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A revision of the spider genus *Zaitunia* (Araneae, Filistatidae)

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Abstract. The spider genus *Zaitunia* Lehtinen, 1967 (Araneae, Filistatidae) is revised. It was found to include 24 species distributed in the Eastern Mediterranean, Middle East and Central Asia: ♀ *Z. afghana* (Roewer, 1962) (Afghanistan), ♀ *Z. alexandri* Brignoli, 1982 (Iran), ♀ *Z. akhanii* Marusik & Zamani, 2015 (Iran), ♂♀ *Z. annulipes* (Kulczyński, 1908) (Cyprus), ♂♀ *Z. beshkentica* (Andreeva & Tyshchenko, 1969) (Tajikistan, Uzbekistan), ♀ *Z. brignoliana* sp. nov. (Iran), ♂♀ *Z. ferghanensis* sp. nov. (Kyrgyzstan, Uzbekistan), ♀ *Z. feti* sp. nov. (Turkmenistan), ♀ *Z. halepensis* sp. nov. (Syria), ♀ *Z. huberi* sp. nov. (Afghanistan), ♀ *Z. inderensis* Ponomarev, 2005 (Kazakhstan), ♂♀ *Z. kunti* sp. nov. (Cyprus, Turkey), ♂♀ *Z. logunovi* sp. nov. (Kazakhstan, Kyrgyzstan), ♂♀ *Z. maracandica* (Charitonov, 1946) (Uzbekistan, Kazakhstan), ♂♀ *Z. martynovae* (Andreeva & Tyshchenko, 1969) (Tajikistan, Turkmenistan), ♀ *Z. medica* Brignoli, 1982 (Iran), ♂♀ *Z. minoica* sp. nov. (Greece), ♀ *Z. minuta* sp. nov. (Uzbekistan), ♀ *Z. persica* Brignoli, 1982 (Iran), ♂ *Z. psammodroma* sp. nov. (Turkmenistan), ♂♀ *Z. schmitzi* (Kulczyński, 1911), the type species (Egypt, Israel), ♂♀ *Z. spinimana* sp. nov. (Kazakhstan, Turkmenistan), ♂♀ *Z. wunderlichi* sp. nov. (Kyrgyzstan) and ♀ *Z. zonsteini* Fomichev & Marusik, 1969 (Kazakhstan). Twelve above-listed species are newly described, and males of *Z. annulipes*, *Z. beshkentica*, *Z. maracandica* and *Z. martynovae* are described for the first time. Two new combinations are established: *Z. annulipes* (Kulczyński, 1908) comb. nov., *ex Filistata*, and *Pholcoides monticola* (Spassky, 1941) comb. nov., *ex Zaitunia.* New data on distribution of the considered taxa are provided.

Keywords. Araneae, spiders, Filistatidae, Southwest and Central Asia, new species.

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Introduction

The spider family Filistatidae is a group of cribellate spiders possessing a peculiar combination of both primitive and specialized characters. This is not a species-rich family: by 2015, Filistatidae included 18 genera and only 123 species (World Spider Catalog 2015). Nevertheless, the family has a worldwide distribution, occurring in tropical, subtropical, and warm-temperate areas (Gray 1995; Ramírez & Grismado 1997). In the Palearctic region, it is mostly confined to the southern part: the Mediterranean, Middle East, Central Asia, and southern China and Japan (Helsdingen 2015; Platnick 2014; WSC 2015).

Until the revision of the cribellate spiders by Lehtinen (1967), all Palearctic filistatids were placed in the type genus *Filistata* Latreille, 1810 (for the complete list of synonymies, see Platnick 2014). Lehtinen (1967) described several new filistatid genera, including two from the West Palearctic: the widespread *Pritha* Lehtinen, 1967 and the monotypic *Zaitunia* Lehtinen, 1967. The genus *Pritha* was considered to include, among others, some species described by Simon (1868), Kulczyński *in* Chyzer & Kulczyński (1897), Strand (1914) and partially by Roewer (1962), whereas the monotypic *Zaitunia* included only *Filistata schmitzi* Kulczyński, 1911.

Zaitunia was treated as a monotypic genus until Brignoli (1982) described three new species from Iran; however, the genus diagnosis was not modified. Zonstein (1990) transferred four species described by Spassky (1941), Charitonov (1946) and Andreeva & Tyshchenko (1969) from *Filistata* to *Zaitunia*. Ponomarev (2005), Fomichev & Marusik (2013) and Marusik & Zamani (2015) described three more species in *Zaitunia*, and Zonstein *et al.* (2013) transferred to this genus one species previously described by Roewer (1962) as a member of Filistata. Thus, the genus currently is thought to have 12 species (World Spider Catalog 2015). However, only the type species is known from both sexes, whereas all other congeneric species are known exclusively from females or juveniles, and only from their original descriptions. Additionally, the genus has never been revised, making its limits with *Filistata* unclear. Hence, clarifying this problem is one of the objectives of the present study.

Zonstein (2009b) noted that a male of *Z. schmitzi* (Kulczyński, 1911) differed in many details from males of Central Asian species, and suggested that the latter ones do not belong to *Zaitunia* but should be placed in a distinct genus. However, in the course of the present study, we recognised an intermediate state of several characters in males from Crete, Cyprus, and Turkey. Thus, all these groups are considered here as belonging to the same genus.

In this study, we examine all available material of this genus (340 specimens), revealing a total of 24 species of *Zaitunia*, 12 of which are described as new.

In view of the newly obtained data, *Zaitunia*, with 24 species, becomes the most species-rich genus of the family, vs 21 in *Pritha* and 19 in *Filistata* (WSC 2015). The goal of this work is to revise, delimit and re-diagnose *Zaitunia*, and to study its taxonomy, distribution, and relationships.

Material and methods

Depositories

AMNH = American Museum of Natural History, New York, USA
HUJ = Hebrew University, Jerusalem, Israel
IBPS = Institute for Biological Problems of the North, Magadan, Russia
ISEA = Institute for Systematics and Ecology of Animals, Novosibirsk, Russia
IZW = Institute of Zoology, Warsaw, Poland
NMG = Naturhistoriska Museet, Göteborg, Sweden
MNHN = Muséum national d'Histoire naturelle, Paris, France

MSNV = Museo Civico di Storia Naturale di Verona, Verona, Italy
SMF = Senckenberg Museum, Frankfurt am Main, Germany
TAU = Steinhardt Museum of Natural History, Tel-Aviv University, Israel
ZISP = Zoological Institute, Russian Academy of Sciences, St. Petersburg, Russia
ZMMU = Zoological Museum of Moscow University, Russia
ZMPU = Zoological Museum of Perm University, Russia
ZMTU = Zoological Museum of Turku University, Finland

Comparative material examined

Filistata canariensis Schmidt, 1976: holotype, ♀, from Fuerteventura Isl. (Canary Islands), Spain (SMF 28841).

Filistata gomerensis Wunderlich, 1992: holotype, ♂ (SMF 37181) and paratype, ♀ (SMF 602199), from La Gomera Isl. (Canary Islands), Spain.

Filistata insidiatrix Forskål, 1775: AZERBAIJAN: 2 ♂♂, 16 ♀♀, Lenkoran area, Aurora, 23–28 Apr. 2001, Y.M. Marusik (ZMMU). ISRAEL: 8 ♂♂, Haifa, Mt Carmel, university campus, 29 Dec. 2010, Y.M. Marusik (ZMMU); 2 ♂♂, Mt Gilboa, 30 Jan. 2011, L. Friedman & C. Drees (TAU); 8 ♀♀, Lake Kinneret, Digit, 14 Sept. 2009, S. Zonstein (TAU); 1 ♂, 1 ♀, Judean Hills, Adullam, 1–30 Apr. 2003, U. Columbus & T. Levanony (TAU). TURKEY: 8 ♂♂, 4 ♀♀, subad., Antalya Prov., Avsallar, 6 Jan. 2013, Y.M. Marusik (ZMMU).

Filistata nigra Simon, 1882 = *Sahastata nigra*: syntypes, 28 ♀♀, Muscat, Oman (MNHN).

Filistata pseudogomerensis Wunderlich, 1992: holotype, ♂ (SMF 37180) and 2 ♀♀, paratypes (SMF 60049, 60277), from Tenerife Isl. (Canary Islands), Spain.

Filistata teideensis Wunderlich, 1992: 1 ♂, paratype, Tenerife Isl. (Canary Islands), Spain (SMF 60226).

Kukulcania hibernalis (Hentz, 1842): USA: 1 ♂, 6 ♀, Florida, Ocala Hot Springs, 2 Aug. 1994, Yu. M. Marusik (IBPN).

Microfilistata ovchinnikovi Zonstein, 2009: holotype, ♂ and 3 paratypes,♀♀, Kyzyl-Dzhar, Badhyz Nature Reserve, Turkmenistan (TAU).

Sahastata sinuspersica Marusik, Zamani & Mirshamsi, 2014: holotype, ♀, Bandar-e'Abbās, Iran (SMF).

