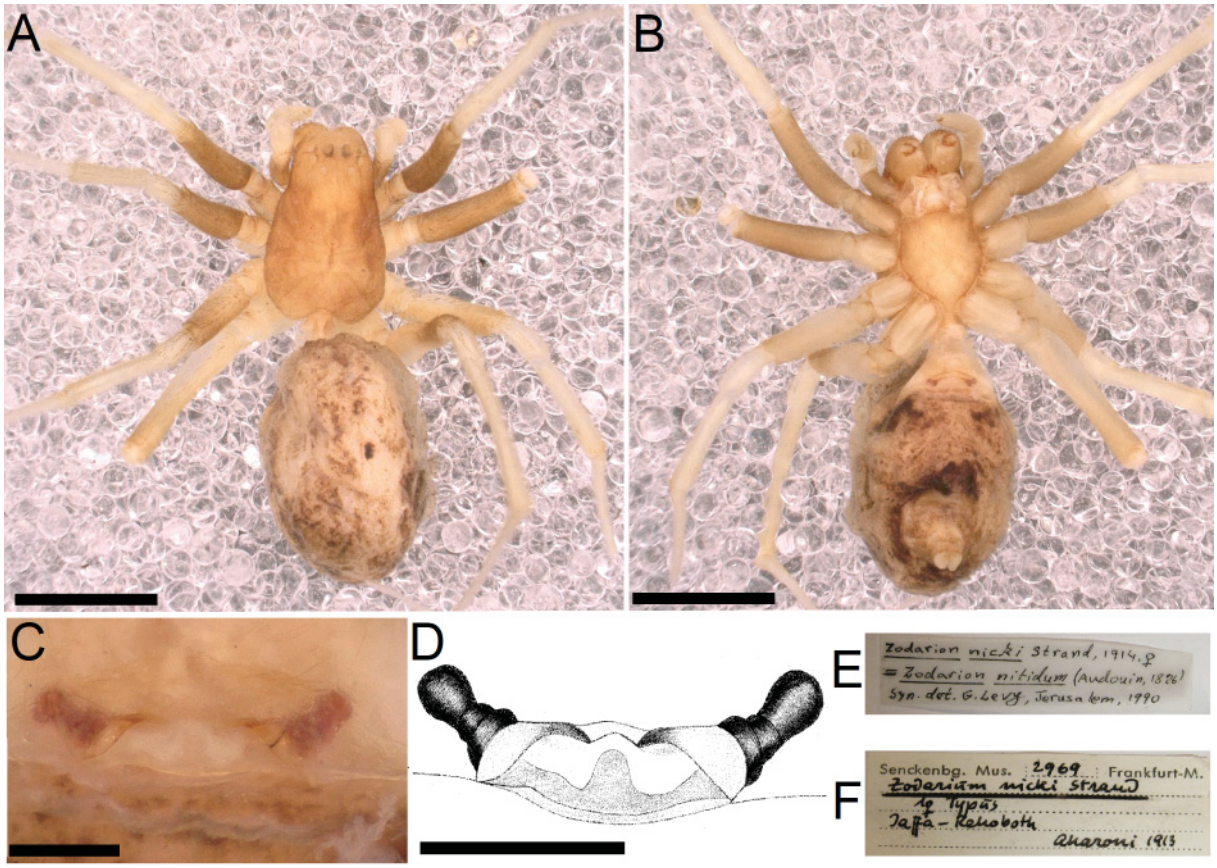

Fig. 83. *Zodarion nicki* Strand, 1914. **A–F**. Holotype, ♀ (SMF 2969). **A**. Habitus, dorsal view. **B**. Habitus, ventral view. **C**. Epigyne, ventral view. **D**. Epigyne, ventral view. **E**. Museum label. **F**. Original label. Scale bars: A–B = 1 mm; C–D = 0.2 mm.

same collection data as for preceding; May 2017; O. Macháč leg.; CMU • 4 ♂♂, 1 ♀; same collection data as for preceding; 4 Apr. 2019; S. Korenko leg.; CMU • 15 ♂♂, 4 ♀♀, 4 juv.; Midreshet Sde Boker; 30.857° N, 34.781° E; 2 Mar. 2018; S. Pekár leg.; CMU • 2 ♂♂, 1 ♀, 2 juv.; same collection data as for preceding; 5 Apr. 2019; S. Pekár leg.; CMU.

Description

Male (HUJINV-Ar 21305)

Habitus (Fig. 84A–B). Carapace, chelicerae, sternum and mouthparts black. Cx I–III black, Cx IV brown; Fe of all legs black; Pa and Ti I yellow, with a few greyish spots; Pa and Ti II–IV entirely grey; Mt and Ta of all legs greyish-yellow. Abdomen and spinnerets black; PVS present.

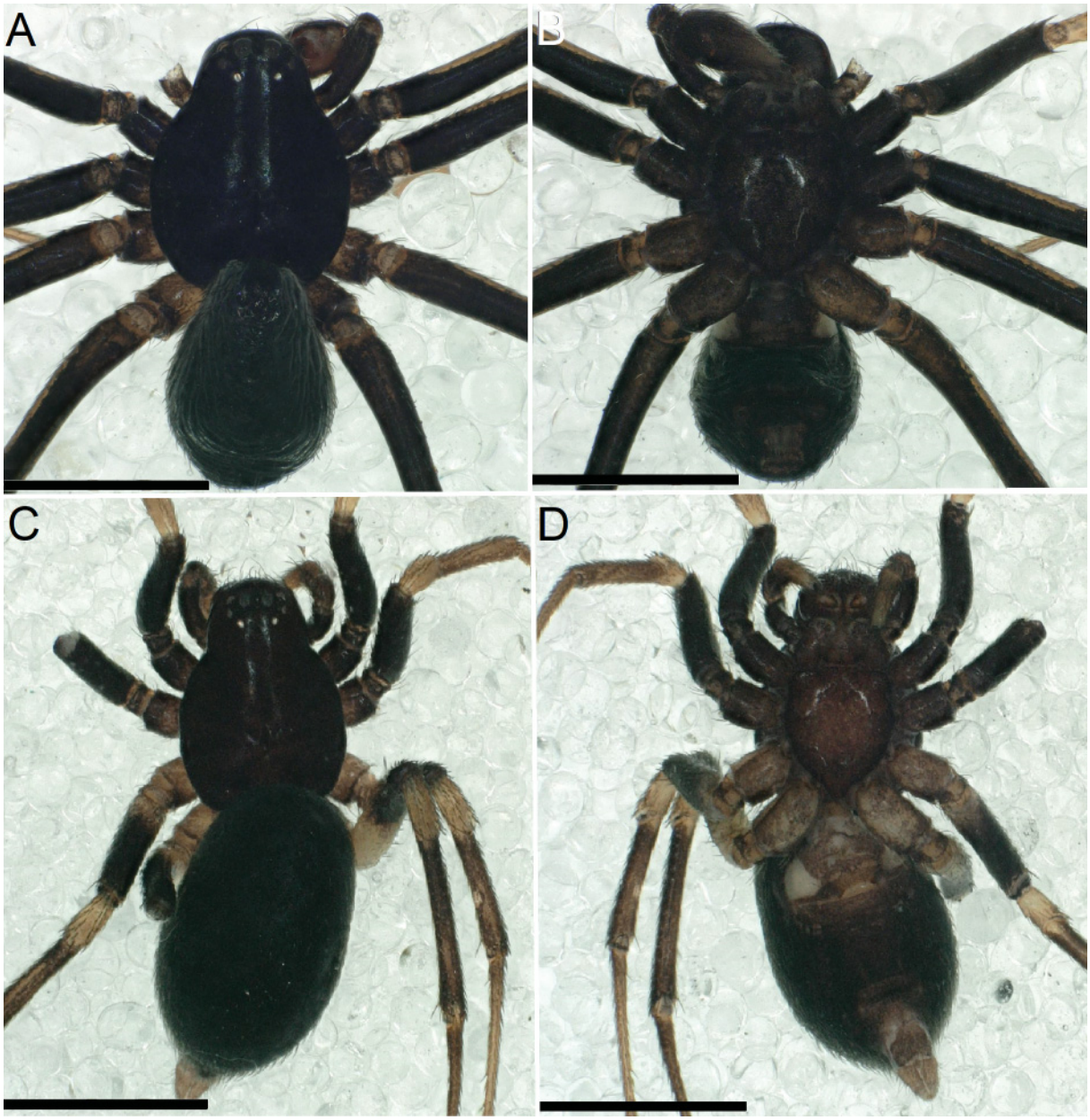

Fig. 84. Habitus of *Zodarion nicki* Strand, 1914. **A–B**. ♂ (HUJINV-Ar 21305). **C–D**. ♀ (HUJINV-Ar 21308). **A**. Dorsal view. **B**. Ventral view. **C**. Dorsal view. **D**. Ventral view. Scale bars: 1 mm.

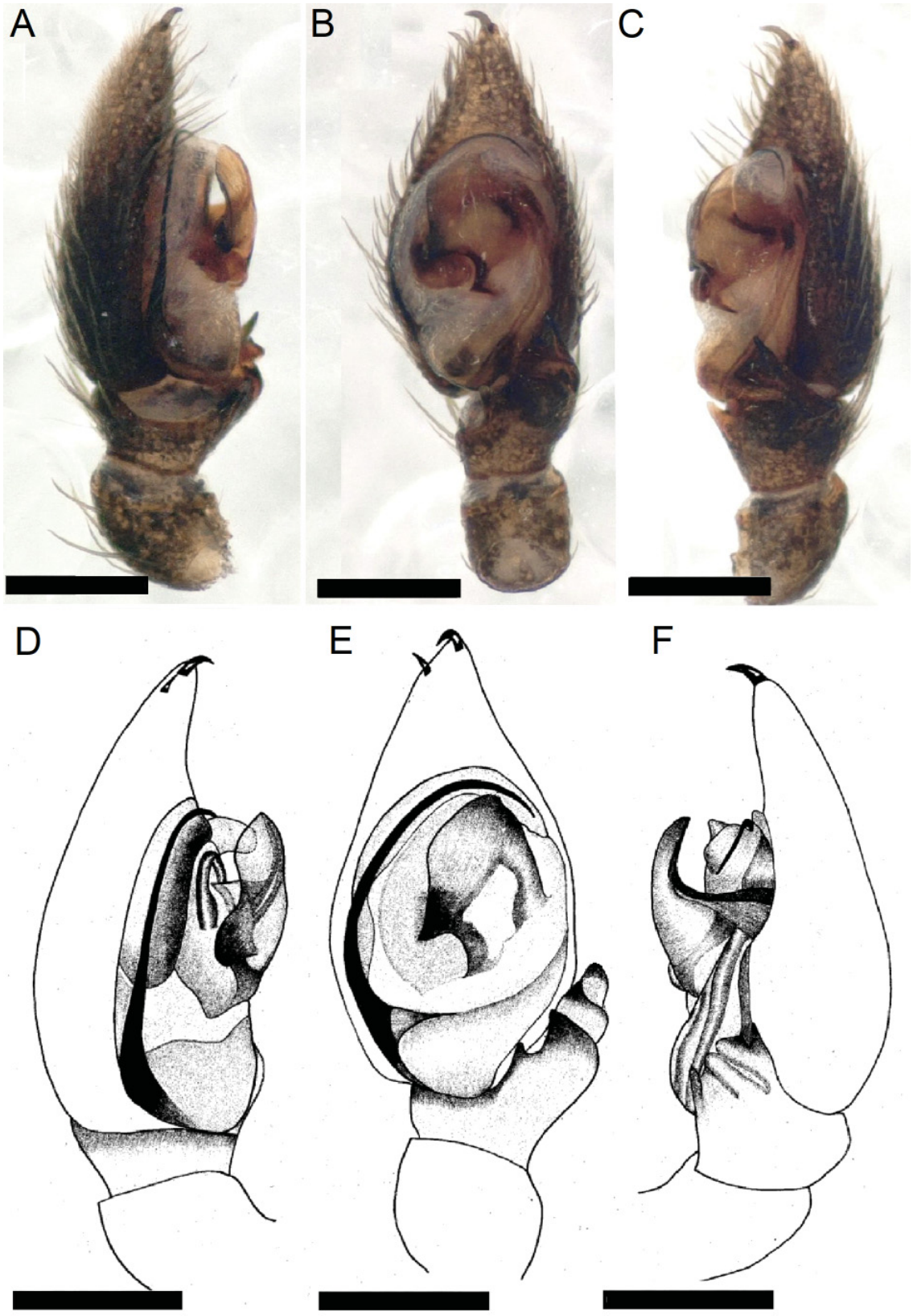

Fig. 85. Male palp of *Zodarion nicki* Strand, 1914 (HUJINV-Ar 21305). **A**. Prolateral view. **B**. Ventral view. **C**. Retrolateral view. **D**. Ventro-prolateral view. **E**. Ventral view. **F**. Retrolateral view. Scale bars: 0.2 mm.

Measurements. Total length 2.85; carapace 1.35 long, 1.1 wide. Clypeus 0.08 high. Eye sizes and interdistances: AME 0.09, ALE = PME 0.06, PLE 0.04, AME–AME 0.06, AME–ALE 0.02, ALE–ALE 0.27, AME–PME 0.06, PME–PME 0.31, PME–PLE 0.05, PLE–PLE 0.21, ALE–PLE 0.09. Legs: I 7.25 (1.64, 0.59, 1.58, 1.95, 1.49), II 6.38 (1.55, 0.55, 1.49, 1.8, 0.99), III 6.59 (1.58, 0.82, 1.35, 1.79, 1.05), IV 7.79 (2.11, 0.59, 1.61, 2.3, 1.18). Palp: 1.09 (0.47, 0.22, 0.13, 0.27).

Palp (Fig. 85A–F). Palp entirely similar to that of *Z. nitidum* (for a detailed description, refer to Levy 1992: cf. figs 57–59).

Redescription

Female (HUJINV-Ar 21308)

Habitus (Fig. 84C–D). Carapace and abdomen similar to those in male. Cx I and II blackish, Cx III and IV greyish-yellow, with disparate black spots; Fe I and II entirely black, Fe III and IV yellow proximally and black distally; Pa I and II entirely yellow, Pa III and IV greyish, with yellow median part; Ti and Mt I and II yellow, with several greyish spots; Ti III and IV black, with a pair of parallel, yellow stripes; Mt and Ta of all legs yellow. Palp segments black. Spinnerets greyish basally and yellow apically.

Measurements. Total length 2.89; carapace 1.33 long, 0.96 wide. Clypeus 0.18 high. Eye sizes and interdistances: AME 0.09, ALE = PME 0.06, PLE 0.05, AME–AME 0.07, AME–ALE 0.03, ALE–ALE 0.3, AME–PME 0.07, PME–PME 0.36, PME–PLE 0.06, PLE–PLE 0.2, ALE–PLE 0.18. Legs: I 5.48

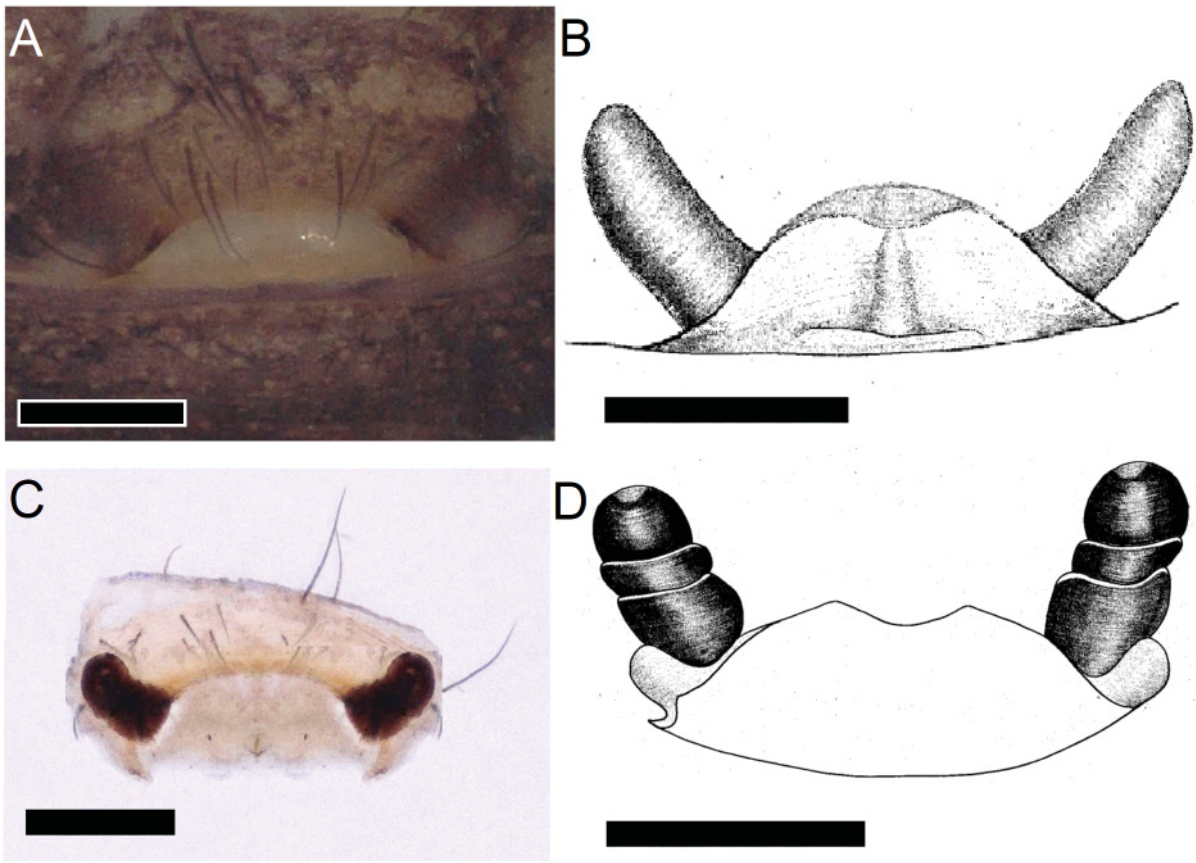

Fig. 86. Female copulatory organ of *Zodarion nicki* Strand, 1914 (HUJINV-Ar 21308). **A**. Intact epigyne, ventral view. **B**. Epigyne, ventral view. **C**. Vulva, inferior view. **D**. Vulva, inferior view. Scale bars: 0.2 mm.

(1.33, 0.49, 1.52, 1.24, 0.9), II 4.82 (1.24, 0.93, 0.46, 1.36, 0.83), III 4.58 (1.18, 0.46, 0.9, 1.39, 0.65), IV 6.25 (1.58, 0.68, 1.36, 1.8, 0.83). Palp: 1.37 (0.49, 0.3, 0.15, 0.43).

Epigyne (Fig. 86A–D). Epigyne comprising a transverse plate, with highly sclerotized margins on both anterolateral sides; vulva with divergently twisted spermathecal ducts.

Size variation

Total body length varies from 2.4 to 3.4 in males (N = 6) and 2.89–4.8 in females (N = 7). Carapace length/width 1.3–1.6/1.05–1.2 in male and 1.33–2/0.96–1.5 in females. For the carapace length/width ratio, refer to Fig. 87.

Remarks

Zodarion nicki was first described by Strand (1914). Comparing the physical type specimen with Strand's description revealed that while the somatic features of the holotype have deteriorated over time; the epigyne structure remains sufficiently well-preserved and closely resembles that of *Z. nitidum* (Fig. 83C–D cf. Fig. 31A–B, respectively). A detailed comparison between the holotype and newly collected material from Israel shows complete concordance in both somatic and copulatory structures. Therefore, a redescription of the female is provided here based on the new material, and the male is described here for the first time. In light of recent studies by Pekár *et al*. (2022) and Ortiz *et al*. (2024), which confirmed premating isolation and phylogenomic divergence between *Z. nicki* and *Z. nitidum*, we reject the previously proposed synonymy and reaffirm *Z. nicki* as a valid species.

Distribution

Israel.

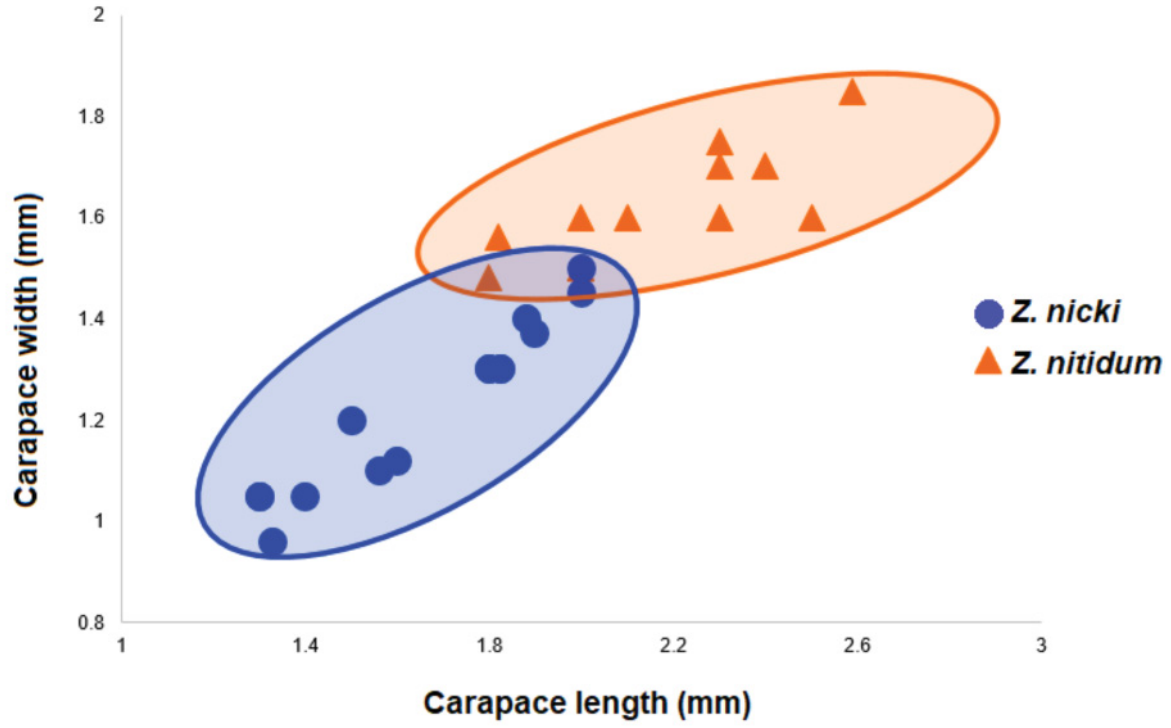

Fig. 87. Carapace length/width ratio of *Zodarion nicki* Strand, 1914 and *Z. nitidum* Audouin, 1826.

Zodarion pirini Drensky, 1921
Fig. 88

Zodarion gallicum pirini Drensky, 1921: 35, 77, pl. 1 fig. 8.
Zodarion pirini Deltshev, 1987: 20, figs 2.1–3, 3.1–3.

Zodarion gallicum pirini – Drensky 1940: 173, fig. 3a.
Zodarion pirini – Bosmans 2009: 233, figs 44–47, 68–69.

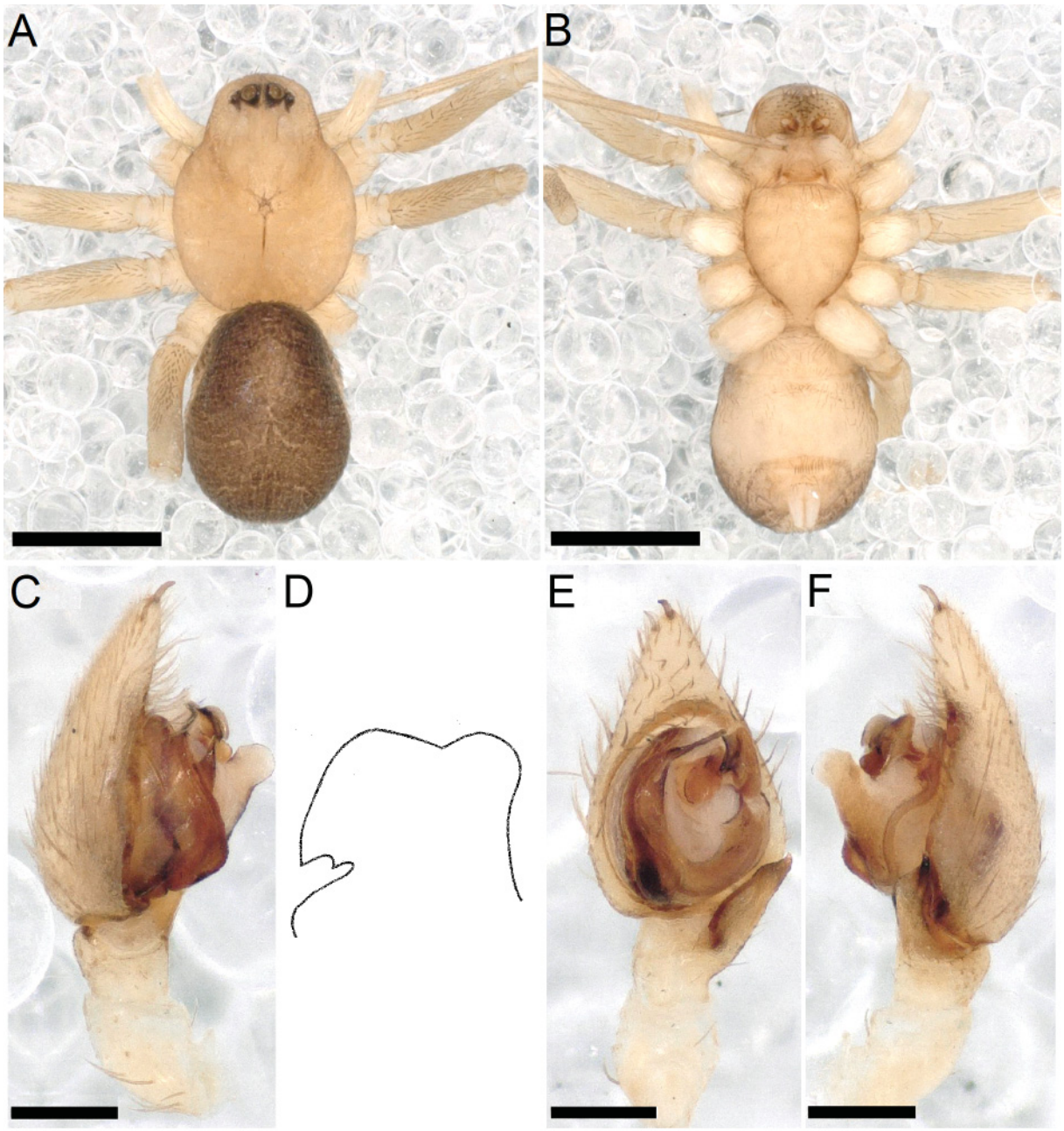

Fig. 88. *Zodarion pirini* Drensky, 1921 (CMU), ♂. **A**. Habitus, dorsal view. **B**. Habitus, ventral view. **C**. Palp, prolateral view. **D**. Median apophysis, ventral view. **E**. Palp, ventral view. **F**. Palp, retrolateral view. Scale bars: A–B = 1 mm; C, E–F = 0.2 mm.

Diagnosis

Refer to Bosmans (2009).

Material examined

GREECE • 1 ♂; Aladjagiola Wetland (N of Chrisoupoli); 41.007° N, 24.703° E; 8 May 2004; S. Buchholz leg.; CMU • 1 ♂; same collection data as for preceding; 8 July 2008; M. Schröder leg.; CMU.

Description

For a detailed description, refer to Bosmans (2009).

Distribution

Bulgaria, Greece.

Zodarion reticulatum Kulczyński, 1908
Figs 89–90, 105

Zodarion reticulatum Kulczyński, 1908: 61, pl. 2 fig. 16.

Zodarion reticulatum – Levy 1992: 93. — Bosmans 2009: 280, figs 174–175, 182–183. — Lecigne & Henrard 2022: 37, fig. 5d, g.

Diagnosis

Refer to Bosmans (2009) and Lecigne & Henrard (2022).

Material examined

CYPRUS • 1 ♂, 1 ♀; Olympus Mount, Apliki; 34.941° N, 33.123° E; 720 m a.s.l.; 27 Apr. 2022; S. Pekár, S. Shafaie, V. Šoltýsová and O. Michálek leg.; CMU • 1 ♂ (subadult); Olympus Mount, Moutoulas Mountain; 34.977° N, 32.828° E; 800 m a.s.l.; 25 Apr. 2022; S. Pekár, S. Shafaie, V. Šoltýsová and O. Michálek leg.; CMU • 3 juv.; Lefka Dam; 35.063° N, 32.837° E; 288 m a.s.l.; 25 Apr. 2022; S. Pekár, S. Shafaie, V. Šoltýsová and O. Michálek leg.; CMU.

GREECE • 1 ♀; Grevena, Kalamitsi; 15 Aug. 1999; CMU.

TURKEY • 2 ♂♂, 1 ♀; Konakli, Macchie Hill, 10 km W of Alanya; 20 May 2005; J. Dolanský leg.; CMU • 2 ♂♂, 1 ♀; same collection data as for preceding; 19 May 2005; J. Dolanský leg.; CMU • 1 ♀; s. loc.; 21 Jun. 2003; CMU • 1 ♀; Erzincan, Çağlayan; 39.589° N, 39.705° E; 1541 m a.s.l.; 24 Jun. 2002; M. Řezáč leg.; CMU.

Description

For a detailed description, refer to Lecigne & Henrard (2022).

Remarks

As in *Z. granulatum*, males of *Z. reticulatum* possess longer PVS, arranged in a somewhat radiating pattern (Fig. 89B), whereas females exhibit shorter, more parallel PVS structures (Fig. 89D).

Distribution

Previous studies recorded *Z. reticulatum* in Cyprus and Greece (World Spider Catalog 2025). This is the first report of this species from Turkey and represents, therefore, the northwesternmost occurrence of this species across its distribution range.

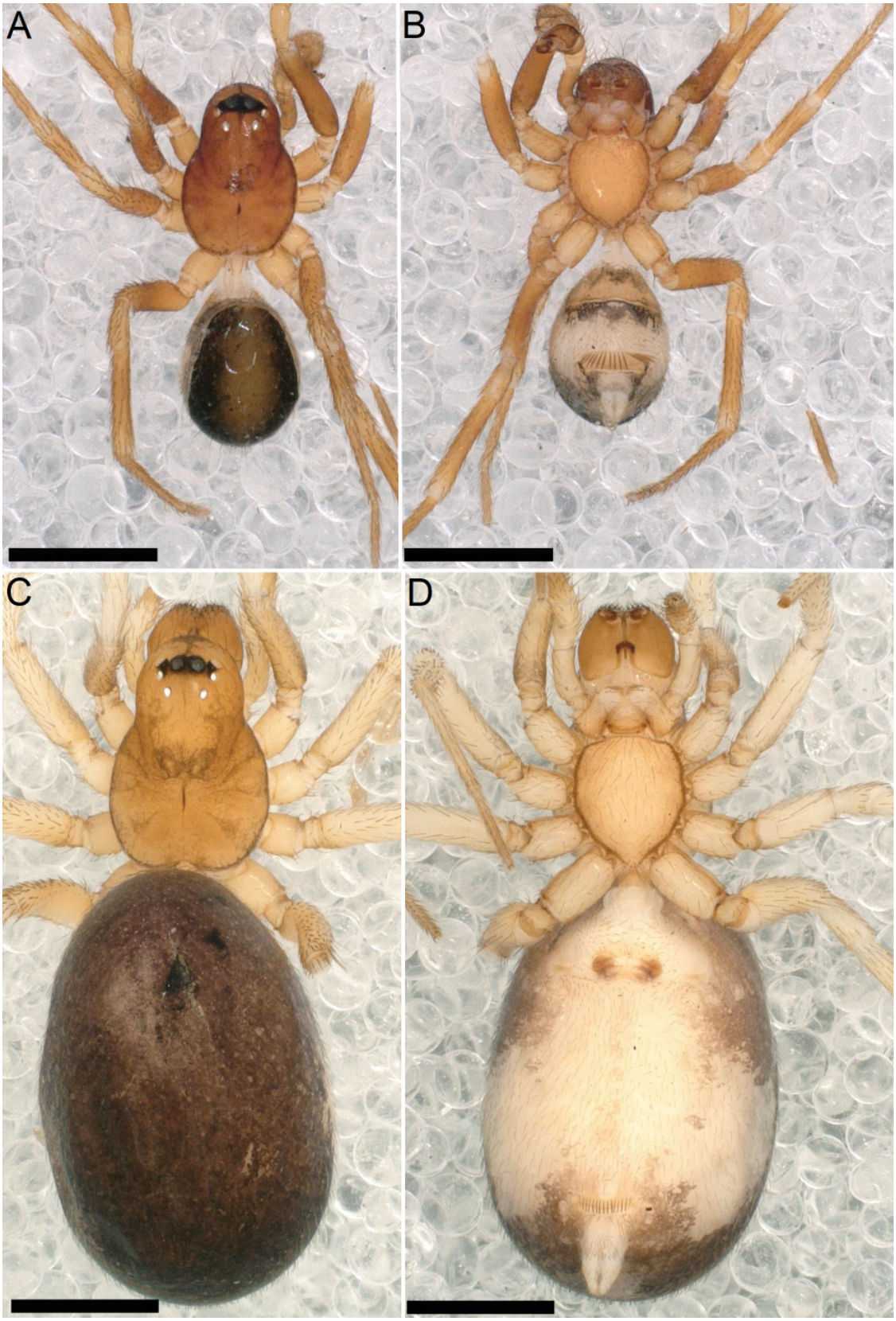

Fig. 89. Habitus of *Zodarion reticulatum* Kulczyński, 1908 (CMU). **A–B**. ♂. **C–D**. ♀. **A**. Dorsal view. **B**. Ventral view. **C**. Dorsal view. **D**. Ventral view. Scale bars: 1 mm.