Photographs

Photographs were taken using a Zeiss Discovery V20 stereo microscope with a Canon PowerShot G9 camera and an Olympus SZX16 stereo microscope with an Olympus E-520 camera, and prepared using the CombineZP software. Scanning electron micrographs were made using the SEM JEOL JSM-5200 scanning microscope at the Zoological Museum, University of Turku, Finland. Illustrations of the endogyne, abdomen and spinnerets were made after maceration in a 20% potassium hydroxide aqueous solution and exposure for a few minutes in an alcohol/water solution of Chlorazol Black. It is worth noting that the receptacles in all *Zaitunia* species are very small and weakly sclerotized and therefore can easily be overlooked. Differential staining with Chlorazol Black is essential both for observing and photographing receptacles. In most cases, to make photographs of the endogyne and sometimes the palps more clear and to show more details, we placed a dark background in the case of transmission microscopy, or pieces of black plastic (or black paper), or minutia pins near specimens to be photographed.

Photographs of the somatic characters and some of the palps were taken in dishes with paraffin on the bottom to hold the specimens in the right position. Endogynes were photographed on slides either under an Olympus SZX16 or an Olympus BH-2. Small pieces of cotton were used to fix the specimens in the correct position. Background maps were taken from the website http://www.maps-for-free.com.

Measurements

Measurements were made to an accuracy of 0.01 mm. Lengths of leg and palp segments were measured on the dorsal side, from the midpoint of the anterior margin to the midpoint of the posterior margin. All measurements are given in millimetres.

Spination

Since leg spination in most species appears to be almost invariable and thus has no significant taxonomic value, a generalised survey is provided in the description of the genus and particular variants are given only when they noticeably differ from the prevalent case.

Abbreviations

ALE = anterior lateral eyes
ALS = anterior lateral spinnerets
AME = anterior median eyes
As = aciniform gland spigot
Ba = bald area (on cymbium and around calamistrum)
Bl = bulbal lamella
Bn = notch of bulb
Cr = cribellum
Cs = strong cymbial setae
Ef = fold of endogyne
Em = embolus proper
En = neck of embolus
Fc = furrow on calamistral ridge
Fs = fine seta
Kn = keel of embolic neck
Ma = major ampullate gland spigot
mAP = minor ampullate gland spigot
Pc = probable paracribellar gland spigot
Pi = piriform gland spigot
PLE = posterior lateral eyes
PLS = posterior lateral spinnerets
PME = posterior median eyes
PMS = posterior median spinnerets
Rc = calamistral ridge
So = slit organ
Sp = spermophore
Tb = brush of strong spines on ventral part of tibia
To = tarsal organ
Tr = trachea
Ts = tracheal spiracle

Results

Class Arachnida Cuvier, 1812
Order Araneae Clerck, 1757
Family Filistatidae Ausserer, 1867

Genus ***Zaitunia*** Lehtinen, 1967

Zaitunia Lehtinen, 1967: 275.

Zaitunia – Zonstein 2009b: 126. — Fomichev & Marusik 2013: 85. — Zonstein *et al*. 2013: 69. — Marusik & Zamani 2015: 129.

Type species

Filistata schmitzi Kulczyński, 1911, by monotypy.

Diagnosis

Zaitunia differs from other filistatine genera by a distinctly domed carapace lacking thoracic fovea, with a broadly rounded subvertical clypeus and by a shortened labium that is wider than long (in *Filistata* and *Kukulcania* Lehtinen, 1967 the clypeus is subhorizontal with a lateral constriction, without thickened setae, and the labium is distinctly longer than wide). It differs from *Sahastata* Benoit, 1968 by a uniseriate calamistrum (consisting in the latter genus of three setae rows) and from *Microfilistata* Zonstein, 1990 by spinose tarsi in females and pseudosegmented tarsi in males (vs aspinose and integral, respectively). *Zaitunia* can be recognized due to a gap-setose calamistrum (as shown in Figs 2C–E), a short and wide male palpal tibia (which is longer and more slender in other members of the subfamily; only in *Zaitunia* is it noticeably wider than the palpal femur) and a characteristic dense comb on the clypeus, composed of stout reclined bristles and much more developed (especially in males) than in other genera of the Filistatinae.

Description

Size. Small to medium-sized filistatid spiders with body length 2.5–8.0 mm.

Colour and pattern. Colour varying from pale yellowish-white to dark brown; carapace with more or less darkened eye tubercle, lateral margins, and foveal area. Pattern of carapace lacking in pale specimens. Legs unicolor or with dark, broad annulations. Abdomen with or without dorsal pattern composed by longitudinal median dark stripe or band and in some species with transverse stripes. Venter of abdomen in most species without pattern, book lungs usually paler than other parts, genital area and area in front of spinnerets darkened in some species.

Prosoma. Carapace distinctly domed, broad oval, widely rounded anteriorly, covered with sparse thick bristles (Figs 1A–B, 42). Some bristles, usually one pair very strong and long (about ½ of carapace width). Thoracic fovea opened posteriorly and appears as shallow pit or indistinct. Cephalic area flattened, usually with median row of strong proclined bristles. Clypeus relatively short and subvertical, with ± developed comb of stout reclined bristles (Fig. 1C). Eye tubercle low. ALE > PLE ≈ PME > AME. Median ocular quadrangle wide trapezoidal. Chelicerae small, subvertical; cheliceral furrow and fang very short; cheliceral lamina well-developed. Sternum subcircular, sigillae indistinct. Labium slightly wider than long. Maxilla trapezoidal, with lateral corner about 90°. Palps in females short and thick, with short dentate claw (Fig. 1E).

Legs. Leg formula 1423 (most species) or 4123. Leg spination very uniform in all species, but as a rule, males have more spines than conspecific females; additionally, these spines in males are usually longer.

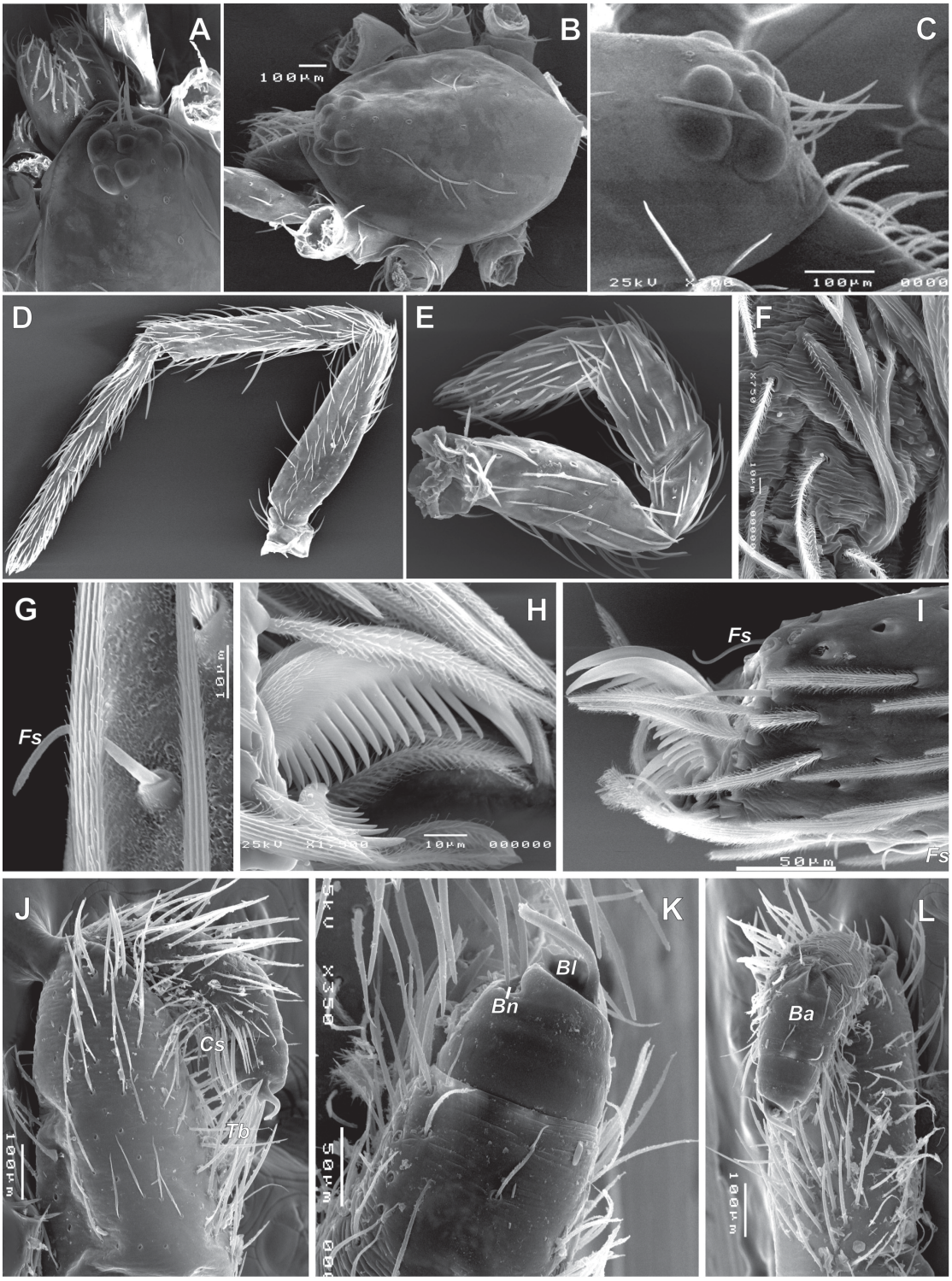

Fig. 1. Morphology of *Zaitunia*. **A–C**. *Z. martynovae* (Andreeva & Tyshchenko, 1969), subadult ♀ from Gandzhina. **D–I**. Same, adult ♀. **J–L**. *Z. logunovi* sp. nov., paratype, ♂. — **A**, **C**. Anterior part of prosoma, dorsal and lateral. **B**. Prosoma, dorsal. **D**. Leg IV, prolateral. **E**. Palp, prolateral. **F**. Cuticle and setae covering venter of abdomen. **G**. Leg surface showing large and fine (possibly chemosensory) setae. **H–I**. Tarsal claws of leg IV, prolateral. **J–L**. Terminal part of palp, prolateral, dorsal and ventro-retrolateral. Abbreviations: see Material and methods.

All femora with one basodorsal spine and 1–2 smaller spines in pro- and retrodistal position. Patellae unarmed. Tibiae with 2–6 ventral spines (can be absent on tibiae I–II in females). Metatarsi usually long and slender, with 6–9 ventral spines, but in males of *Z. psammodroma* sp. nov. metatarsi shortened, dilated and covered with numerous ventrodistal spines. Tibiae and metatarsi with few (1–3) inclined trichobothria, which are 1.2–2 times shorter than diameter of the segment. Trichobotrial bases low and inclined, smooth outside and densely rifled inside (Fig. 2H–I). Tarsi ventrally with few small spines, and with short and dense bristles. Male tarsi curved and pseudosegmented. Tarsal organ with wide inclined opening (Fig. 2F–G, J). Calamistrum short, present in females only, formed by one composite row of a few thick, curved and flattened setae on a raised keel (crest); median part of calamistrum without setae (Fig. 2A–E). Paired tarsal claw narrow and slightly curved, with row of 8–15 long, dense teeth (Fig. 1H). Unpaired claw curved, with 5–8 dense teeth (Fig. 1I).

Abdomen. Abdomen elongate oval, overhangs posterior part of carapace. Spinnerets shifted anteriorly. Spinneret group set relatively far from posterior edge of abdomen. Cribellum small, bipartite trapezoidal, present in both sexes (Figs 3A, D, 4D) but reduced in size and lacking functional spigots in males. ALS and PLS subequal in size (Figs 3A, C, 4C); PMS much smaller, with two probably paracribellar spigots (Fig. 4F, I). Tracheal spiracle wide and located in posterior ⅓ of abdomen between epigastral furrow and spinnerets (Fig. 3A–C). Tracheae thin and short (about as long as spiracle width). Two pairs of tracheal stems: median branches longer and inclined sideward, lateral branches much shorter (Figs 3B, 33E–F). As in the prosoma and legs, abdomen covered with ciliate hairs only, plumose hairs absent.

Male palp. Relatively short compared to other filistatines, although 1.3–1.8 longer than carapace. The shortest palp in comparison to the carapace is in the type species (palp/carapace length = 1.3). Femur unmodified, cylindrical; equal in length to or longer than tibia. Patella unmodified, short, about one third of femur length. Tibia long and swollen, 1.5–2 times thicker than femur; ventromedially with patch of dense, suberect setae.

Cymbium. Conical at base, and the rest is cylindrical. Only *Z. logunovi* sp. nov. has a conical dorsal outgrowth in the terminal one-third (Fig. 1K–L). Tip of cymbium without dorsoapical excavation, its margin varies from strongly slanting (some specimens of *Z. schmitzi*, Fig. 7A–D) to almost straight (perpendicular to axis of cymbium). Dorsum of cymbium with brush of dense, long suberect hairs; some hairs as long as cymbium. One species, *Z. logunovi* sp. nov., with set of thick hairs along ventral and lateral edges of cymbium (Fig. 1J). Terminal part of dorsum hairless, semitransparent.

Bulb. Ranges from conical (most of the species) to globular (*Z. logunovi* sp. nov., *Z. minoica* sp. nov.) and subcylindrical (*Z. schmitzi* (Kulczyński, 1911)), basal part embedded in cymbium. Length of bulb + embolic part varies from long (longer than cymbium) to short (shorter than cymbium). Spermophore forms 3–4 coils, coils not spaced; spermophore ranges from very thick and occupying the whole bulb (*Z. schmitzi*) to moderately thin.

Embolus (embolic part of the bulb). Without distinct separation from the tegulum. We recognize the neck of the embolus (*Ne* = part of embolic base wider than spermophore) and the embolus "proper" (*Em* = diameter equal to diameter of spermophore). Embolus can be distinguished from the neck by its dark colour, much darker then rest of the bulb. Embolic part of bulb variable in size and shape, from very short, lacking neck (*Z. logunovi* sp. nov., *Z. schmitzi*) to long, longer than bulb and as long as cymbium (*Z. minoica* sp. nov.). Embolic part from straight to screw-shaped (*Z. logunovi* sp. nov., *Z. schmitzi*). Embolic neck in most species with distinct ventral keel or without (*Z. minoica* sp. nov.). Shape of keel in some cases is species-specific. Tip of embolic part bent ventrally or screw-shaped.

Endogyne (vulva). Adult females can be hardly recognized. Compared to subadult females, they have a slightly swollen edge of the genital area. Receptacles are enveloped in a trapezoidal or semicircular

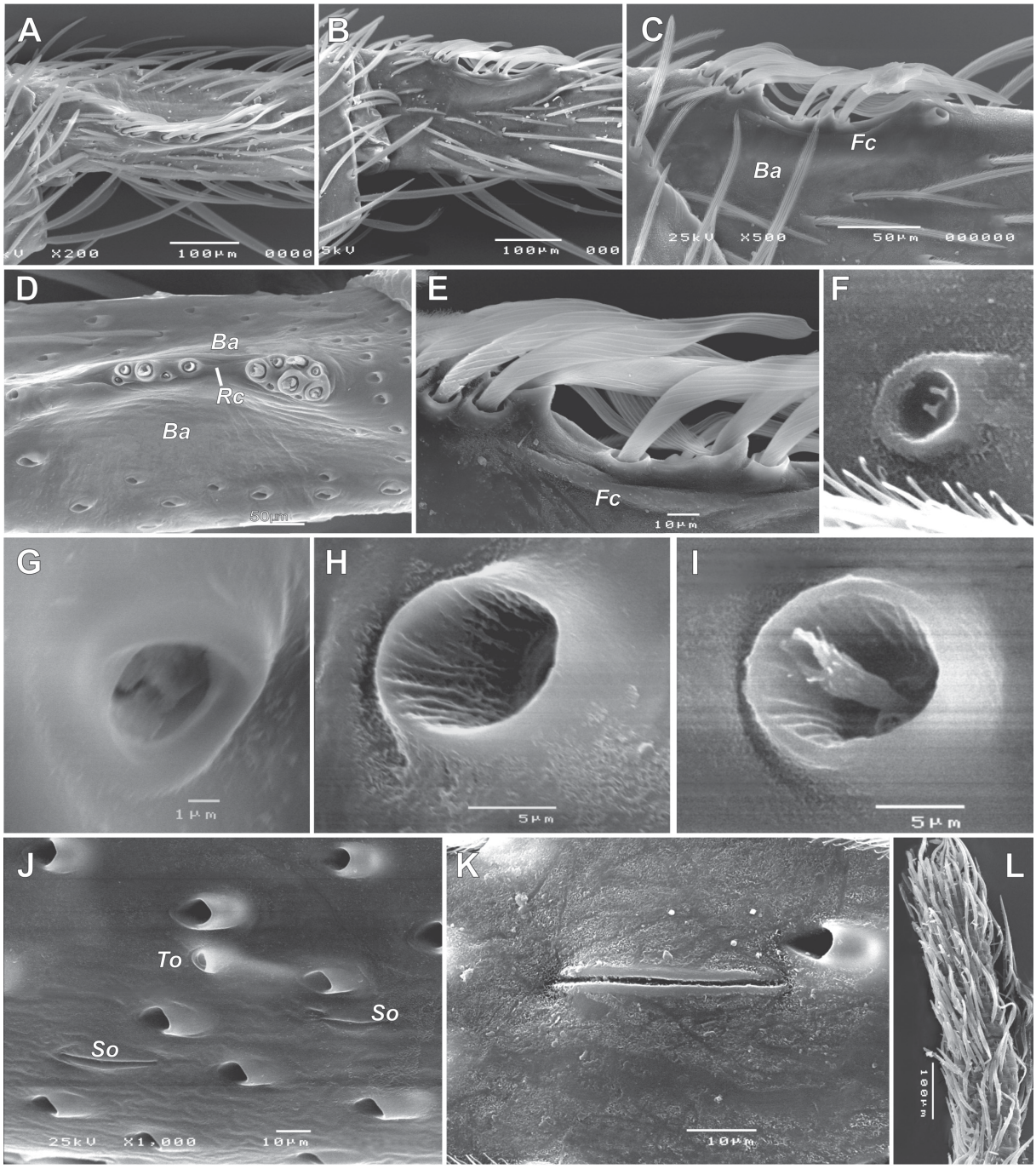

Fig. 2. Morphology of *Zaitunia* leg. **A–K**. *Z. martynovae* (Andreeva & Tyshchenko, 1969), ♀ from Gandzhina. **L**. *Z. logunovi* sp. nov., paratype, ♂. — **A**. Calamistrum, dorsal. **B–C**. Same, lateral. **D**. Calamistral area with removed setae, dorsal. **E**. Setae of calamistrum, lateral. **F–G**. Tarsal organ. **H–I**. Base of trichobothria. **J**. Part of dorsal leg surface showing two slit organs. **K**. Long slit organ. **L**. Part of male tarsus IV, prolateral, showing pseudosegmentation. Abbreviations: see Material and methods.