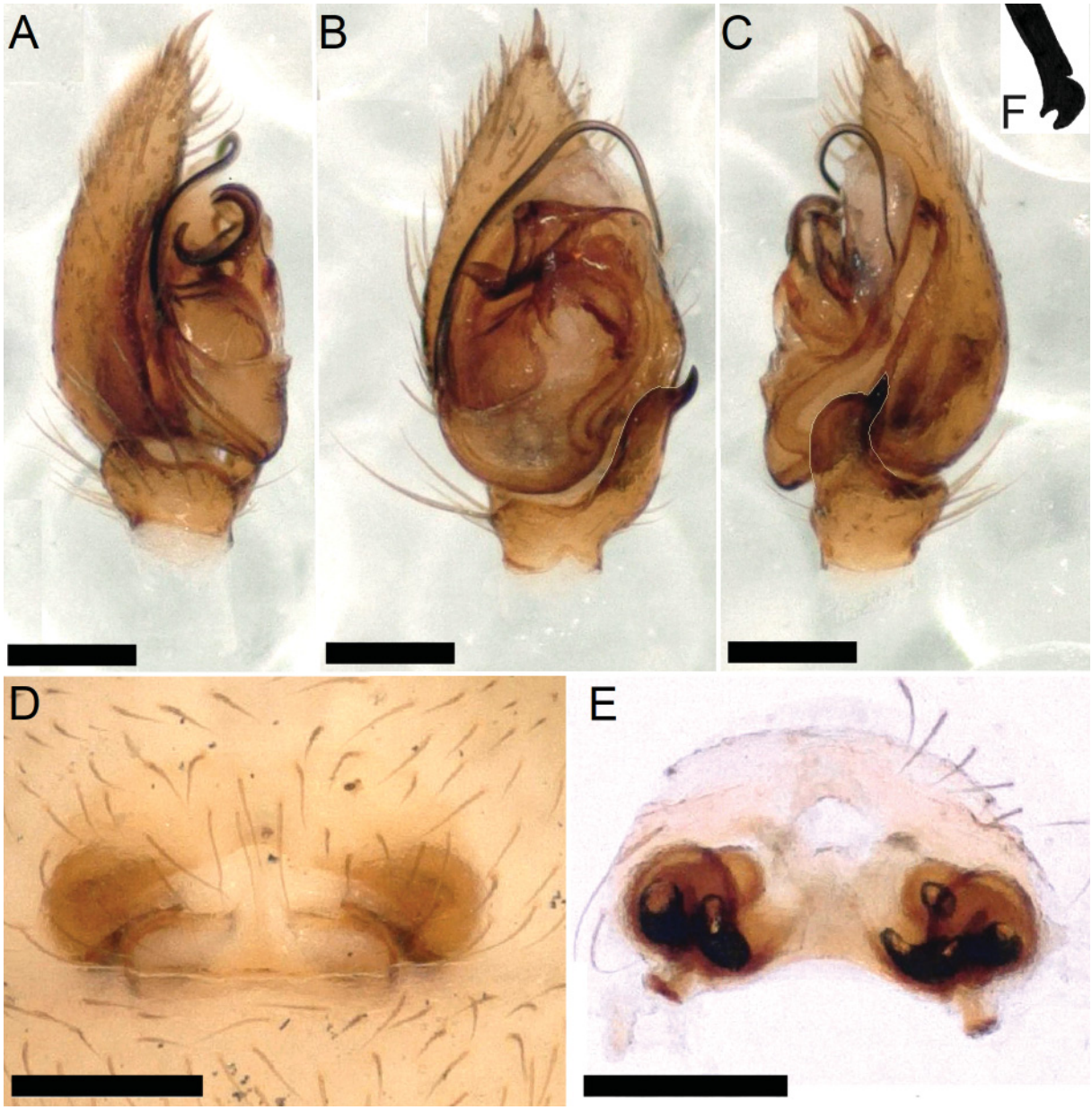

Fig. 90. Copulatory organs of *Zodarion reticulatum* Kulczyński, 1908 (CMU). **A–C**. Male palp. **D–E**. Female copulatory organ. **A**. Prolateral view. **B**. Ventral view. **C**. Retrolateral view. **D**. Intact epigyne, ventral view. **E**. Vulva, ventral view. **F**. Detail of embolus, ventral view. Scale bars: 0.2 mm.

Zodarion rhodiense Caporiacco, 1948
Figs 91–92, 105

Zodarion rhodiense Caporiacco, 1948: 47, fig. 5.

Zodarion rhodiense – Brignoli 1984: 317, figs 50–53. — Dimitrov 2024: 113, figs 1–9.
Zodarion rhodiense nigrifemur – Caporiacco 1948: 49.

Zodarion nigrifemur – Bosmans 2009: 279, figs 172–173, 180–181. — Lecigne & Henrard 2022: 33, figs 1a–d, 2a–g, 3a–e, 4a–h, 5a. — Seropian *et al.* 2023: 293, figs 138–140. — Dimitrov 2024: 113, figs 1–9.

Zodarion thoni – Lecigne 2021: 34, fig. 55a–b.

Diagnosis

Refer to Lecigne & Henrard (2022) and Dimitrov (2024).

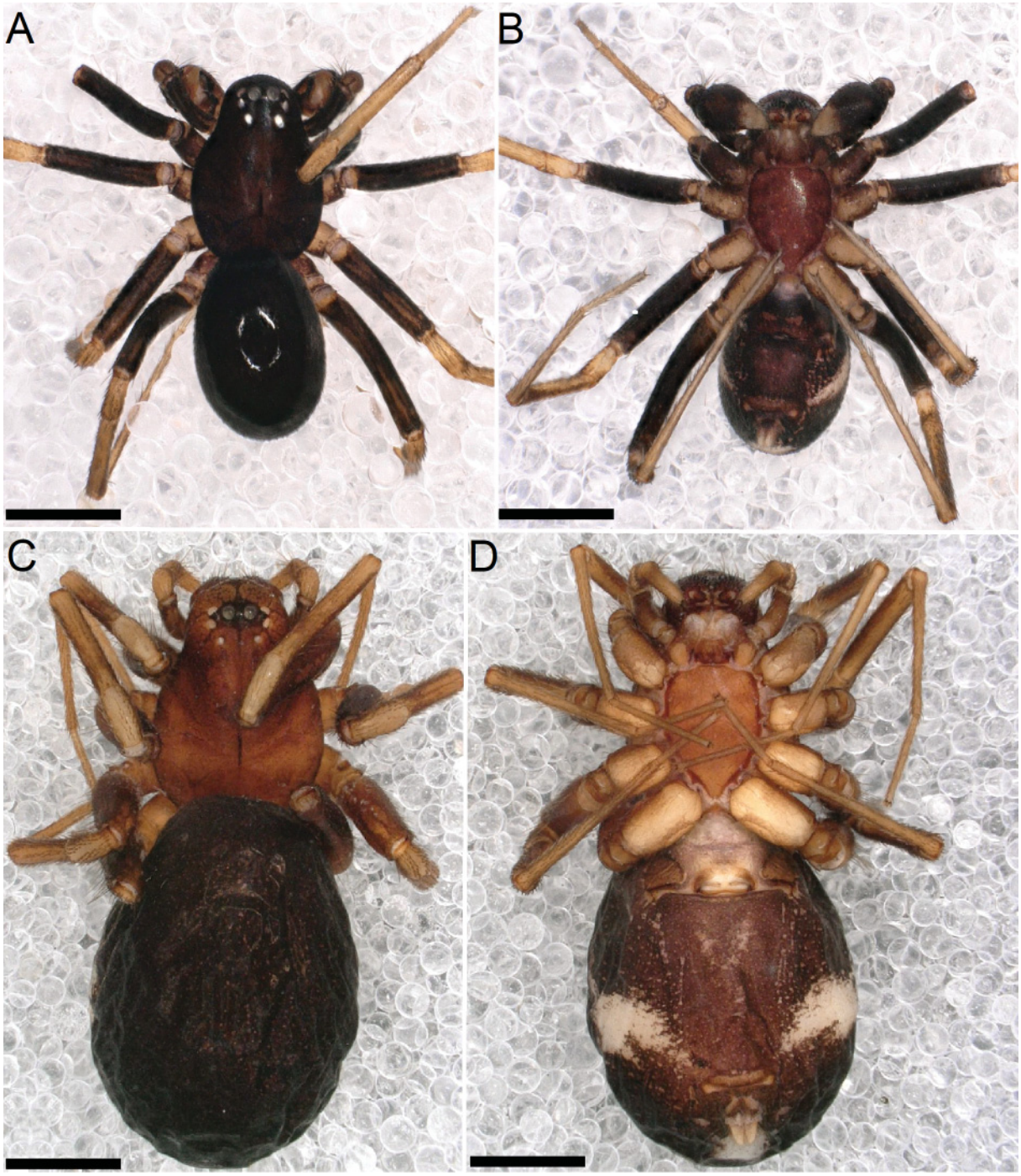

Fig. 91. Habitus of *Zodarion rhodiense* Caporiacco, 1948 (CMU). **A–B**. ♂. **C–D**. ♀. **A**. Dorsal view. **B**. Ventral view. **C**. Dorsal view. **D**. Ventral view. Scale bars: 1 mm.

Material examined

CYPRUS • 4 ♀♀, 5 juv.; Kyrenia Mountain range, Saint Hilarion Castle, Sysklipos (Akcicek); 35.309° N, 33.202° E; 329 m a.s.l.; 27 Apr. 2022; S. Pekár, S. Shafaie, V. Šoltýsová and O. Michálek leg.; CMU.

GREECE • 2 ♀♀, 1 juv.; Lesvos; 39.220° N, 26.291° E; 967 m a.s.l.; 15 Jun. 2006; W. Nentwig leg.; CMU.

SYRIA • 2 ♀♀; Hanna Area; 11 Apr. 2001; M. Řezáč leg.; CMU.

TURKEY • 1 ♀; Isparta, Aksu, Dedegöl Mountain; 37.656° N, 31.291° E; 8 Jul. 2003; M. Řezáč leg.; CMU.

Description

For a detailed description, refer to Lecigne & Henrard (2022).

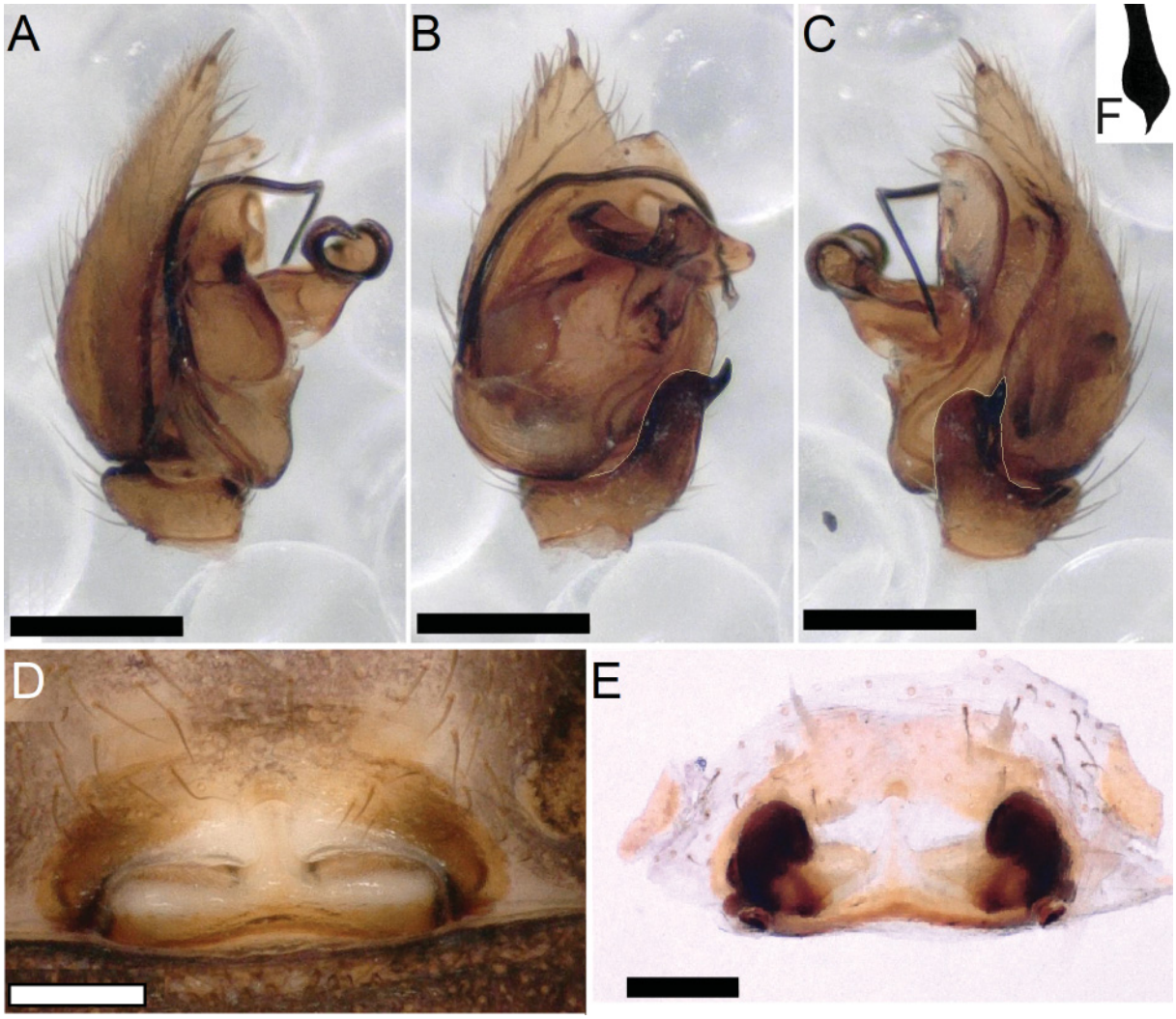

Fig. 92. Copulatory organs of *Zodarion rhodiense* Caporiacco, 1948 (CMU). **A–C, F**. Male palp. **D–E**. Female copulatory organ. **A**. Prolateral view. **B**. Ventral view. **C**. Retrolateral view. **D**. Intact epigyne, ventral view. **E**. Vulva, ventral view. **F**. Detail of embolus, ventral view. Scale bars: 0.2 mm.

Distribution

This species was previously reported from Georgia, Greece and Turkey; these are the first reports of this species from Cyprus and Syria, and represent, therefore, the southernmost occurrences of this species across its distribution range.

Zodarion spinibarbis Wunderlich, 1973
Figs 93–94

Zodarion spinibarbis Wunderlich, 1973: 173, figs 4–10.

Zodarion spinibarbis – Brignoli 1984: 319, fig. 45.
Zodarion spinibarbe – Bosmans 2009: 244, figs 72–75, 136–137. — Coşar *et al*. 2022: 232, figs 22–32. — Coşar & Danışman 2024: 268, figs 23–24.

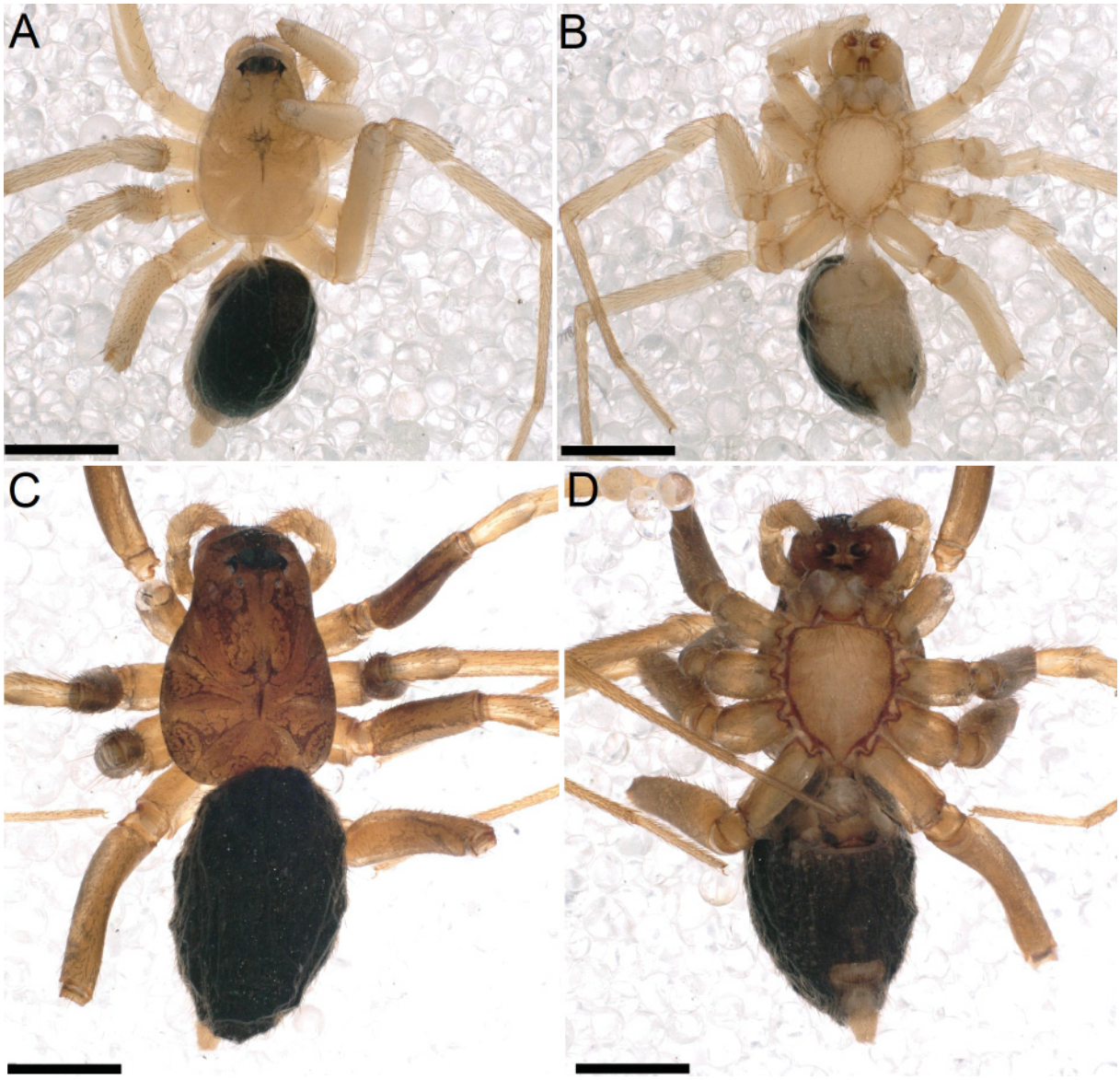

Fig. 93. Habitus of *Zodarion spinibarbis* Wunderlich, 1973 (CMU). **A–B**. ♂. **C–D**. ♀. **A**. Dorsal view. **B**. Ventral view. **C**. Dorsal view. **D**. Ventral view. Scale bars: 1 mm.