fold formed by the epigastric integument (making it difficult to observe and figure correctly). Number of receptacles varies from one to two pairs. In species with four receptacles, all receptacles are usually isolated from each other, but in some cases median and lateral receptacles are connected with each other and can appear as one receptacle with two heads. Shape of receptacles varies and can be cylindrical (Figs 9D–F, 21D–G, 39A–D), globular (Figs 7E–K, 10F–G, 11F–G, 27H, 30C–E), subconical (Fig. 25), or dumbbell- or boomerang-shaped (*Z. afghana* (Roewer, 1962), *Z. brignoliana* sp. nov.). Cylindrical receptacles can be bent or straight. Straight cylindrical and subconical receptacles have a corrugated transparent stem. Median (or mesal) receptacles are usually longer and wider than lateral, although in some species the opposite is true. Receptacles bear glandular pores (not recognized in *Z. persica* Brignoli, 1982). Each pore equipped with a kind of cilia. Pores can be evenly spread along receptacles (in species lacking a corrugated stem) or can be concentrated on the heads. In some species, females are almost indistinguishable from each other by the structure of the endogyne (e.g., *Z. ferghanensis* sp. nov., *Z. maracandica* (Charitonov, 1946), *Z. wunderlichi* sp. nov.), whereas males belonging to the same species are easily differentiated (cf. Figs 33A–B, D, 34E–J, 38E–I and 32C–G, 35A–D, 37A–C, respectively).

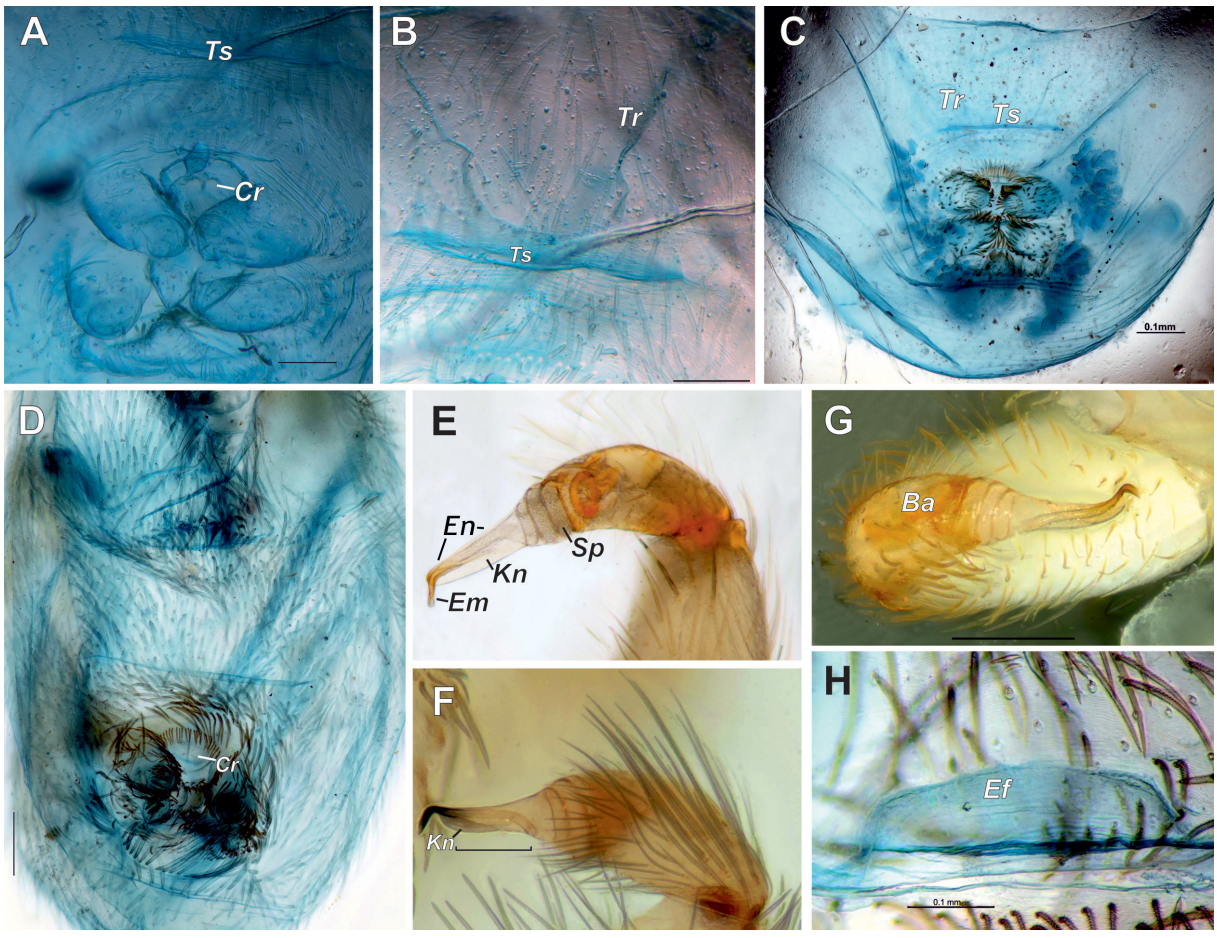

Fig. 3. Morphology of *Zaitunia* spp. **A–B**. *Z. logunovi* sp. nov., paratype, ♂. **C**. *Z. schmitzi* (Kulczyński, 1911), ♀ from Jerusalem area. **D**, **H**. *Z. martynovae* (Andreeva & Tyshchenko, 1969), ♀ from Gandzhina. **E**, **G**. *Z. wunderlichi* sp. nov., paratype, ♂. **F**. *Z. beshkentica* (Andreeva & Tyshchenko, 1969), ♂ from Khurshedi. — **A–D**. Abdomen, ventral. **E–F**. Terminal part of palp, retrolateral. **G**. Same, dorsal. **H**. Genital area of subadult female. Abbreviations: see Material and methods. Scale bars: A–B, D, G = 0.2 mm; C, H = 0.1 mm.

Composition

24 species: *Z. afghana* (Roewer, 1962) (Afghanistan), *Z. akhanii* Marusik & Zamani, 2015 (Iran), *Z. alexandri* Brignoli, 1982 (Iran), *Z. annulipes* (Kulczyński, 1908) (Cyprus), *Z. beshkentica* (Andreeva & Tyshchenko, 1969) (Uzbekistan, Tajikistan), *Z. brignoliana* sp. nov. (Iran), *Z. ferghanensis* sp. nov. (Kyrgyzstan, Uzbekistan), *Z. feti* sp. nov. (Turkmenistan), *Z. halepensis* sp. nov. (Syria), *Z. huberi* sp. nov. (Afghanistan), *Z. inderensis* Ponomarev, 2005 (Kazakhstan), *Z. kunti* sp. nov. (Turkey, Cyprus), *Z. logunovi* sp. nov. (Kazakhstan, Kyrgyzstan), *Z. maracandica* (Charitonov, 1946) (Uzbekistan, Kazakhstan), *Z. martynovae* (Andreeva & Tyshchenko, 1969) (Turkmenistan, Tajikistan), *Z. medica* Brignoli, 1982 (Iran), *Z. minoica* sp. nov. (Greece), *Z. minuta* sp. nov. (Uzbekistan), *Z. persica* Brignoli, 1982 (Iran), *Z. psammodroma* sp. nov. (Turkmenistan), *Z. schmitzi* (Kulczyński, 1911) (Egypt, Israel), *Z. spinimana* sp. nov. (Kazakhstan, Turkmenistan), *Z. wunderlichi* sp. nov. (Kyrgyzstan) and *Z. zonsteini* Fomichev & Marusik, 1969 (Kazakhstan).

Species grouping

To assist with identifications, the species treated here are assigned to seven informal species groups. These assignments are preliminary, considering that males in many species are unknown, and not based on a monophyletic grouping, though some of the groups may actually reflect phylogenetic relationships.

Distribution

The genus is known from Crete to Eastern Kazakhstan, south to the Sinai Peninsula in Egypt, Fars and Kerman Provinces of Iran and Southeastern Afghanistan, and north to Northwestern and Northeastern Kazakhstan (Figs 46–49).

Ecology

Most species inhabit more or less arid habitats: deserts, semi-deserts, steppes, maquis or deciduous shrubland, where spiders may occur under rocks and in crevices of clay or rocky escarps where they build small tubular webs (see Fig. 50). Adult males were collected manually and by pitfall traps, generally during late spring or summer. Only one species, *Z. wunderlichi* sp. nov., was found in a humid dense broad-leaved and mixed mountain forest dominated by walnut (*Juglans regia*). Concluding from the known data, *Zaitunia* avoid the true sandy deserts, with the only exception being *Z. psammodroma* sp. nov., known currently only from males. Contrary to all other congeners, males of *Z. psammodroma* sp. nov. possess short and distally dilated metatarsi IV with numerous ventrodistal spines, a clear adaptation to moving on loose sandy substrate. *Zaitunia* species are found from the seashore to altitudes over 2000 m (*Z. beshkentica*).

Key to the species groups of *Zaitunia*

Males

(Males in the *Zaitunia persica*-group are unknown.)

1. Cymbium longer than bulb, embolus short, without base, spermophore occupies whole bulb (Figs 7A–B, 20A, C) ……2
– Cymbium shorter than bulb or subequal in length, embolus with long base, spermophore in base of embolus straight (Figs 9A–C, 10I, 13C–D, 24A–D, 27C, E, 28G–I, 30H–J, 32D–G, 35A–D, 37A–C) ……3

2. Dark coloured, carapace often without pattern, cymbium without retrolateral brush of modified setae, tegulum cylindrical with very wide spermophore occupying whole bulb (Figs 7A–D, 43A) …… ……***schmitzi*-group**

– Pale coloured, cymbium with retrolateral brush of modified setae, tegulum rounded, terminal coil of spermophore 2 times thinner than basal coil (Figs 20A–C, 43E) ……***logunovi*-group**

3. Pale coloured; base of embolus with more or less developed ventral keel, either embolus completely screw-shaped or tip of embolus hooked or curved gradually (Figs 24A–D, 27C, E, 28G–I, 30H–J, 32D–G, 35A–D, 37A–C, 43F, 44) ……4
– Dark coloured; base of embolus without ventral keel, only tip of embolus screw-shaped (Figs 9A–C, 10I, 13C–D, 43B–D) ……***annulipes*-group**

4. Embolus curved or hooked apically (Figs 28G–I, 30H–J, 32D–G, 35A–D, 37A–C, 44B–F) ……5
– Embolus screw-shaped (Figs 24A–D, 27C, E, 43F, 44A) ……s***pinimana*-group**

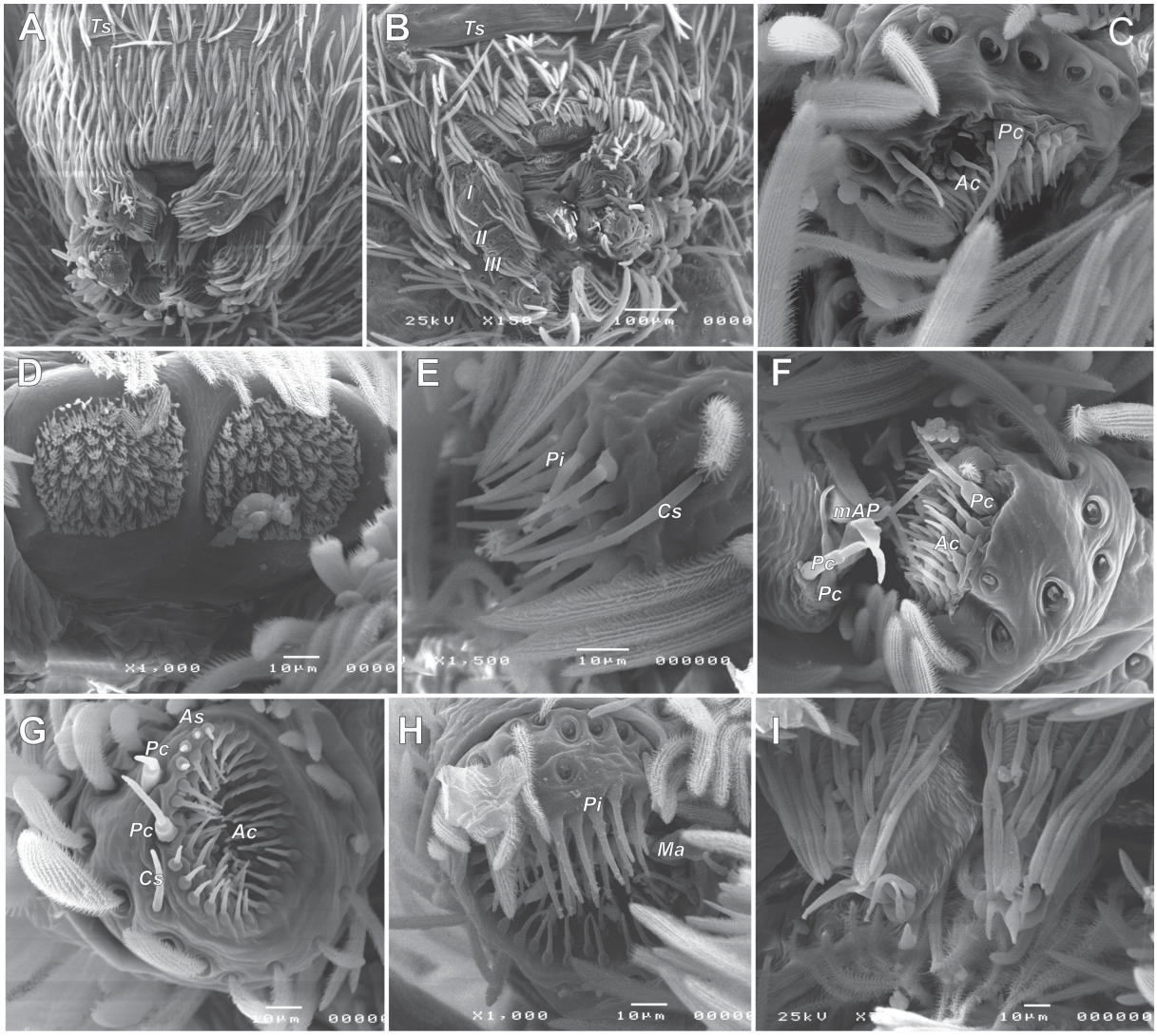

Fig. 4. Spinneret morphology of *Zaitunia martynovae* (Andreeva & Tyshchenko, 1969), adult ♀ from Gandzhina. **A–B**. Spinnerets and tracheal spiracle. **C**. Right posterior lateral spinneret. **D**. Cribellum. **E**. Left anterior lateral spinneret. **F**. Left posterior median and lateral spinnerets. **G**. Right posterior lateral spinneret, frontal. **H**. Right anterior lateral spinneret. **I**. Posterior median spinnerets. Abbreviations: see Material and methods. Scale bars: A–B = 100 μm; C–I = 10 μm.

5. Embolus with raised keel, hooked apically (Figs 28G–I, 30H–J, 32D–G, 44C–D) ……
……***beshkentica*-group**
– Embolus with vestigial keel, curved apically (Figs 35A–D, 37A–C, 44E–F) …***maracandica*-group**

Females

(Females of the *spinimana*, *beshkentica* and *maracandica* species groups can be confidently distinguished from each other only by the shape of the receptacles, but this feature is not a group-specific character).

1. Intensely brown-coloured spiders; abdomen uniformly brown; legs always with darker though diffuse fasciae (Figs 5A–B, 6A, 8E–G, 10A–E, 11A–E, 12A–B, D–E) ……2
– Pale yellowish-coloured spiders; abdomen pale yellow or yellowish-grey, with or without darker dorsal pattern; legs often uniformly pale without darker fasciae (Figs 14A–D, 15A–B, 16C, 17A–B, 18A, 19A–D, 22A–G, 26A, 27F, 29A–H, 30A–B, 31A, 34A, C–D, 35K, 36A–C, 38A–D, 39A–C, 41A–C) ……3

2. Legs I–IV with broader and less contrasting fasciae (Figs 5A–B, 6A); receptacles as in Figs 5C–D, 7E–K ……***schmitzi*-group**
– Legs I–IV with narrower and more contrasting fasciae (Figs 8E–G, 10A–E, 11A–E, 12A–B, D–E); receptacles as in Figs 9D–F, 11F–G, 12G–I ……***annulipes*-group**

3. Four distinct receptacle heads (Figs 21, 25, 26B–C, E, 27H–I, 29I–K, 30C–E, 32H–I, 35E–J, 36D–E, 38E–I, 40, 41I–M) ……4
– Two receptacle heads, entire or subdivided (Figs 14G–K, 15E–G, 16A–B, D–F, 17D, F–H, 18D–E) ……***persica*-group**