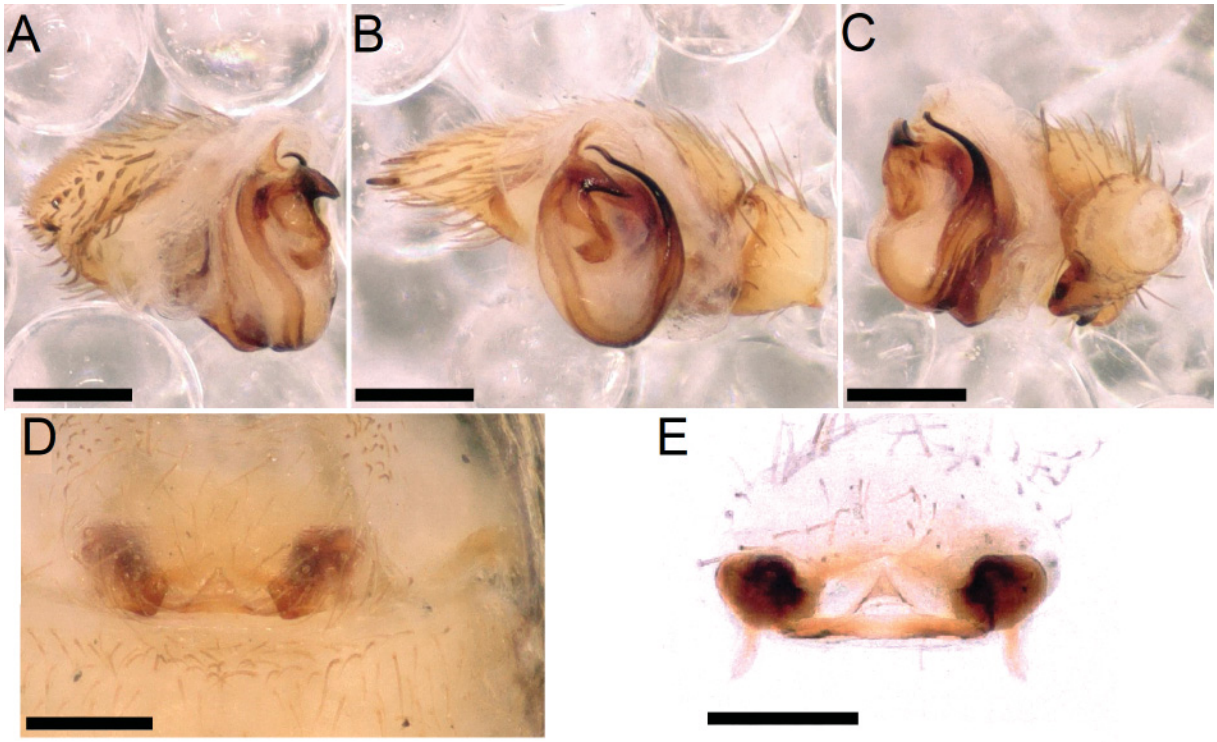

Fig. 94. Copulatory organs of *Zodarion spinibarbis* Wunderlich, 1973 (CMU). **A–C**. Male palp, with rotated bulb. **D–E**. Female copulatory organ. **A**. Prolateral view. **B**. Ventral view. **C**. Retrolateral view. **D**. Intact epigyne, ventral view. **E**. Vulva, ventral view. Scale bars: 0.2 mm.

Diagnosis

Refer to Bosmans (2009).

Material examined

GREECE • 1 ♀; Kythira, Agia Pelagia; 36.325° N, 22.982° E; 383 m a.s.l.; 28 May 2003; J. Dolanský leg.; CMU.

TURKEY • 1 ♂, 1 ♀; Kahramanmaraş, Andiran, Geben, Değirmendere; 37.889° N, 36.448° E; 1518 m a.s.l.; 15 May 2008; O. Seyyar leg.; CMU.

Description

For a detailed description, refer to Bosmans (2009).

Distribution

Greece and Turkey.

Zodarion thoni Nosek, 1905
Figs 95–96, 105

Zodarion thoni Nosek, 1905: 128, fig. 10.

Refer to World Spider Catalog 2025.

Diagnosis

Refer to Bosmans (2009) and Lecigne & Henrard (2022).

Material examined

CYPRUS • 2 ♂♂, 1 ♀; Latchi, The Olympians Latchi Beach Villas; 35.041° N, 32.413° E; 7 m a.s.l.; 7–27 Aug. 2021; K.G. Mikhailov leg.; ZMMU.

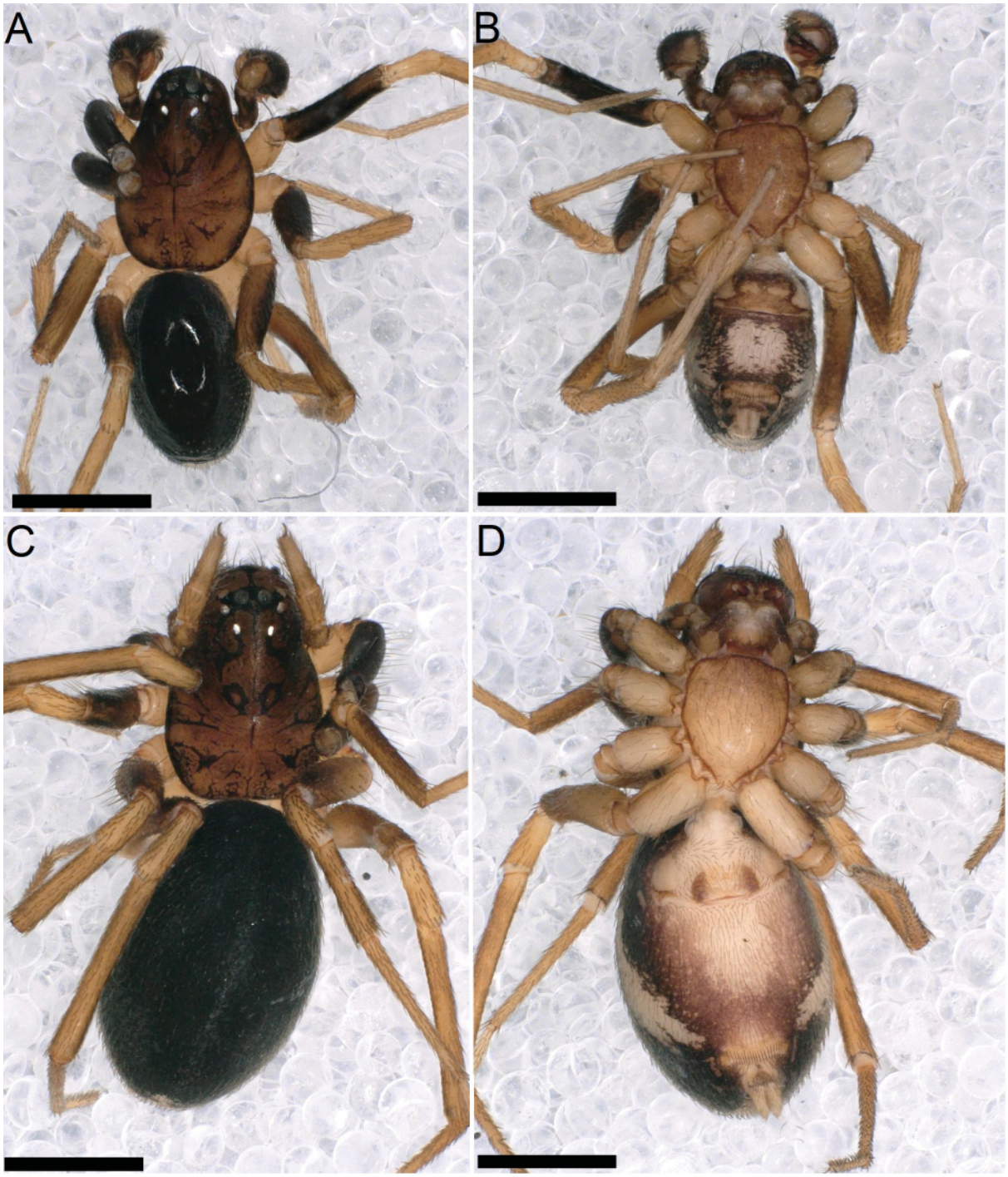

Fig. 95. Habitus of *Zodarion thoni* Nosek, 1905 (CMU). **A–B**. ♂. **C–D**. ♀. **A**. Dorsal view. **B**. Ventral view. **C**. Dorsal view. **D**. Ventral view. Scale bars: 1 mm.

GREECE • 2 ♂♂; Kos, Kefalos; 36.744° N, 26.970° E; 100 m a.s.l.; 18 Aug. 2010; A. Exnerová leg.; CMU.

IRAN • 1 ♂, 1 ♀; Urmia, Band; 37.461° N, 44.932° E; 1400 m a.s.l.; 29 Jun. 2022; S. Shafaie leg.; CMU.

TURKEY • 2 ♀♀; Agri, Dogubeyazit; 39.547° N, 44.083° E; 1625 m a.s.l.; 16 May 1997; V. Bryja leg.; CMU • 1 ♂, 1 ♀; Tunceli, Munzur River; 38.957° N, 39.561° E; 22 Jun. 2002; J. Dolanský leg.; CMU • 1 ♂; Sivas, Demiryurt; 39.883° N, 37.6° E; 1542 m a.s.l.; 28 Jun. 2002; J. Dolanský leg.; CMU • 2 ♂♂, 1 ♀; Tokat, Pazar, Ballica Cave; 40.227° N, 36.301° E; 1085 m a.s.l.; 1 Jul. 2002; J. Dolanský leg.; CMU • 1 ♀; Konakli, Macchie Hill, 10 km W of Alanya; 36.589° N, 31.875° E; 800 m a.s.l.; 20 May 2005; J. Dolanský leg.; CMU • 5 ♂♂; Kayseri, Yahyali, near the Kapuzbaşı Waterfall; 26 May 2007; O. Seyyar leg.; CMU • 1 ♂, 1 ♀, 31 juv.; Cankiri, Ankara-Cankiri Highway; 40.389° N, 33.570° E; 689 m a.s.l.; 15 Sep. 2010; Y.M. Marusik leg.; ZMUT • 4 juv.; Bilecik, Mezit; 39.950° N, 29.701° E; 500 m a.s.l.; 26 Sep. 2010; Y.M. Marusik leg.; ZMUT.

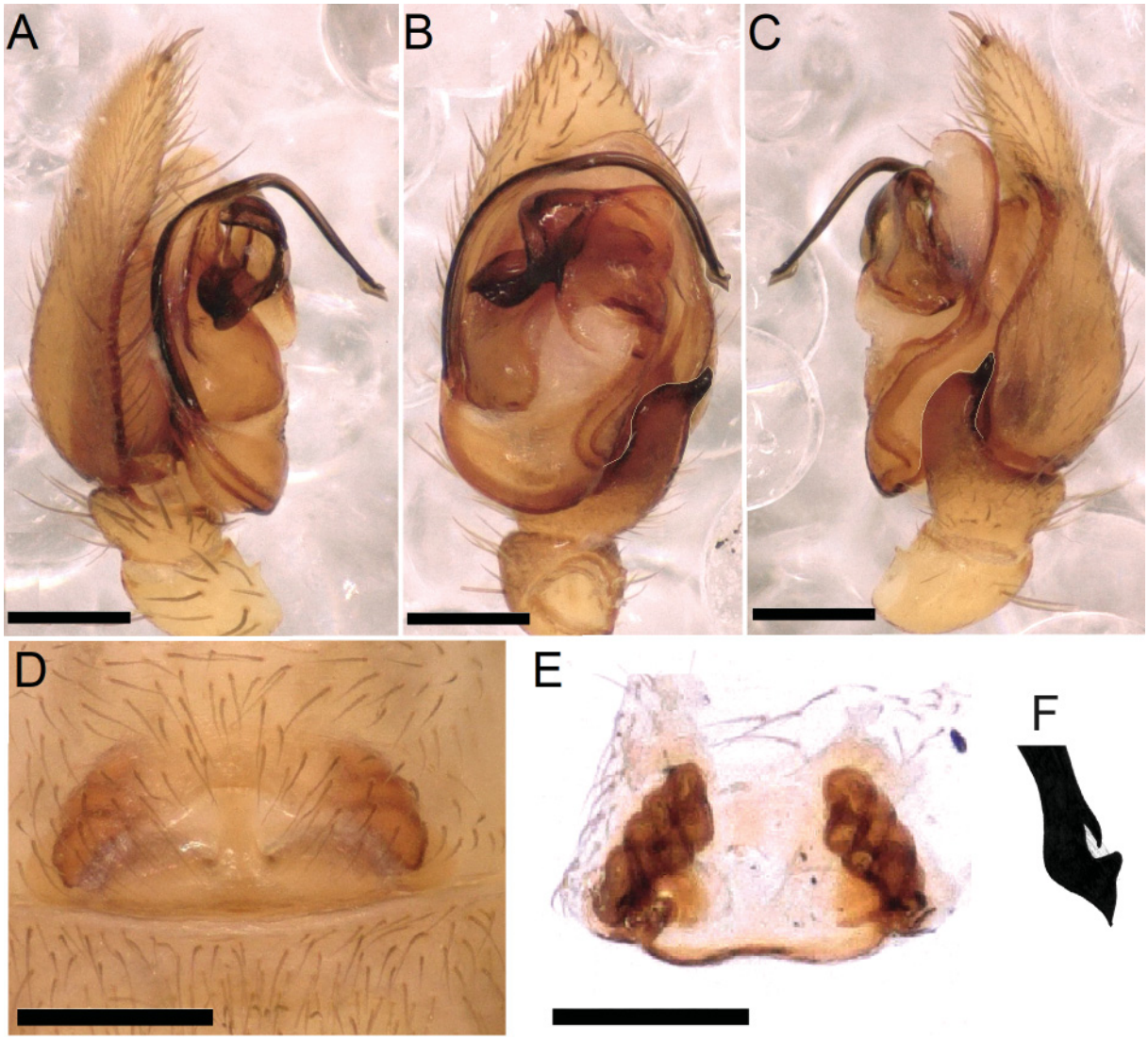

Fig. 96. Copulatory organs of *Zodarion thoni* Nosek, 1905 (CMU). **A–C, F**. Male palp. **D–E**. Female copulatory organ. **A**. Prolateral view. **B**. Ventral view. **C**. Retrolateral view. **D**. Intact epigyne, ventral view. **E**. Vulva, ventral view. **F**. Detail of embolus, ventral view. Scale bars: 0.2 mm.

Description

For a detailed description, refer to Lecigne & Henrard (2022).

Distribution

Previous studies recorded this species in Eastern Europe, Cyprus, Turkey, the Caucasus, and Lebanon. The current study reported this species from Greece and Iran for the first time.

Zodarion tunetiacum Strand, 1906
Figs 97–98, 106

Zodarium tunetiacum Strand, 1906: 669.

Zodarium tunetiacum – Strand 1908: 86.
Zodarion tunetiacum – Denis 1937: 17, pl. 3 fig. 21.

Diagnosis

This species can be separated from *Z. cyrenaicum* by the presence of a horizontally curly brace-shaped protuberance in the middle of epigyne (vs absent in *Z. cyrenaicum*; cf. Fig. 98A–B and Fig. 46D).

Type material examined

Neotype (here designated)
EGYPT • ♀; Alexandria; MNHN-AR2854.

Remarks

Examination of material from the Simon collection (MNHN-AR2854) led to the identification of a female specimen belonging to *Z. tunetiacum.* Although this species has not been listed as a nomen

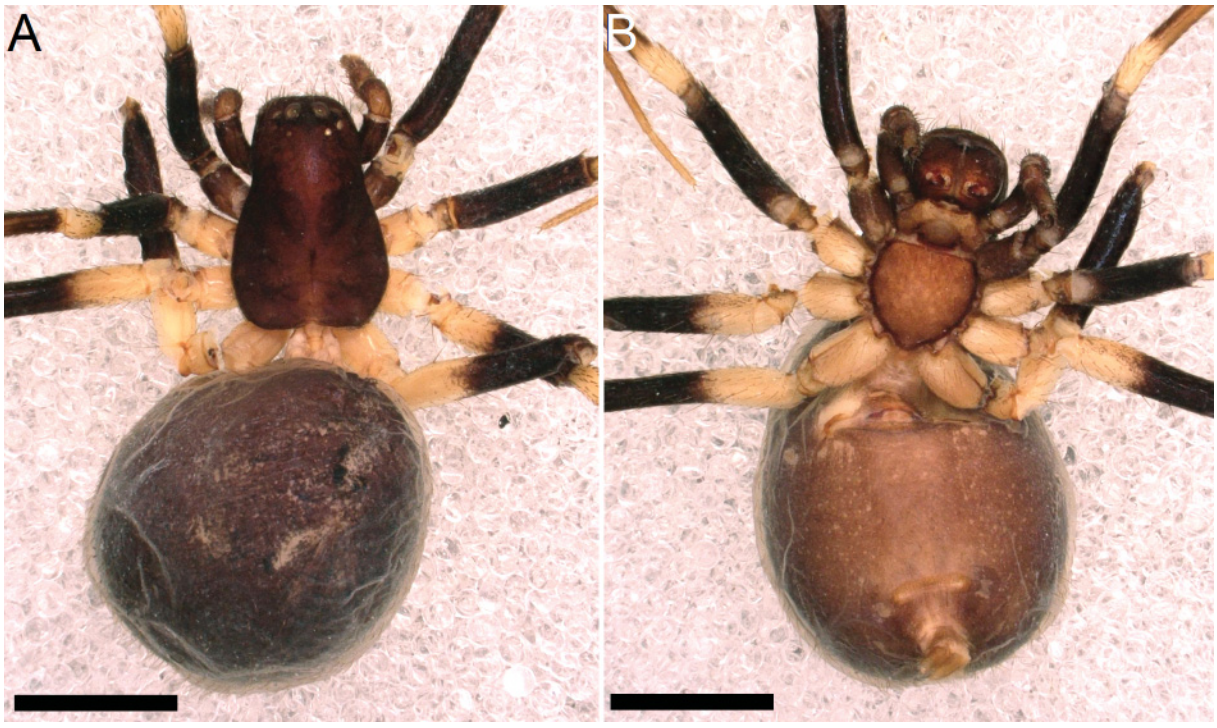

Fig. 97. Habitus of *Zodarion tunetiacum* Strand, 1906. **A–B**. Neotype, ♀ (MNHN-AR2854). **A**. Dorsal view. **B**. Ventral view. Scale bars: 1 mm.

dubium by Nentwig *et al*. (2020) or World Spider Catalog (2025), our investigation revealed that the original type material was destroyed during World War II (J. Holstein pers. comm.). Therefore, we designate this specimen as the neotype and provide a redescription below to stabilize the taxonomic status of the species.

Redescription

Female

Habitus (Fig. 97A–B). Carapace dark brown laterally and reddish-brown medially; chelicerae reddish-brown; gnathocoxae greyish basally and yellowish apically, labium greyish, with reddish basal part; sternum greyish, with dark brown marginal part. Cx and Pa of all legs pale except for black Cx I. Fe I and II entirely black, Fe III and IV black on their second half. Ti dark brown, with a pair of longitudinal light stripes. Abdomen dorsum black, venter greyish laterally and slightly lighter medially; PVS present. Spinnerets greyish, with a pale median part.

Measurements. Total length 6.2; carapace 2.25 long, 1.6 wide. Clypeus 0.25 high. Eye sizes and interdistances: AME 0.1, ALE 0.06, PME 0.05, PLE 0.04, AME–AME 0.15, AME–ALE 0.02, ALE–ALE 0.51, AME–PME 0.14, PME–PME 0.57, PME–PLE 0.06, PLE–PLE 0.38, ALE–PLE 0.25. Legs: I 8.48 (1.93, 0.9, 1.59, 2.46, 1.6), II 8.78 (1.9, 0.95, 1.65, 2.53, 1.75), III 9.24 (2, 1, 1.6, 2.81, 1.83), IV 9.91 (2.11, 1.2, 1.63, 3, 1.97). Palp: 2.4 (0.86, 0.58, 0.46, 0.77).

Epigyne (Fig. 98A–D). Epigyne comprising a traversed plate, proximally surrounded by undulating, highly sclerotized margins, attached in the middle and covering a horizontal curly brace-shaped protuberance in the middle and a series of membranous folds beneath. Vulva comprising a pair of black, globular bodies situated outwards, attached to medium-sized, lighter bodies, and ending at a pair of rather elongated and voluminous bodies, inclined medially.

Male

Unknown.

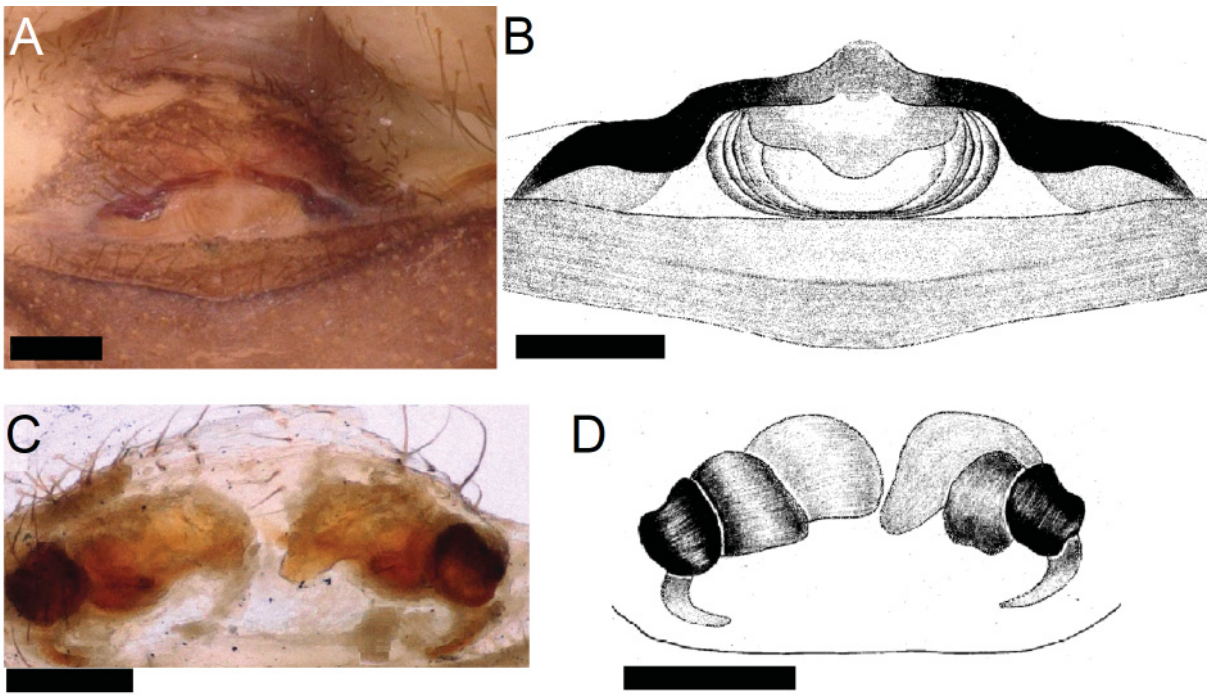

Fig. 98. Female copulatory organ of *Zodarion tunetiacum* Strand, 1906, neotype (MNHN-AR2854). **A**. Intact epigyne, ventral view. **B**. Epigyne, ventral view. **C**. Vulva, ventral view. **D**. Vulva, ventral view. Scale bars: 0.2 mm.

Distribution

Tunisia was the sole location for the occurrence of *Z. tunetiacum*. This is the first report of this species from Egypt and represents the easternmost occurrence of this species across its distribution range.

Zodarion turcicum Wunderlich, 1980
Figs 99–100

Zodarion turcicum Wunderlich, 1980: 238, figs 25–28.

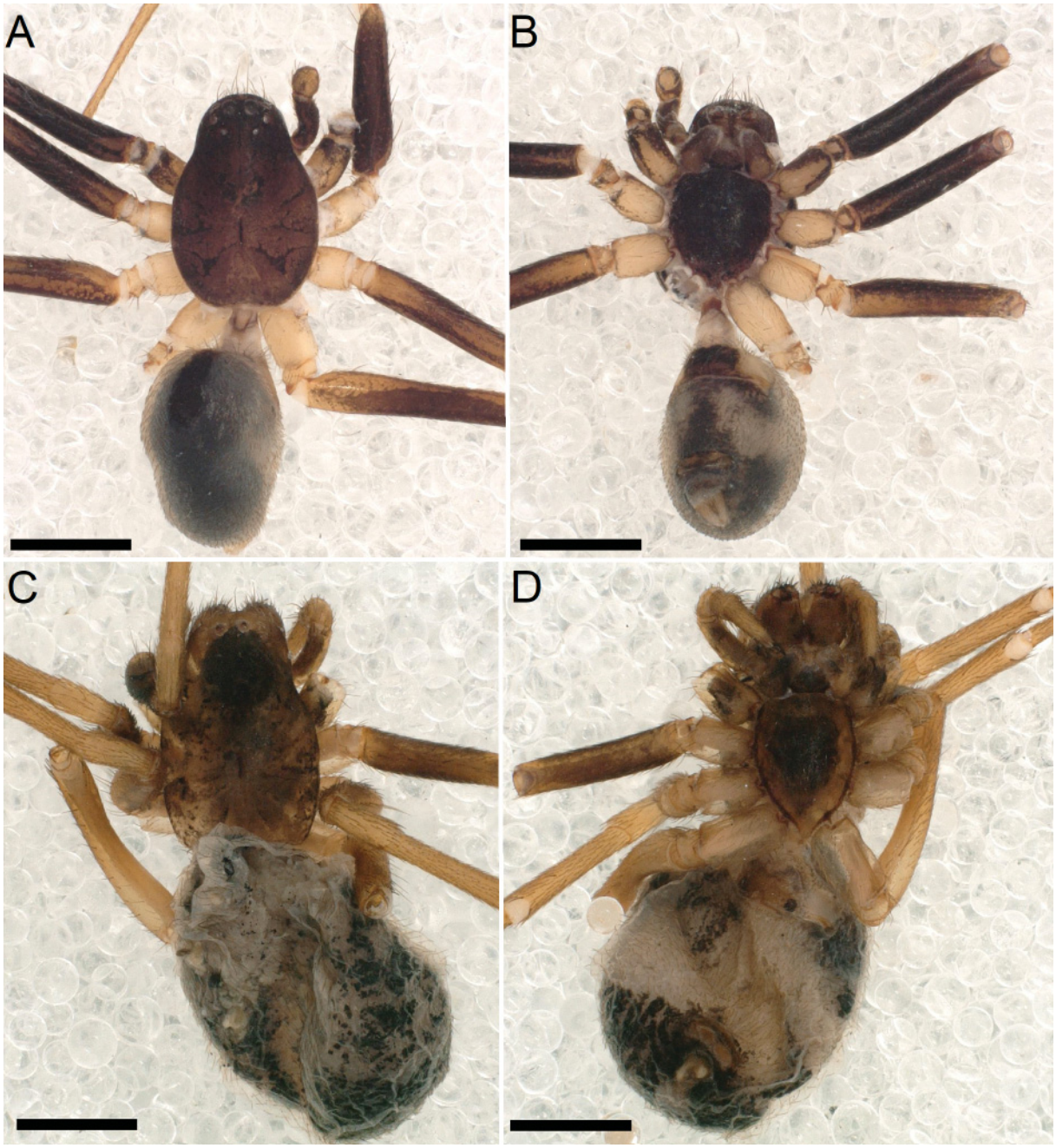

Fig. 99. Habitus of *Zodarion turcicum* Wunderlich, 1980 (CMU). **A–B**. ♂. **C–D**. ♀. **A**. Dorsal view. **B**. Ventral view. **C**. Dorsal view. **D**. Ventral view. Scale bars: 1 mm.

Zodarion turcicum – Dimitrov 1996: 157, figs 1–2. — Bosmans 2009: 235, figs 48–50, 70–71. — Bosmans *et al.* 2014: 100, fig. 1e–h. — Komnenov *et al.* 2016: 44, figs 112–113.

Diagnosis

Refer to Bosmans (2009).

Material examined

GREECE • 1 ♂; 17 km aft. Dadia; 660 m a.s.l.; 22 Jun.–21 Jul. 2015; M. Chatzaki leg.; CMU • 1 ♂, 1 ♀; between Aisymi-Mega Dereio, 5 km bef.; 389 m a.s.l.; 23 Jun.–22 Jul. 2015; M. Chatzaki leg.; CMU.

TURKEY • 1 ♂; "Asie Mineure. (Merkl.)"; MNHN-AR2848.

Description

For a detailed description, refer to Bosmans (2009).

Distribution

Bulgaria, Greece, Turkey.

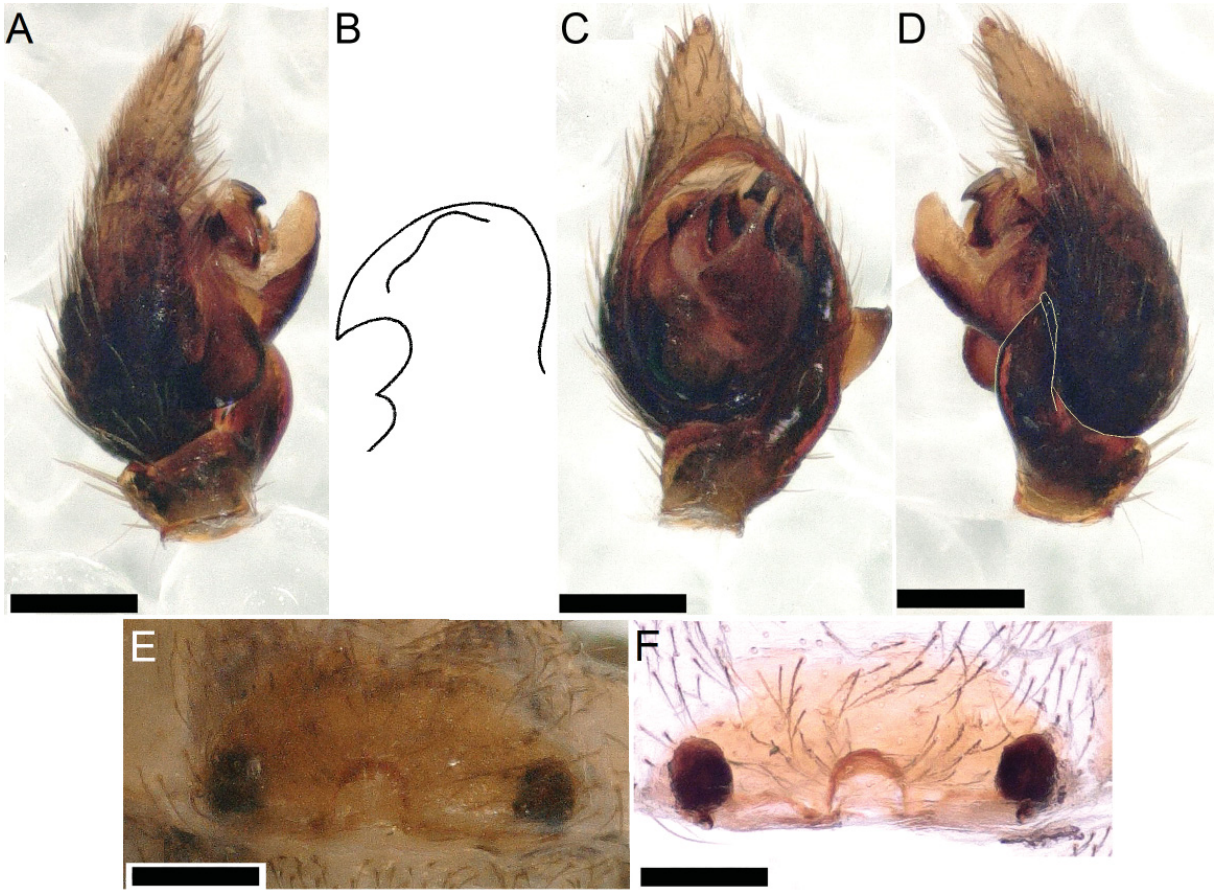

Fig. 100. Copulatory organs of *Zodarion turcicum* Wunderlich, 1980 (CMU). **A–D**. Male pulp. **E–F**. Female copulatory organ. **A**. Prolateral view. **B**. Median apophysis, ventral view. **C**. Palp, ventral view. **D**. Palp, retrolateral view. **E**. Intact epigyne, ventral view. **F**. Vulva, ventral view. Scale bars: 0.2 mm.

Zodarion van Bosmans, 2009
Figs 101–102

Zodarion van Bosmans, 2009: 258, figs 112–115, 152–153.

Zodarion van – Coşar & Danışman 2021: 422, figs 17a–c, 18a–c. — Coşar 2021: 264, figs 5a–h, 6a–d, 7a–c. — Coşar *et al*. 2022: 229, figs 17–21.

Diagnosis

Refer to Bosmans (2009).

Material examined

TURKEY • 2 ♂♂; Tunceli, Munzur River; 22 Jun. 2002; J. Dolanský leg.; CMU • 4 ♂♂, 4 ♀♀; Erzincan, Çağlayan; 24 Jun. 2002; J. Dolanský leg.; CMU • 4 ♂♂, 2 ♀♀; Kirşehir, between Kırşehir-Akpınar; 21 Jun. 2005; O. Seyyar leg.; CMU • 4 ♂♂, 1 ♀; Kirşehir, Kaman-Akpınar Road; 21 Jun. 2005; O. Seyyar leg.; CMU.

Description

For a detailed description, refer to Bosmans (2009).

Remarks

Specimens collected from Erzincan and Tunceli provinces are generally darker and smaller in size compared to those from other localities. However, they exhibit no discernible differences in copulatory organ morphology.

Distribution

Turkey.

Zodarion zonsteini Shafaie & Pekár sp. nov.
urn:lsid:zoobank.org:act:584C924F-671D-49B4-AF2B-FE86C053A60C
Figs 103–104, 106

Diagnosis

The copulatory organ details of *Z. zonsteini* sp. nov. are almost identical to those of *Z. lutipes* but the new species can be distinguished by (1) a different carapace/cymbium length ratio (1.36 vs 1.95), (2) a different bulb length/median apophysis width ratio (4.2 vs 3.4), and (3) a darker carapace and legs (cf. Fig. 103A–B and Fig. 74A–B).

Etymology

The specific name is dedicated to Sergei Lev Zonstein, an Israeli arachnologist.

Type material

Holotype

ISRAEL • ♂; Eliakim; 32.64° N, 35.066° E; 31 Mar. 2023; S. Pekár and V. Opatová leg.; NMP P6A 7510.