4. Median receptacles tubular, not diverging laterally and always considerably longer than lateral pair (Fig. 21) ……***logunovi*-group**
– Median receptacles often rounded, of same size or even shorter than lateral pair (Figs 26B–C, E, 27H–I, 30C–E, 33A–B, D, 35E–J, 38E–I, 40, 41I–M); if longer, they diverge laterally as in Figs 25, 29I–K, 36D–E ……5

5. Receptacles as in Figs 25, 26B–C, E, 27H–I ……s***pinimana*-group**
– Receptacles different (Figs 29I–K, 30C–E, 32H–I, 34E–J, 35D–E, 37E–I, 39, 41I–M) ……6

6. Receptacles as in Figs 29I–K, 30C–E, 33A–D ……***beshkentica*-group**
– Receptacles different (Figs 35E–J, 36D–E, 38E–I, 40, 41I–M) ……***maracandica*-group**

Zaitunia schmitzi species group

Remarks

This group unites intensely dark-coloured species. The clypeus, the eye tubercle and the carapace margins are only slightly darker than the general background colour. The abdomen is uniformly dark-coloured. Legs I–IV dark, with very broad ever darker fasciae. The male palpal tibia is rather short. A long and large tegulum is cigar-shaped; it is subequal in length to the cymbium. The embolus is a short and sideward-directed lamina. The vulva is provided with two pairs of receptacles. Two species are included: *Z. schmitzi* (Kulczyński, 1911) from Egypt and Israel and (tentatively, due to unknown male characters) *Z. halepensis* sp. nov. from Syria.

Key to species of the *Zaitunia schmitzi*-group
(Male of *Z. halepensis* sp. nov. is unknown.)

1. Males (palpal structures as shown in Fig. 7A–D) ……***Z. schmitzi*** (Kulczyński, 1911)
– Females ……2

2. Prosoma and legs brown to dark brown; median receptacles minute and globulate, smaller than lateral pair (Fig. 7E–K). Egypt (Sinai) and Israel ……***Z. schmitzi*** (Kulczyński, 1911)
– Prosoma and legs deep brownish yellow; median receptacles large and clublike, much longer than small lateral pair (Fig. 5C–D). Syria ……***Z. halepensis*** sp. nov.

Zaitunia halepensis sp. nov.
urn:lsid:zoobank.org:act:E56085AC-B0D0-4AF3-8F4A-075C1A563A0F
Fig. 5

Diagnosis

The body and leg pattern is similar to that in *Z. schmitzi* (a uniformly dark abdomen and very wide dark fasciae on the legs) rather than the colouration observed in the members of the *annulipes*-group. *Zaitunia halepensis* sp. nov. differs from all other congeners, possessing two pairs of receptacles by configuration of the enlarged median pair which have considerably dilated heads (Fig. 5C–D).

Etymology

The specific name refers to the type locality: Aleppo (Haleb).

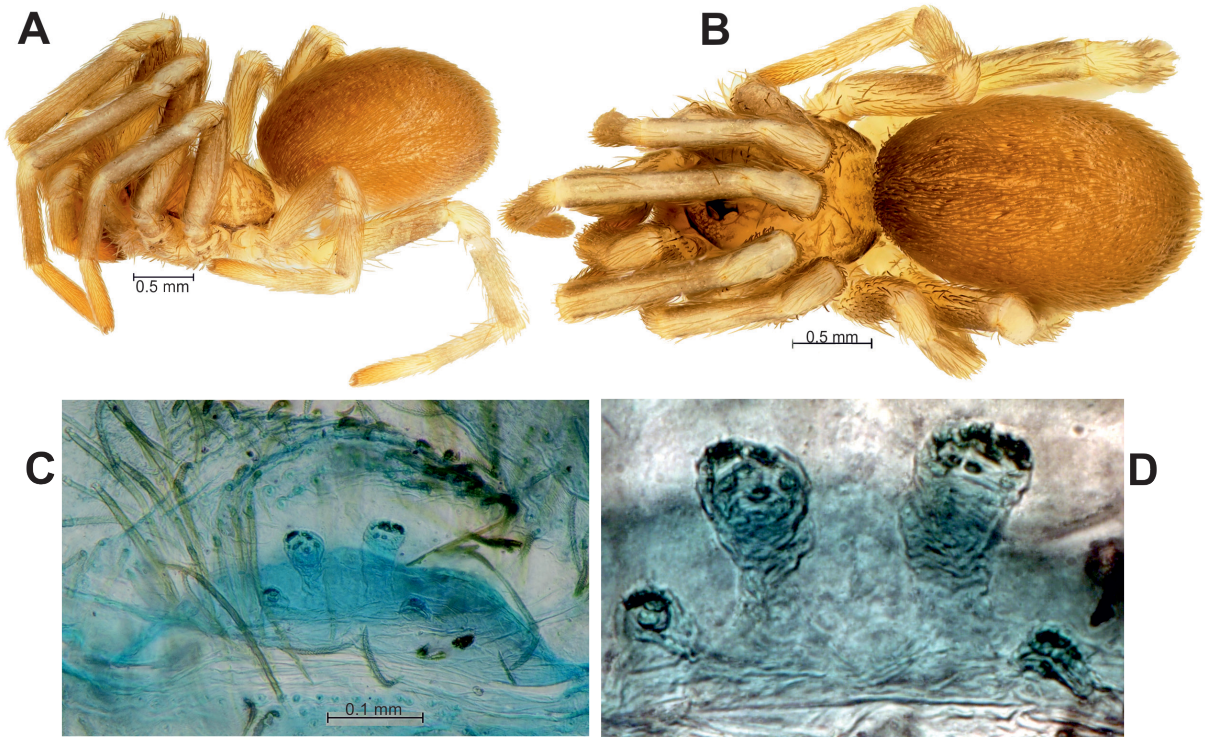

Fig. 5. *Zaitunia halepensis* sp. nov., holotype, ♀. **A–B**. Habitus, lateral and dorsal. **C–D**. Endogyne.

Type material

Holotype

SYRIA: ♀, road from Aleppo to Latakia, eastern slope of Rug rift valley, 20 Mar. 1979, R. Kinzelbach (SMF).

Description

Female

Habitus. See Fig. 5A–B.

Body length. 3.22.

Colour. Carapace brownish-yellow with rich darker brownish pattern occupying clypeus, postocular area, radial grooves and, partially, the surface between those grooves; eye tubercle and narrow bands along margins dark brown; labium and sternum pale brownish-yellow; chelicerae, palps and legs light brownish-yellow with darker diffuse brownish spots and fasciae; abdomen uniformly yellowish-brown.

Carapace. 1.28 long, 1.05 wide.

Eyes. AME 0.07, ALE 0.13, PLE 0.11, PME 0.08, AME–AME 0.05.

Leg measurements.

	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
Palp	0.65	0.27	0.45	—	0.57	1.94
I	1.35	0.43	1.32	1.18	0.86	5.14
II	0.98	0.38	0.87	0.85	0.64	3.72
III	0.88	0.35	0.72	0.73	0.53	3.21
IV	1.26	0.46	1.02	0.85	0.78	4.07

Endogyne (Fig. 6C–D). Median receptacles clublike, almost 3 times longer than globular lateral receptacles, and separated by one diameter of their heads.

Male

Unknown.

Distribution

The species is known only from the type locality (Fig. 46).

Zaitunia schmitzi (Kulczyński, 1911)
Figs 6–7, 43A, 50A

Filistata schmitzi Kulczyński, 1911: 13, pl. 1, fig. 3 (♂♀).

Zaitunia schmitzi – Lehtinen 1967: 275, fig. 21 (♂♀). — Zonstein 2009b: 127, figs 1–12 (♂♀).

Diagnosis

Males differ from those of all other congeners by a long and large cigar-shaped tegulum, a very thick spermophore occupying the whole bulb, a strongly slanting tip of the cymbium and by the extremely short and sideward-directed embolus (vs smaller coniform and longer forward-directed ones in other species). Females are easily distinguished by their intense dark coloration (darker than that in any other

species) as well as their low and small globular receptacles, with outer lobe only slightly exceeding the median one in size (Fig. 7E–K).

Type material

Lectotype (designated by Zonstein 2009b: 127)
ISRAEL: ♂, Jerusalem (the current depository unknown; not examined).

Paralectotype
ISRAEL: 1 ♀, Galilee (the current depository unknown; not examined).