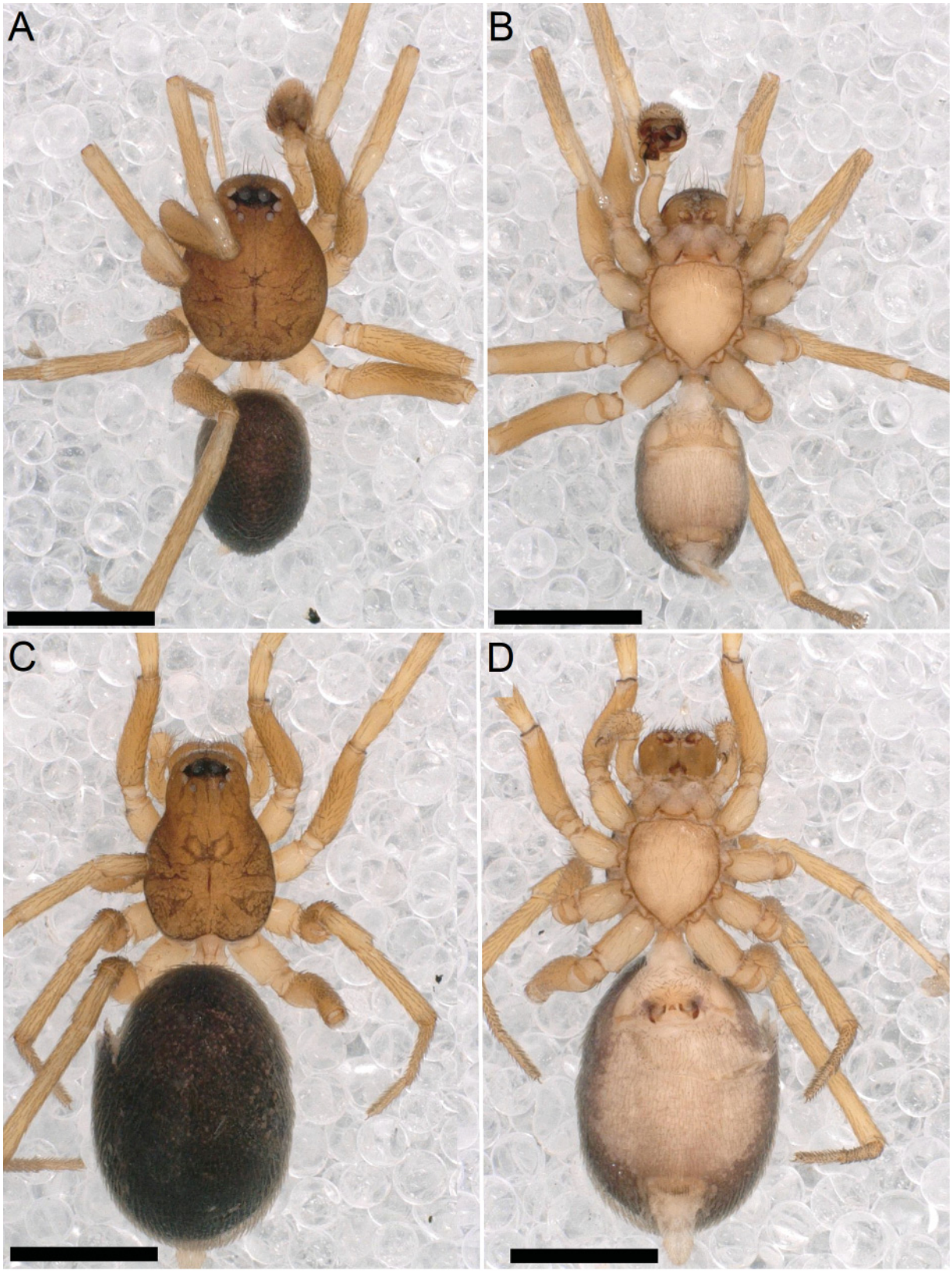

Fig. 101. Habitus of *Zodarion van* Bosmans, 2009 (CMU). **A–B**. ♂. **C–D**. ♀. **A**. Dorsal view. **B**. Ventral view. **C**. Dorsal view. **D**. Ventral view. Scale bars: 1 mm.

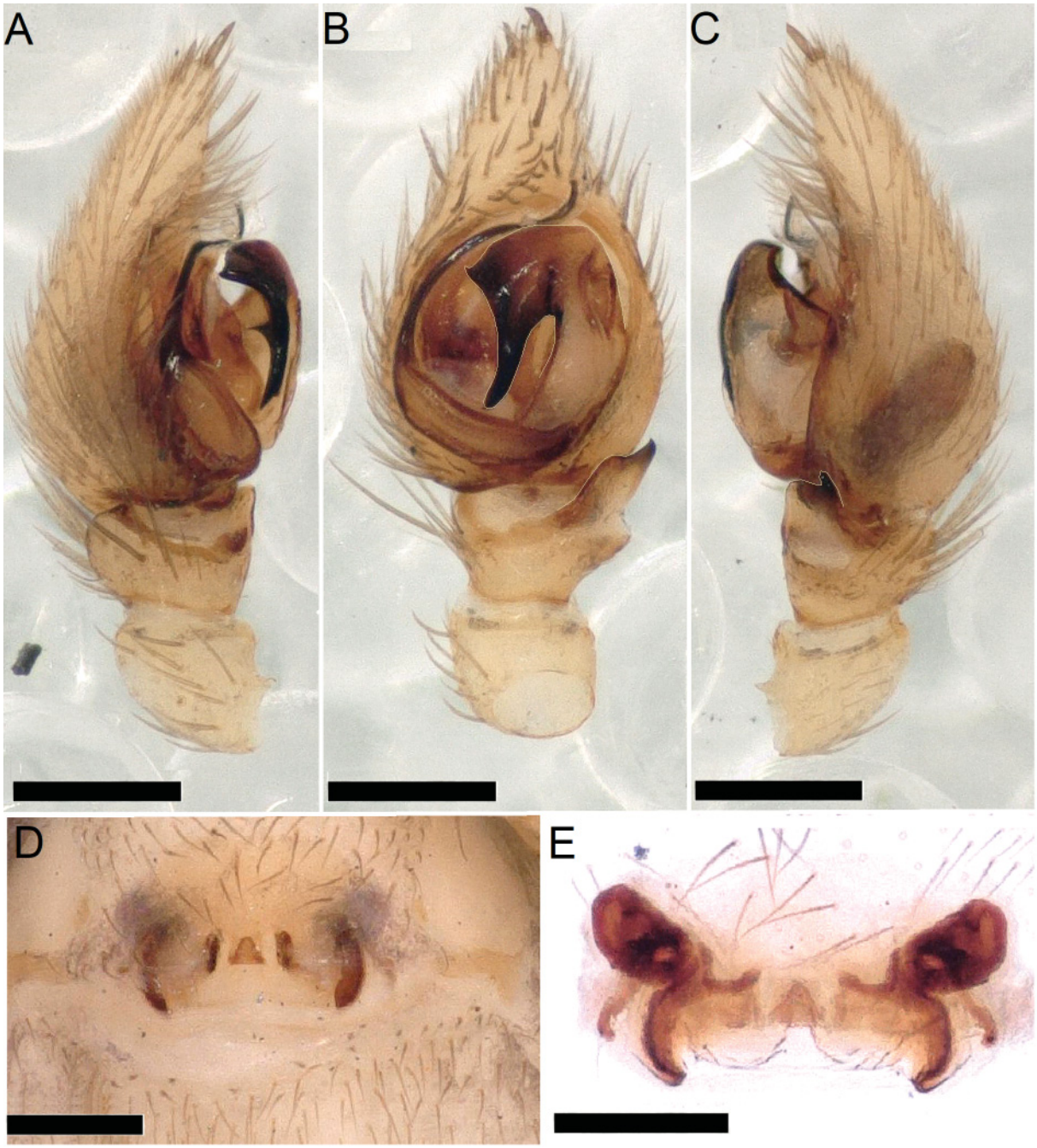

Fig. 102. Copulatory organs of *Zodarion van* Bosmans, 2009 (CMU). **A–C**. Male palp. **D–E**. Female copulatory organ. **A**. Prolateral view. **B**. Ventral view. **C**. Retrolateral view. **D**. Intact epigyne, ventral view. **E**. Vulva, ventral view. Scale bars: 0.2 mm.

Other material examined

CYPRUS • 1 ♂ (subadult), 2 juv.; Agios Georgios; 34.822° N, 32.897° E; 840 m a.s.l.; 29 Apr. 2022; S. Pekár, S. Shafaie, V. Šoltýsová and O. Michálek leg.; CMU.

ISRAEL • 16 juv.; same collection data as for holotype; CMU • 7 juv.; Geshur; 32.816° N, 35.718° E; 30 Mar. 2023; S. Pekár leg.; CMU • 1 ♂, 8 juv.; Kadarim; 32.894° N, 35.478° E; 31 Mar. 2023; S. Pekár and V. Opatová leg.; CMU • 1 juv.; Har Heron; 32.996° N, 35.410° E; 3 May 2023; M. Řezáč leg.; CMU.

Description

Male (holotype NMP P6A 7510)

Habitus (Fig. 103A–B). Carapace reddish-brown companied by a lighter, butterfly-like mark on behind of fovea; clypeus, chelicerae reddish-brown; labium and gnathocoxae brownish, with lighter tips. Sternum yellow at the middle and slightly darker at borders. Cx I and Fe I and II entirely dark, Cx II dark on lateral sides, Cx III and IV yellowish, Fe III and IV light brown proximally and darker distally, with a pair of longitudinal, light stripes. Pa and Ti of all legs yellow, with greyish laterals, other segments entirely yellow. Palpal segments yellow, with pale cymbium. Abdomen dorsum entirely dark, venter dark except for lighter parts around the epiandrous and PVS. Spinnerets pale, with dark basal part.

Measurements. Total length 4.49; carapace 2.16 long, 1.76 wide. Eye sizes and interdistances: AME 0.15, ALE 0.11, PME = PLE 0.08, AME–AME 0.1, AME–ALE 0.02, ALE–ALE 0.36, PME–PME 0.23, PLE–PLE 0.4, PME–PLE 0.03. Legs: I 9.59 (2.6, 0.8, 2.26, 2.53, 1.4), II 9.19 (2.53, 1, 2.13, 2.4, 1.13), III 8.38 (2.26, 0.73, 1.66, 2.6, 1.13), IV 10.06 (3, 1, 2.53, 3.33, 1.2). Palp: 3.26 (1, 0.46, 0.2, 1.6).

Palp (Fig. 104A–C). Palp entirely similar to that of *Z. lutipes* but markedly larger (for a detailed description, refer to Levy 1992: cf. figs 67–69 and Bosmans 2009: cf. figs 184–185).

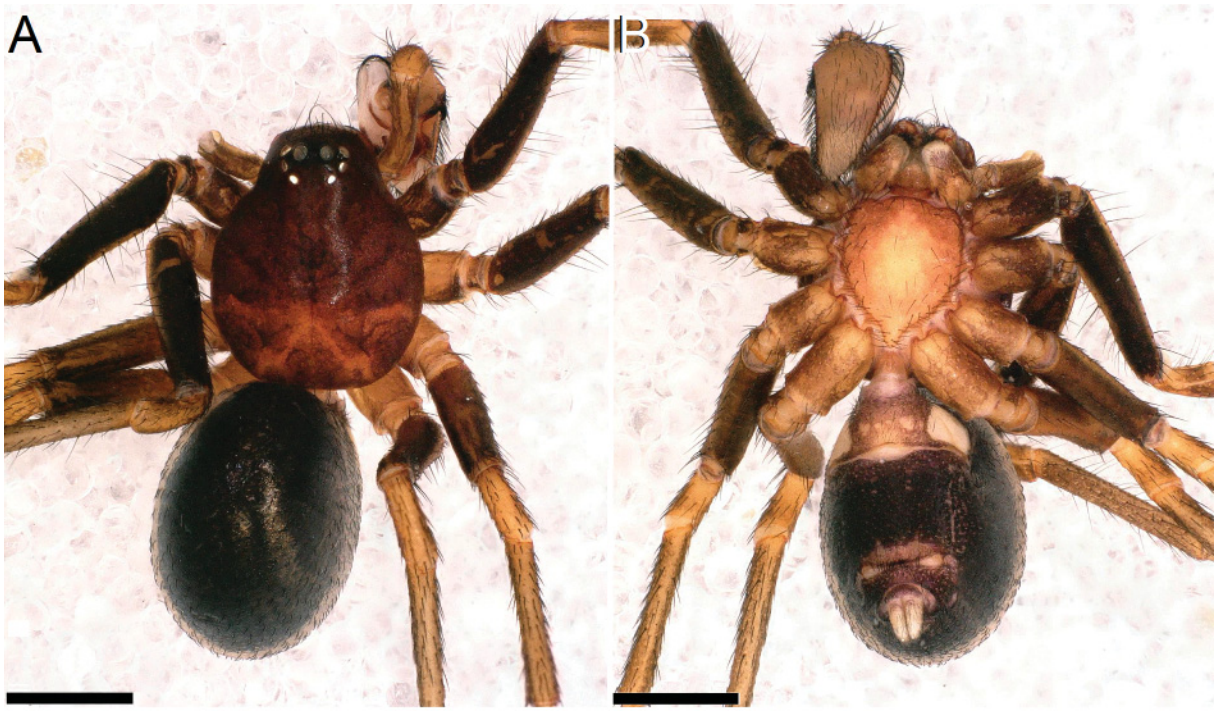

Fig. 103. Habitus of *Zodarion zonsteini* Shafaie & Pekár sp. nov., holotype, ♂ (NMP P6A 7510). **A**. Dorsal view. **B**. Ventral view. Scale bars: 1 mm.

Remarks

Although no structural differences were detected in the copulatory organs of *Z. zonsteini* sp. nov. and *Z. lutipes*, the two representatives exhibit notable disparities in overall body and copulatory organ dimensions. Particularly, the carapace and cymbium of *Z. zonsteini* are 1.31 and 1.76 times longer, respectively, than those of *Z. lutipes*. Such divergence in absolute copulatory organ dimensions may lead to mechanical incompatibility between sexes, potentially impeding successful copulation (Ramos *et al*. 2005). For instance, the relatively large palpal organs of *Z. zonsteini* might not be effectively paired with the smaller, heavily sclerotized epigyne of *Z. lutipes*. Moreover, the two species differ in somatic morphology, with *Z. lutipes* exhibiting a distinct bicolored carapace and lighter legs compared to *Z. zonsteini*. Similar patterns of morphological divergence have previously been observed in *Z. nitidum* and *Z. nicki* (refer to Pekár *et al*. 2022 and corresponding comments in this study). Based on these consistent morphological differences, we treat *Z. zonsteini* and *Z. lutipes* as separate species. Nevertheless, further examination of additional material will be necessary to fully resolve issues of species delimitation and taxonomic consistency.

Distribution

At present, known only from Israel and Cyprus.

Fig. 104. Male palp of *Zodarion zonsteini* Shafaie & Pekár sp. nov., holotype (NMP P6A 7510). **A**. Prolateral view. **B**. Ventral view. **C**. Retrolateral view. Scale bars: 0.2 mm.

Discussion

Although several arachnologists have revised the zodariid species of the Middle East and Eastern Mediterranean (Levy 1992; Bosmans 1994, 1997, 2009; Zamani & Marusik 2021), our knowledge on the taxonomy of these spiders in this region remains fragmentary. The primary issue stems from the vast geographical area that hosts many species, and the relatively few arachnologists working in the region. Moreover, political instability in some countries further hampers progress in the research.

Another significant issue lies in the overreliance on specific diagnostic characters. Early taxonomic studies in the 19th and early 20th centuries primarily concentrated on somatic characters of zodariids, whereas later research shifted its emphasis to copulatory traits. This transition initially led to a proliferation of recognized species, followed by a subsequent taxonomic reduction. Although the emphasis on copulatory organ morphology has proven reliable, an exclusive focus on these traits – at the expense of somatic traits and body dimensions – may hinder consensus on which characters should receive priority and what degree of variation is acceptable for defining species boundaries.

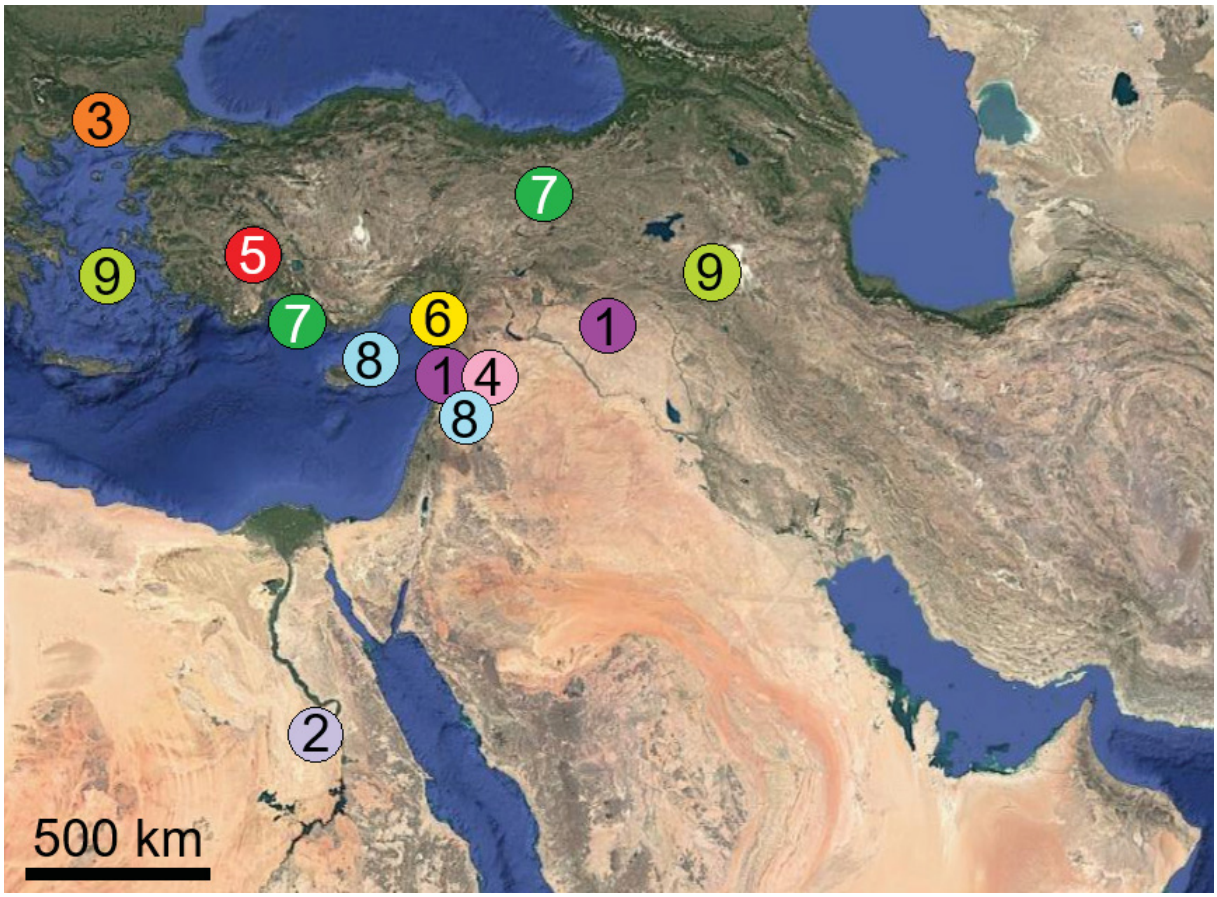

Fig. 105. Distribution map showing new country records across the Middle East and Eastern Mediterranean, one sign may refer to several points, each number may refer to several localities. 1 = *Acanthinozodium odem* (Levy, 2007); 2 = *A. tibesti* Jocqué, 1991; 3 = *Zodarion abantense* Wunderlich, 1980; 4 = *Z. granulatum* Kulczyński, 1908; 5 = *Z. karpathos* Bosmans, 2009; 6 = *Z. morosum* Denis, 1935; 7 = *Z. reticulatum* Kulczyński, 1908; 8 = *Z. rhodiense* Caporiacco, 1948; 9 = *Z. thoni* Nosek, 1905.

Recent studies that questioned this long-held traditional approach was conducted by Pekár *et al*. (2022) and Ortiz *et al*. (2024). Previously, *Z. nicki* has been considered a synonym of *Z. nitidum*, with their distinct body coloration – blackish in *Z. nicki* and yellowish in *Z. nitidum* – interpreted as intraspecific variation. However, Pekár *et al*. (2022) and Ortiz *et al*. (2024) provided compelling evidence for the importance of somatic characters in distinguishing these two species of *Zodarion*. Although copulatory organs did not provide a clear differentiation, molecular, ecological, and behavioral data effectively separated the species, corroborating the distinction based on somatic traits and affirming the validity of both species.

Another issue is the quality of available illustrations. Many species have been described primarily using copulatory organ drawings. While these illustrations are taxonomically valuable, they can arguably introduce inaccuracies and inconsistencies in species identification, as their interpretation is often subjective and influenced by the taxonomist's perspective.

In this study, we documented 50 zodariid representatives, providing detailed illustrations and photographs of both somatic and copulatory organs. Following the revised taxonomy presented here, the zodariid fauna of the Middle East and Eastern Mediterranean now includes the following genera, with the number of species known from each indicated in parentheses: *Acanthinozodium* (14), *Cydrela* Thorell, 1873 (1), *Dusmadiores* Jocqué, 1987 (1), *Indozodion* (1), *Lachesana* (11), *Palaestina* (3), *Parazodarion* (1), *Pax*

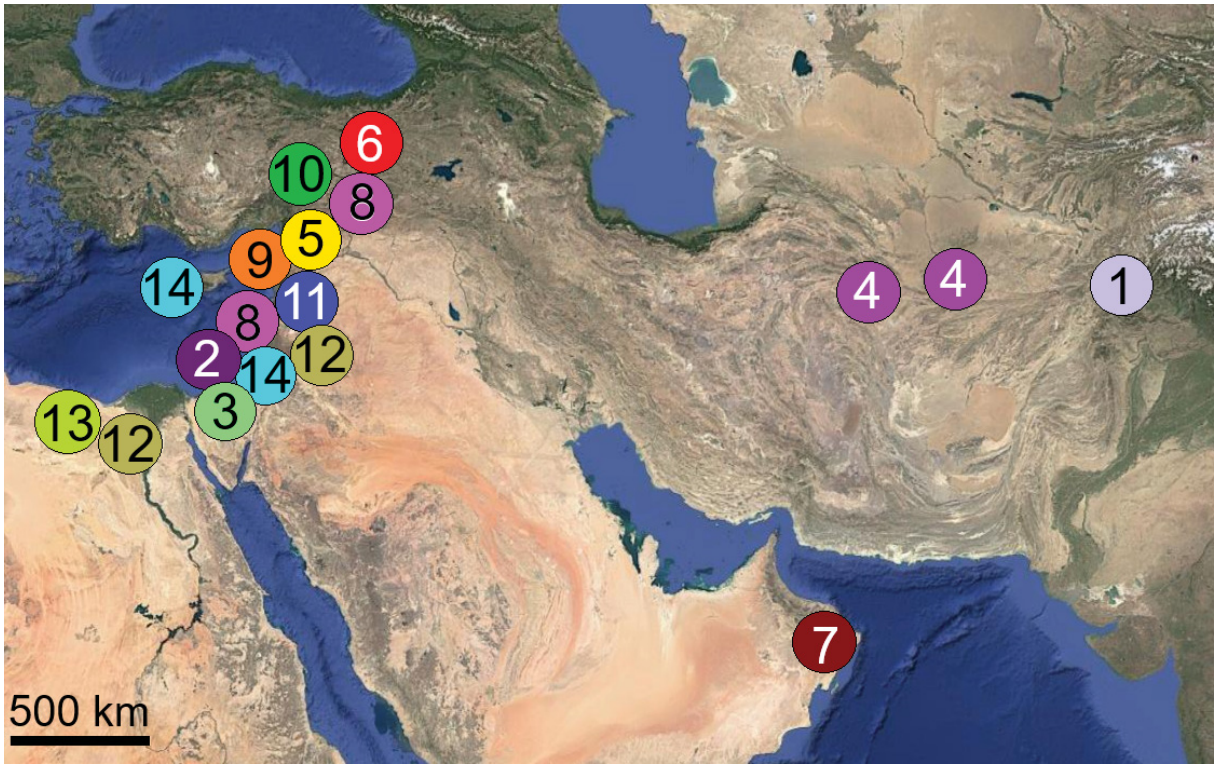

Fig. 106. Distribution records across the Middle East and Eastern Mediterranean. 1 = *Indozodion lindbergi* (Roewer, 1960); 2 = *Lachesana gavishae* Shafaie & Pekár sp. nov.; 3 = *L. lubinae* Shafaie & Pekár sp. nov.; 4 = *Parazodarion raddei* (Simon, 1889); 5 = *Pax akilae* Shafaie & Pekár sp. nov.; 6 = *Zodarion crewsae* Coşar, Danışman & Kunt, 2022; 7 = *Z. jakubi* Shafaie & Pekár sp. nov.; 8 = *Z. levyi* Shafaie & Pekár sp. nov.; 9 = *Z. milani* Shafaie & Pekár sp. nov.; 10 = *Z. namrun* Dimitrov, 2024; 11 = *Z. nicki* Strand, 1914; 12 = *Z. nitidum* Audouin, 1826; 13 = *Z. tunetiacum* Strand, 1906; 14 = *Z. zonsteini* Shafaie & Pekár sp. nov.

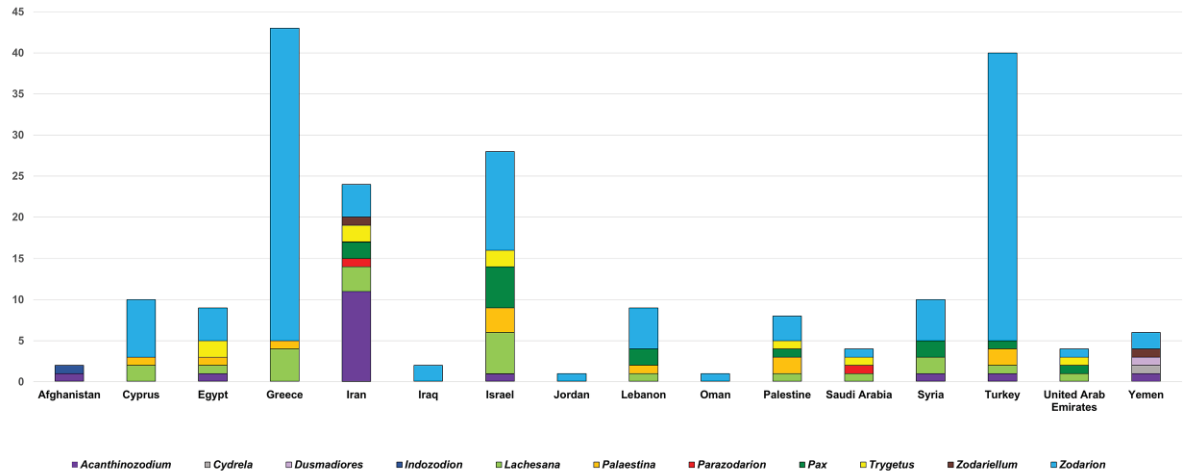

Fig. 107. Species richness of zodariid spiders in the Middle East and East Mediterranean, categorized by genus and country.

(8), *Trygetus* (6), *Zodariellum* Andreeva & Tystshenko, 1968 (1), and *Zodarion* (75). The highest species richness is observed in Greece (43), Turkey (40), Isreal (26), and Iran (22) (Fig. 107).

In conclusion, this study represents a thorough survey of the taxonomy of zodariid spiders in the Middle Eastern and East Mediterranean. To achieve a more precise estimate of the actual number of species, it is crucial to integrate comprehensive morphological documentation with data derived from multiple complementary approaches.

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References

Al-Khazali A.M. 2022. *Zodarion lutipes* (O. Pickard-Cambridge, 1872) (Araneae: Zodariidae) a new record from Iraq. *Serket* 18 (3): 378–381.

Andreeva E.M. & Tystshenko V.P. 1968. Materials on the fauna of spiders (Aranei) of Tadjikistan. II. Zodariidae. *Zoologicheskiĭ Zhurnal* 47: 684–689.

Audouin V. 1826. Explication sommaire des planches d'arachnides de l'Égypte et de la Syrie. *In*: Savigny M.J.C.L. de (ed.) Description de l'Égypte, ou recueil des observations et des recherches qui ont été faites en Égypte pendant l'expédition de l'armée française, publié par les ordres de sa Majesté l'Empereur Napoléon le Grand. *Histoire Naturelle* 1 (4): 1–339.

Bosmans R. 1994. Revision of the genus *Zodarion* Walckenaer, 1833 in the Iberian Peninsula and Balearic Islands (Araneae: Zodariidae). *Eos* 69: 115–142.

Bosmans R. 1997. Revision of the genus *Zodarion* Walckenaer, 1833, part II. Western and Central Europe, including Italy (Araneae: Zodariidae). *Bulletin of the British Arachnological Society* 10 (8): 265–294.

Bosmans R. 2009. Revision of the genus *Zodarion* Walckenaer, 1833, part III. South East Europe and Turkey (Araneae: Zodariidae). *Contributions to Natural History* 12: 211–295.

Bosmans R. & Gavalas I. 2023. The spiders (Araneae) of the tiny Greek island Iraklia (Kiklades), with the descriptions of 5 new *Harpactea* species (Araneae: Dysderidae), 3 species new to Europe and 8 new to Greece. *Parnassiana Archives* 11: 1–91.

Bosmans R., Özkütük R.S., Varli S.V. & Kunt K.B. 2014. Description of a new *Zodarion* Walckenaer, 1826 from Turkey (Zodariidae; Araneae). *Turkish Journal of Zoology* 38: 99–101. https://doi.org/10.3906/zoo-1303-11

Bosmans R., Van Keer J., Russell-Smith A., Hadjiconstantis M., Komnenov M., Bosselaers J., Huber S., McCowan D., Snazell R., Decae A., Zoumides C., Kielhorn K.-H. & Oger P. 2019. Spiders of Cyprus (Araneae). A catalogue of all currently known species from Cyprus. *Newsletter of the Belgian Arachnological Society* 34 (Supplement): 1–173.

Brignoli P.M. 1984. Ragni di Grecia XII. Nuovi dati su varie famiglie (Araneae). *Revue suisse de Zoologie* 91 (2): 281–321. https://doi.org/10.5962/bhl.part.81881

Caporiacco L. di 1948. L'arachnofauna di Rodi. *Redia* 33: 27–75.

Chyzer C. & Kulczyński W. 1897. *Araneae hungariae. Tomus II*. Academia Scientarum Hungaricae, Budapest.

Coşar İ. 2021. A new species of *Zodarion* (Araneae: Zodariidae) from Turkey. *Zoology in the Middle East* 67 (3): 259–266. https://doi.org/10.1080/09397140.2021.1957207

Coşar İ. & Danışman T. 2021. Three new *Zodarion* species (Araneae: Zodariidae) from southeastern Turkey. *Zootaxa* 5057 (3): 415–428. https://doi.org/10.11646/zootaxa.5057.3.6

Coşar İ. & Danışman T. 2024. A new species of spinibarbe species-group of *Zodarion* (Araneae: Zodariidae) from Turkey. *Arthropoda Selecta* 33 (2): 267–272. https://doi.org/10.15298/arthsel.33.2.14

Coşar İ., Danışman T. & Yağmur E.A. 2021. Contributions to the genus *Zodarion* Walckenaer, 1826 in Turkey, with the description of a new species (Araneae: Zodariidae). *Turkish Journal of Zoology* 45 (1): 46–53. https://doi.org/10.3906/zoo-2009-36

Coşar İ., Danışman T. & Kunt K.B. 2022. Some new findings of the genus *Zodarion* (Aranei: Zodariidae) from Turkey. *Arthropoda Selecta* 31 (2): 228–234. https://doi.org/10.15298/arthsel.31.2.11

Danışman T. & Rubio G.D. 2017. A new species of *Zodarion* Walckenaer, 1826 (Araneae: Zodariidae) from Turkey. *Entomological News* 127 (2): 178–183. https://doi.org/10.3157/021.127.0214

Deltshev C.D. 1987. A critical review of genus *Zodarion* Walckenaer (Araneae, Zodariidae) in Bulgaria. *Acta Zoologica Bulgarica* 33: 19–25.

Deltshev C., Naumova M., Matevski D. & Indzhov S. 2022. New taxonomic and faunistic data on the genus *Zodarion* Walckenaer, 1826 (Araneae: Zodariidae) in the Balkans, with the descriptions of two new species. *Zootaxa* 5174 (3): 247–261. https://doi.org/10.11646/zootaxa.5174.3.3

Denis J. 1935a. Sur deux araignées de Cyrénaique. *Annali del Museo Civico di Storia Naturale di Genova* 57: 100–104.

Denis J. 1935b. Les araignées du genre *Zodarion* Walk., appartenant à la faune d'Italie. *Memorie della Società Entomologica Italiana* 14: 65–83.

Denis J. 1937. Contribution à l'étude des araignées du genre *Zodarion* Walckenaer. *Festschrift zum 60. Geburstage von Professor Dr. Embrik Strand (Riga)* 3: 1–50.

Denis J. 1938. Sur la synonymie de quelques araignées. *Bulletin de la Société d'Histoire naturelle de Toulouse* 62: 379–389.

Denis J. 1952. Zodariides recuieillis au Maroc et en Mauritanie par M. L. Berland. *Bulletin de la Société d'Histoire naturelle d'Afrique du Nord* 41: 58–63.

Denis J. 1958. Araignées (Araneidea) de l'Afghanistan. I. *Videnskabelige Meddelelser fra Dansk Naturhistorisk Forening i Kjøbenhavn* 120: 81–120.

Denis J. 1962. Araignées recueillies en 1961 par la Mission Belge au Tibesti. *Revue de Zoologie et de Botanique africaines* 65: 29–32.

Dimitrov D. 1996. A record of *Zodarion turcicum* Wunderlich from Europe with description of its unknown male (Arachnida, Araneae, Zodariidae). *Berichte des naturwissenschaftlich-medizinischen Vereins in Innsbruck* 83: 157–158.

Dimitrov D. 2020. Taxonomic contribution to the genus *Zodarion* Walckenaer, 1826 in Turkey with description of a new species (Araneae: Zodariidae). *Zootaxa* 4810 (2): 361–367. https://doi.org/10.11646/zootaxa.4810.2.9

Dimitrov D. 2024. On the taxonomy of the *Zodarion thoni* species-group (Araneae: Zodariidae), with description of a new species with an unmodified embolus. *Zootaxa* 5419 (1): 112–120. https://doi.org/10.11646/zootaxa.5419.1.4

Drensky P. 1921. Contribution à l'étude des araignées de la Macédoine or et de Pirine Planina. *Spisanié na Beulgarskata Akademia na Naoukite* 23: 1–80.

Drensky P. 1940. Die Spinnenfauna Bulgariens IV. *Mitteilungen aus den königlichen naturwissenschaftlichen Instituten in Sofia* 13: 169–194.

Dunin P.M. & Nenilin A.B. 1987. The spider family Zodariidae in the Caucasus (Arachnida: Araneae). *Senckenbergiana Biologica* 68: 191–198.

Dunlop J.A., Penny D. & Jekel D. 2023. A summary list of fossil spiders and their relatives. *In*: *World Spider Catalog. Version 23.5*. Natural History Museum Bern. Available from http://wsc.nmbe.ch [accessed 9 May 2025].

Fage L. 1921. Travaux scientifiques de l'Armee d'Orient (1916–1918). Arachnides. *Bulletin du Muséum national d'Histoire naturelle de Paris* 27: 96–102, 173–177, 227–232.

Fet V.Y. 1985. [The ecological distribution of spiders in Syunt Khassardagh Reserve]. In: [*The Vegetation and Animal Life of Western Kopetdagh*]: 271–277. Ashkhabad, Turkmenistan.