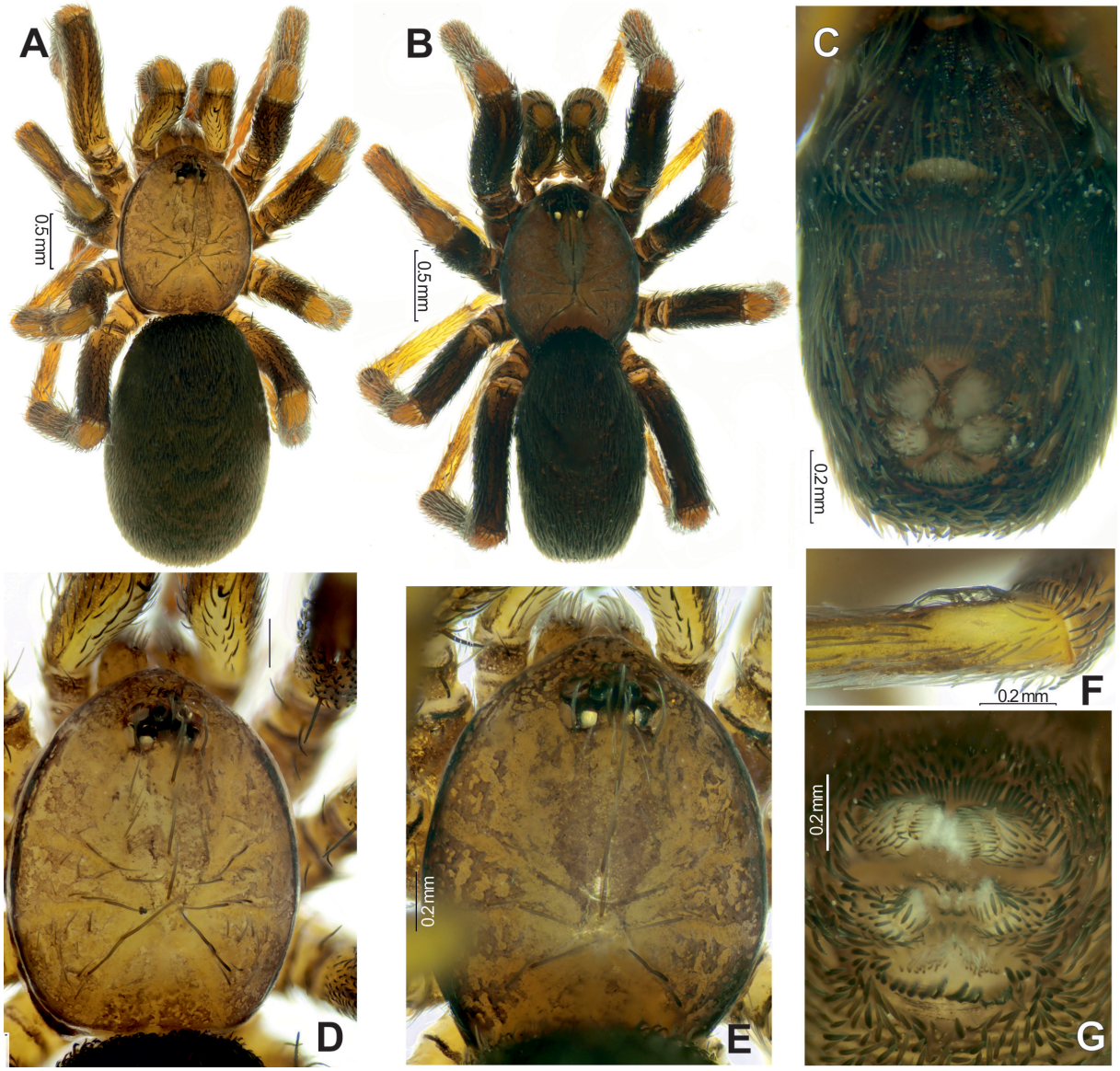

Fig. 6. Somatic characters of *Zaitunia schmitzi* (Kulczyński, 1911), ♀ (**A**, **C–D**, **F–G**) and ♂ (**B**, **E**) from Jerusalem area. — **A–B**. Habitus, dorsal. **C**. Abdomen, ventral. **D–E**. Prosoma, dorsal. **F**. Calamistrum, dorsal. **G**. Spinnerets, ventral.

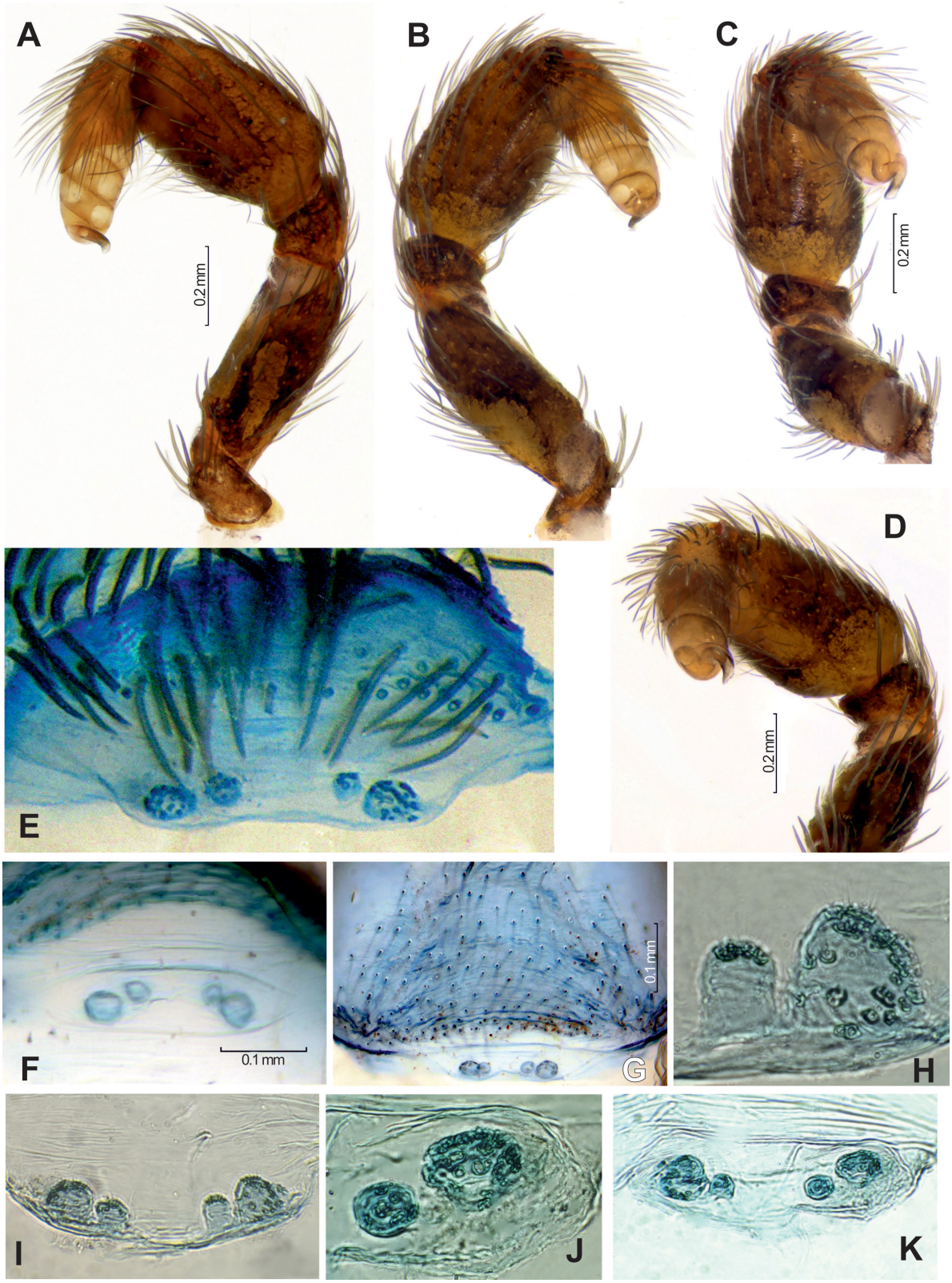

Fig. 7. Copulatory organs of *Zaitunia schmitzi* (Kulczyński, 1911), ♂ (**A**–**D**) and ♀ (**E**–**K**) from Jerusalem area. — **A**–**B**. Palp, retrolateral and prolateral. **C**–**D**. Same, ventro-prolateral and ventro-retrolateral. **E**, **G**, **K**. Endogyne, anterior. **F**. Same, posterior. **H**, **J**. Receptacles, dorsal and anterior. **I**. Endogyne, dorsal.

Note

Lehtinen (1967) indicated the type series as being kept in IZW, but according to Wioletta Wawer, the curator, these types were not found there (pers. comm.).

Material examined (47 ♂♂, 28 ♀♀, 8 juvs)

EGYPT: 1 ♀, South Sinai, Mt. Catarina, c. 28°33' N, 33°57' E, 16 Jun. 1968, unknown collector (HUJ).