Jocqué R. 1987. Descriptions of new genera and species of African Zodariinae with a revision of the genus *Heradida* (Araneae, Zodariidae). *Revue Zoologique africaine* 101: 143–163.

Jocqué R. 1991. A generic revision of the spider family Zodariidae (Araneae). *Bulletin of the American Museum of Natural History* 201: 1–160.

Jocqué R. 2011. Order Araneae, family Zodariidae. *Arthropod fauna of the UAE* 4: 15–22.

Jocqué R. & Henrard A. 2015. Revalidation of *Acanthinozodium* Denis, 1966 with description of three new species and discovery of a remarkable male palpal character (Araneae, Zodariidae). *European Journal of Taxonomy* 114: 1–23. https://doi.org/10.5852/ejt.2015.114

Jocqué R. & Henrard A. 2020. Three new species of the genus *Ranops* (Araneae: Zodariidae) from southern Africa. *Zootaxa* 4899 (1): 186–200. https://doi.org/10.11646/zootaxa.4899.1.10

Karol S. 1969. Eine wenig bekannte Art der Gattung *Zodarion* (Arachnida: Araneae: Zodariidae). *Senckenbergiana Biologica* 50: 201–203.

Koch C.L. 1872. *Die Arachniden Australiens, nach der Natur beschrieben und abgebildet*: 105–368. Verlag von Bauer & Raspe, Nürnberg. https://doi.org/10.5962/bhl.title.121660

Kovblyuk M.M. 2003. Spiders of the genus *Zodarion* (Aranei: Zodariidae) in the fauna of the Crimea. *Euroasian Entomological Journal* 1 (2): 177–183.

Komnenov M., Pitta E., Zografou K. & Chatzaki M. 2016. Discovering the still unexplored arachnofauna of the National Park of Dadia-Lefkimi-Soufli, NE Greece: a taxonomic review with description of new species. *Zootaxa* 4096 (1): 1–66. https://doi.org/10.11646/zootaxa.4096.1.1

Krupp F., Khalaf M., Malek M., Streit B. & Al-Jumaily M. 2009. The Middle Eastern biodiversity network: Generating and sharing knowledge for ecosystem management and conservation. *Zookeys* 31: 3–15. https://doi.org/10.3897/zookeys.31.371

Kulczyński W. 1908. Fragmenta arachnologica. X. *Bulletin international de l'Academie des Sciences de Cracovie* 1908: 49–86.

Kulczyński W. 1911. Fragmenta Arachnologica. XVI, XVII. *Bulletin international de l'Academie des Sciences de Cracovie* 1911: 12–75.

Lecigne S. 2011. Inventaire aranéologique dans la Province d'Izmir (Turquie) (Arachnida, Araneae). *Le Bulletin d'Arthropoda* 46 (2): 5–83.

Lecigne S. 2021. A new species of *Sintula* (Linyphiidae), redescription of *Brigittea innocens* (Dictynidae) and eight spider species recorded for Turkey. *Arachnologische Mitteilungen* 62: 11–34. https://doi.org/10.30963/aramit6204

Lecigne S. 2023. New contribution to the spider fauna (Arachnida: Araneae) of Kerkyra (Corfu) and update of the provisional checklist of species from the Ionian Island. *Journal of the Belgian Arachnological Society* 38 (1): 1–51.

Lecigne S. & Henrard A. 2022. *Zodarion nigrifemur* Caporiacco, 1948 newly recorded for the Turkish fauna (Araneae, Zodariidae). *Journal of the Belgian Arachnological Society* 37 (1): 32–40.

Levy G. 1990. Spiders of the genus *Lachesana* and a new storenoid genus from Israel (Araneae: Zodariidae). *Zoological Journal of the Linnean Society* 98 (4): 327–362. https://doi.org/10.1111/j.1096-3642.1990.tb01205.x

Levy G. 1992. The spider genera *Palaestina*, *Trygetus*, *Zodarion* and *Ranops* (Araneae, Zodariidae) in Israel with annotations on species of the Middle East. *Israel Journal of Zoology* 38: 67–110.

Levy G. 2007. *Calommata* (Atypidae) and new spider species (Araneae) from Israel. *Zootaxa* 1551 (1): 1–30. https://doi.org/10.11646/zootaxa.1551.1.1

Marusik Y.M. & Koponen S. 2001. Spiders of the family Zodariidae from Mongolia (Arachnida: Araneae). *Reichenbachia* 34: 39–48.

Myers N., Mittermeier R.A., Mittermeier C.G., da Fonseca G.A. & Kent J. 2000. Biodiversity hotspots for conservation priorities. *Nature* 403: 853–858. https://doi.org/10.1038/35002501

Nae A. 2023. First record for *Zodarion morosum* (Araneae, Zodariidae), *Lessertinella kulczynskii* (Araneae, Linyphiidae) and reconfirmation of *Palliduphantes milleri* (Araneae, Linyphiidae) in the Romanian fauna. *Travaux de l'Institut de Spéologie "Émile Racovitza"* 62: 55–66. https://doi.org/10.59277/TISER.2023.04

Naumova M., Blagoev G., Dimitrov D., Lazarov S. & Deltshev C. 2017. New data on the spider fauna (Arachnida: Araneae) of Bulgaria. *Acta Zoologica Bulgarica* 69 (4): 477–481.

Nentwig W., Blick T., Gloor D., Jäger P. & Kropf C. 2020. How to deal with destroyed type material? The case of Embrik Strand (Arachnida: Araneae). *Arachnologische Mitteilungen* 59 (1): 22–29. https://doi.org/10.30963/aramit5904

Nosek A. 1905. Araneiden, Opilionen und Chernetiden. *In*: Penther A. & Zederbauer E. (eds) Ergebnisse einer naturwissenschaftlichen Reise zum Erdschias-Dagh (Kleinasien). *Annalen des kaiserlich-königlichen Naturhistorischen Hofmuseums in Wien* 20 (2–3): 114–154.

Ono H. & Jocqué R. 1986. Two new species of the family Zodariidae from Saudi Arabia (Arachnida: Araneae). *Fauna Saudi Arabia* 8: 6–11.

Ortiz D., Pekár S., Bilat J. & Alvaraz N. 2021. Poor performance of DNA barcoding and the impact of RAD loci filtering on the species delimitation of an Iberian ant-eating spider. *Molecular Phylogenetics and Evolution* 154: e106997. https://doi.org/10.1016/j.ympev.2020.106997

Ortiz D., Pekár S. & Dianat M. 2024. A consequential one-night stand: Episodic historical hybridization leads to mitochondrial takeover in sympatric desert ant-eating spiders. *Molecular Phylogenetics and Evolution* 199: e108167. https://doi.org/10.1016/j.ympev.2024.108167

Ovtchinnikov S.V. 2006. New genus and species of spiders of the subfamily Zodariinae (Araneae, Zodariidae) from Pakistan. *Vestnik Zoologii* 40: 77–79.

Ovtchinnikov S.V., Ahmad B. & Gurko V.O. 2009. *Parazodarion*, a new genus of the spider family Zodariidae (Araneae) from Asia. *Vestnik Zoologii* 43: 471474.

Özkütük R.S. 2022. A new ant-eating spider record (Aranei: Zodariidae) from Turkey. *Caucasian Entomological Bulletin* 18 (2): 239–242. https://doi.org/10.23885/181433262022182-239242

Pekár S., Šmerda J., Hrušková M., Šedo O., Muster C., Cardoso P., Zdráhal Z., Korenko S., Bureš P., Líznarová E. & Sentenská L. 2012. Prey-race drives differentiation of biotypes in ant-eating spiders. *Journal of Animal Ecology* 81 (4): 838–848. https://doi.org/10.1111/j.1365-2656.2012.01957.x

Pekár S., Cardoso P. & Meierrose C. 2003. Additions to the knowledge of Portuguese zodariid spiders (Araneae: Zodariidae). *Bulletin of the British Arachnological Society* 12 (9): 385–395.

Pekár S., Ortiz D., Sentenská L. & Šedo O. 2022. Ecological specialization and reproductive isolation among closely related sympatric ant-eating spiders. *Journal of Animal Ecology* 91 (9): 1855–1868. https://doi.org/10.1111/1365-2656.13767

Pickard-Cambridge F. 1902. A revision of the genera of Araneae or spiders with reference to their type species. *Annals and Magazine of Natural History* 7 (9): 5–20. https://doi.org/10.1080/00222930208678530

Pickard-Cambridge O. 1872. General list of the spiders of Palestine and Syria, with descriptions of numerous new species, and characters of two new genera. *Proceedings of the Zoological Society of London* 40 (1): 212–354. Available from https://ia801209.us.archive.org/34/items/biostor-99678/biostor-99678.pdf [accessed 18 Jul. 2025].

Pickard-Cambridge O. 1876. Catalogue of a collection of spiders made in Egypt, with descriptions of new species and characters of a new genus. *Proceedings of the Zoological Society of London* 44 (3): 541–630. https://doi.org/10.1111/j.1096-3642.1876.tb02595.x

Ramos M., Coddington J.A., Christenson T.E. & Irschick D.J. 2005. Have male and female genitalia coevolved? A phylogenetic analysis of genitalic morphology and sexual size dimorphism in web-building spiders (Araneae: Araneoidea). *Evolution* 59 (9):1989–1999. https://doi.org/10.1554/04-499.1

Roewer C.F. 1928. Araneae. *In*: Zoologische Streifzüge in Attika, Morea, und besonders auf der Insel Kreta, II. *Abhandlungen des Naturwissenschaftlichen Vereins zu Bremen* 27: 92–123.

Roewer C.F. 1960. Solifugen und Opilioniden - Araneae Orthognathae, Haplogynae und Entelegynae (Contribution à l'étude de la faune d'Afghanistan 23). *Göteborgs Kungliga Vetenskaps och Vitterhets Samhälles Handlingar* 8 (7): 1–53.

Seropian A., Bulbulashvili N., Otto S., Krammer H.-J., Kachlishvili N. & Datunashvili A. 2023. Picking pearls from the Silk Road: insights into the spider (Arachnida, Araneae) diversity in Georgia from the Caucasus barcode of life project. Part II. *Caucasiana* 2: 231–297. https://doi.org/10.3897/caucasiana.2.e110536

Seyyar O., El-Hennawy H.K., Demir H. & Türkeş T. 2008. The first record of genus *Pax* (Araneae: Zodariidae) in Turkey. *Serket* 11: 51–54.

Shafaie S., Pekár S. & Ortiz D. 2025. Integrative taxonomy of the Iberian *Zodarion* species of the *rubidum* and *styliferum* groups (Araneae: Zodariidae). *Zootaxa* 5624 (1): 1–69. https://doi.org/10.11646/zootaxa.5624.1.1

Simon E. 1864. *Histoire naturelle des Araignées (Aranéides)*. Roret, Paris. https://doi.org/10.5962/bhl.title.47654

Simon E. 1870. Sur les aranéides de la famille des Enydes qui habitant l'Espagne et le Maroc. *Revue et Magasin de Zoologie pure appliqée* 2 (22): 51–54, 97–103, 142–148.

Simon E. 1873. Aranéides nouveaux ou peu connus du midi de l'Europe. Extrait des *Mémoires de la Société royale des Sciences de Liège* 2 (5): 187–351. [separately paginated version (pp. 1–174) seen and cited here.] https://doi.org/10.5962/bhl.title.124166

Simon E. 1885. Études sur les Arachnides recueillis en Tunisie en 1883 et 1884 par MM. A. Letourneux, M. Sédillot et Valéry Mayet, membres de la mission de l'Exploration scientifique de la Tunisie. *In*: *Exploration scientifique de la Tunisie, publiée sous les auspices du Ministère de l'instruction publique. Zoologie – Arachnides*. Paris.

Simon E. 1889. Arachnidae transcaspicae ab ill. Dr. G. Radde, Dr. A. Walter et A. Conchin inventae (annis 1886–1887). *Verhandlungen der Kaiserlich-Königlichen Zoologisch-Botanischen Gesellschaft in Wien* 39: 373–386.

Simon E. 1890. Études arachnologiques. 22e Mémoire. XXXIV. Étude sur les arachnides de l'Yemen. *Annales de la Société entomologique de France* 6 (10): 77–124.

Simon E. 1893. *Histoire naturelle des Araignées. Deuxième édition, tome premier*. Roret, Paris. https://doi.org/10.5962/bhl.title.51973

Simon E. 1908. Étude sur les arachnides recueillis par M. le Dr. Klaptocz en Tripolitaine. *Zoologische Jahrbücher, Abteilung für Systematik, Geographie und Biologie der Tiere* 26: 419–438.

Stefanovska D., Naumova M., Prelik D., Deltshev C. & Lazarov S. 2008. Spiders from the Skopje region: a faunistic and zoogeographical analysis. *Historia Naturalis Bulgarica* 19: 35–49.

Strand E. 1906. Diagnosen nordafrikanischer, hauptsächlich von Carlo Freiherr von Erlanger gesammelter Spinnen. *Zoologischer Anzeiger* 30: 604–637, 655–690.

Strand E. 1908. Nordafrikanische Spinnen, hauptsächlich von Carlo Freiherr von Erlanger gesammelt (Dictynidae, Eresidae, Sicariidae, Dysderidae, Caponiidae, Palpimanidae, Zodariidae, Urocteidae, Pholcidae, Agelenidae, Pisauridae). *Archiv für Naturgeschichte* 74: 67–128. https://doi.org/10.5962/bhl.part.37388

Strand E. 1914. Zweite Mitteilung über Spinnen aus Palästina, gesammelt von Herrn Dr J. Aharoni. *Archiv für Naturgeschichte* 80 (A3): 173–186. https://doi.org/10.5962/bhl.part.26478

Thorell T. 1869. On European spiders. Part I. Review of the European genera of spiders, preceded by some observations on zoological nomenclature. *Nova Acta Regiae Societatis Scientiarum Upsaliensis* 7: 1–108.

Thorell T. 1873. *Remarks on Synonyms of European Spiders*. Part IV: 375–645. C.L. Lundström, Uppsala. https://doi.org/10.5962/bhl.title.69282

Thorell T. 1881. Studi sui Ragni Malesi e Papuani. III. Ragni dell'Austro Malesia e del Capo York, conservati nel Museo civico di storia naturale di Genova. *Annali del Museo Civico di Storia Naturale di Genova* 17: 1–720.

Vlassov J.P. & Sytshevskaja V.I. 1937. The spiders of the neighbourhood of Ashkhabad. T*rudy Soveta po Izuceniju Proizvoditeljnych Sil, Serija Turkmenskaja* 9: 247–258.

Walckenaer C.A. 1826. Aranéides. *In*: *Faune française ou histoire naturelle générale et particulière des animaux qui se trouvent en France, constamment ou passagèrement, à la surface du sol, dans les eaux qui le baignent et dans le littoral des mers qui le bornent par Viellot, Desmarrey, Ducrotoy, Audinet, Lepelletier et Walckenaer* 11–12: 1–96. Livraisou, Paris.

Walckenaer C.A. 1837. *Histoire naturelle des Insectes. Aptères. Tome premier*. Roret, Paris. https://doi.org/10.5962/bhl.title.61095

Walckenaer C.A. 1841. *Histoire naturelle des Insectes. Aptères. Tome deuxième*. Roret, Paris. https://doi.org/10.5962/bhl.title.61095

Walckenaer C.A. 1847. Dernier Supplément. *In*: Walckenaer C.A. & Gervais P. (eds) *Histoire naturelle des Insectes. Aptères. Tome quatrième*: 365–596. Roret, Paris. https://doi.org/10.5962/bhl.title.61095

Weiss I. 1987. *Zodarion geticum* n. sp., eine Spinne mit Duftorganen aus Rumänien (Arachnida, Araneae, Zodariidae). *Reichenbachia* 25: 103–106.

World Spider Catalog 2025. *World Spider Catalog. Version 26*. Natural History Museum Bern. Available from http://wsc.nmbe.ch [accessed 9 May 2025]. https://doi.org/10.24436/2

Wunderlich J. 1973. Beschreibung einiger bisher unbekannter Arten der Gattung *Zodarion* Walckenaer aus Südeuropa (Arachnida: Araneae: Zodariidae). *Senckenbergiana Biologica* 54: 171–176.

Wunderlich J. 1980. Zur Gattung *Zodarion* Walckenaer 1847 mit Neubeschreibungen (Arachnida: Araneae: Zodariidae). *Senckenbergiana Biologica* 60 (3/4): 229–240.

Wunderlich J. 2022. Some spiders of (Araneae) of the western Palearctic. *Beiträge zur Araneologie* 15: 4–78, 199.

Zamani A. & Marusik Y.M. 2021. Revision of the spider family Zodariidae (Arachnida, Araneae) in Iran and Turkmenistan, with seventeen new species. *ZooKeys* 1035: 145–193. https://doi.org/10.3897/zookeys.1035.65767

Zamani A. & Marusik Y.M. 2022. New taxonomic considerations in *Zodariellum* Andreeva & Tyshchenko, 1968 (Araneae: Zodariidae), with notes on the presence of cymbial diverticulum in different zodariid genera. *Zootaxa* 5178 (2): 161–177. https://doi.org/10.11646/zootaxa.5178.2.3

Zonstein S.L. 2025. A redescription of *Acanthinozodium odem* (Levy, 2007) comb. nov. (Araneae, Zodariidae), with first description of the male. *Zootaxa* 5583 (2): 391–397. https://doi.org/10.11646/zootaxa.5583.2.10

Zonstein S.L. & Ovtchinnikov S.V. 1999. A new Central Asian species of the spider genus *Lachesana* Strand, 1932 (Araneae, Zodariidae: Lachesaninae). *Tethys Entomological Research* 1: 59–62.

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