ISRAEL: 1 ♀, Upper Galilee, Mt. Meron, 33°01' N, 35°23' E, 900 m, 4–5 Feb. 2007, T. Levanony (TAU); 1 ♂, same data, but 5–12 Apr. 2007 (TAU); 1 ♂, same data, but 12–16 May 2007 (TAU); 2 ♂♂, Western Galilee, 'En haMifraz, 32°54' N, 35°05' E, 19 Mar. 1944, A. Shulov (HUJ); 1 ♂, same region, 'En Ya'aqov, 33°00' N, 35°14' E, 26–31 Jul. 2007, I. Shtirberg (TAU); 1 ♂, Carmel Ridge, Har Horshan, 32°35' N, 35°00' E, near Bat-Shlomo, 28 May 1993, Y. Lubin (HUJ); 2 ♀♀, same ridge, Elyaqim, 32°38' N, 35°04' E, 15 Mar. 1963, M. Warburg (TAU); 1 ♀, Jordan Valley, Ein Duyuk, 11 Apr. 1968, M. Pener (HUJ); 1 ♀, same locality, 10 Jun. 1970, M. Pener (HUJ); 1 juv., Yizre'el Valley, Bet HaShita, 32°33' N, 35°26' E, 6 Feb. 1937, A. Shulov (TAU); 2 juvs, same region, 'En Harod, 32°34' N, 35°23' E, 11 Mar. 1945, A. Shulov (HUJ); 1 ♀, Jerusalem, 16 Jul. 1941, A. Shulov (HUJ); 1 juv., same locality, 12 Dec. 1949, A. Shulov (HUJ); 1 ♀, same locality, 10 Mar. 1961, A. Shulov (HUJ); 1 ♀, same area, Ramat Rahel, 31°44' N, 35°13' E, 23 Apr. 1973, unknown collector (HUJ); 4 ♂♂, 1 juv., Judean Hills, Sansan Reserve, 31°42' N, 35°05' E, 500–700 m, 22 Mar. 2002, Y. Mandelik (HUJ); 6 ♂♂, same data, but 31 Mar. 2001 (HUJ); 1 ♂, same data, but 14 May 2002 (HUJ); 7 ♂♂, same area, Ramat Avishur, 31°39' N, 34°55' E, 300–400 m, 22 Feb. 2001, Y. Mandelik (HUJ); 3 ♂♂, same area, Giv'at Zekharya, 31°42' N, 34°57' E, 250–300 m, 22 Mar. 2002, Y. Mandelik (HUJ); 1 ♂, same locality, but 14 May 2002 (HUJ); 8 ♂♂, 2 ♀♀, 1 juv., same region, National Park Adullam, 1–30 Apr. 2003, U. Columbus & T. Levanony (TAU); 1 ♀, same region, Bet Shemesh, 31°45' N, 34°59' E, 3 Mar. 1954, A. Weissman (HUJ); 1 ♀, same area, 6 km SW of Bet Shemesh, 31°40' N, 34°57' E, 350 m, 10 May 2009, S. Zonstein (TAU); 1 ♀, same region, 3.5 km E of Bet Guvrin, 31°37' N, 34°56' E, 350 m, 8 Nov. 2011, S. Zonstein (TAU); 2 ♂♂, same area, near Giv'at Yeshayahu, 31°40' N, 34°57' E, 300–350 m, 20 May 2007, O. Skutelsky (TAU); 1 ♂, same data, but 20 May 2008 (TAU); 1 ♂, same area, Matta, 31°43' N, 35°04' E, 620 m, 13–18 Apr. 2007, I. Shtirberg (TAU); 1 ♂, same region, near Lahav, 31°33' N, 34°52' E, 500 m, 25–30 Jul. 2006, I. Shtirberg (TAU); 1 ♂, 2 ♀♀, same data, but 13–18 Jan. 2007 (TAU); 2 ♀♀, Northern Negev, Dorot – Ruhama, c. 31°30' N, 34°41' E, 31 Jan. 1972, I. Vaisberg (HUJ); 1 ♂, same region, HaBesor, 31°18' N, 34°29' E, 70 m, 2 Apr. 2010, C. Drees & L. Friedman (TAU); 1 ♀, Dead Sea Area, 'Enot Zuqim (En Fashkha), 24 Feb. 1942, A. Shulov (HUJ); 1 ♂, same region, Nahal Perat (Wadi Kelt), 13 Jan. 1945, A. Shulov (HUJ); 1 ♂, 3 ♀♀, same region, surroundings of 'En Gedi, 31°27' N, 35°23' E, 0 m, 19 Jan. 2013, S. Zonstein (TAU); 2 ♂♂, 1 juv., Judean Desert, 'Arad, 31°16' N, 35°13' E, 20 Dec. 1962, P. Amitai (HUJ); 4 ♀♀, 1 juv., same locality, 13 Feb. 1969, M. Warburg (TAU); 1 ♀, Ma'ale Adummim, 30 Apr. 1972, unknown collector (HUJ); 1 ♀, Central Negev, Yeroham, 30°59' N, 34°56' E, 30 Nov. 1964, Blond & Watz (HUJ); 1 juv., same region, crater Makhtesh Gadol, c. 30°57' N, 35°00' E, 1 Apr. 1962, A. Shulov (HUJ).

Description

Male (from Jerusalem area)

Habitus. See Fig. 6B.

Body length. 2.83.

Colour. Carapace dark yellowish-brown with margins, postocular area and eye tubercle dark brown to brownish-black; chelicerae, labium, sternum and maxillae brown; legs brown with diffuse and poorly developed dark-brown fasciae; abdomen uniformly dark brown.

Carapace (Fig. 6E). 1.27 long, 1.03 wide.

Eyes. AME 0.06, ALE 0.11, PLE 0.08, PME 0.06, AME–AME 0.06.

Palp (Figs 7A-D, 43A). Femur equal in length to tibia; tibia thick, uniformly swollen. Cymbium moderately long, with or without small dorsodistal projection. Broad, blunt-tipped tegulum with thick spermophore forming 4 complete coils closely adjoining each other. Embolus short, lacking a neck, flattened and bent retrolaterally.

Leg measurements. ♂(♀)

	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
Palp	0.61 (0.80)	0.25 (0.31)	0.59 (0.43)	—	0.24 (0.79)	1.69 (2.33)
I	1.31 (1.52)	0.49 (0.49)	1.28 (1.41)	1.10 (1.20)	0.73 (0.91)	4.91 (5.53)
II	1.04 (1.15)	0.47 (0.46)	0.98 (0.95)	0.93 (0.85)	0.65 (0.74)	4.07 (4.15)
III	0.98 (0.97)	0.46 (0.46)	0.78 (0.59)	0.95 (0.74)	0.64 (0.65)	3.81 (3.41)
IV	1.25 (1.36)	0.52 (0.48)	1.16 (1.05)	1.26 (1.06)	0.74 (0.73)	4.93 (4.68)

Female (from Jerusalem area)

Habitus. See Figs 6A, 50A.

Body length. 3.85.

Colour. As in male, but carapace, palps and legs slightly lighter; in contrast, fasciae on palps and legs somewhat darker than in male.

Carapace (Fig. 6D). 1.52 long, 1.18 wide.

Eyes. AME 0.07, ALE 0.12, PLE 0.10, PME 0.07, AME–AME 0.06.

Endogyne (Fig. 7E–K). With 2 pairs of globular receptacles. Median receptacles two times thinner that lateral; median receptacles separated by 3 diameters; lateral receptacles evenly covered by pores, and median receptacles with pores on head only.

Variation

Carapace length in males varies from 1.03 to 1.30, in females from 1.37 to 2.00; ground colouration varies from medium yellowish-brown with a darker brown abdomen to an almost uniform dark brown.

Ecology

The species inhabits many types of habitats, from deserts through steppes and maquis to low oak evergreen forest; in all these habitats, it occurs mainly under rocks (see Fig. 50A).

Distribution

Egypt (Sinai) and Israel (Fig. 46).

***Zaitunia annulipes*-group**

Remarks

This group unites moderately dark-coloured species. The clypeus, the eye tubercle and the carapace margins are noticeably darker than the general background colour. The abdomen is uniformly dark-coloured or with a weak, darker dorsal pattern. Legs I–IV are lighter than the body and provided with

relatively narrow darker fasciae. The male palpal tibia is moderately short. The conical tegulum is much shorter than the cymbium. The embolus is a relatively long to very long apically twisted lamina. Keel of embolus absent. The vulva has two pairs of receptacles. Three species are included: *Zaitunia annulipes* (Kulczyński, 1908) from Cyprus, *Zaitunia kunti* sp. nov. from Cyprus and Turkey, and *Zaitunia minoica* sp. nov. from Crete.

Key to species of the *Zaitunia annulipes*-group

1. Males ……2
– Females ……4

2. Embolus longer than tegulum, twisted or hooked apically (Figs 10I, 13C–D) ……3
– Embolus shorter than tegulum, curved and bent apically (Figs 9A–C, 43B) …… ……***Z. annulipes*** (Kulczyński, 1908)

3. Embolus moderately long, twisted apically (Figs 10I, 43C) ……***Z. kunti*** sp. nov.
– Embolus very long, hooked apically (Figs 13C–D, 43D) ……***Z. minoica*** sp. nov.

4. Median receptacles only slightly larger than lateral pair (Figs 11F–G, 12G–I) ……5
– Median receptacles considerably larger than lateral pair (Fig. 9D–F) …… ……***Z. annulipes*** (Kulczyński, 1908)

5. Median and lateral receptacles set very close to each other (Fig. 12G, I) ……***Z. minoica*** sp. nov.
– Median and lateral receptacles set more distantly from each other (Fig. 11F–G) … ***Z. kunti*** sp. nov.

Zaitunia annulipes (Kulczyński, 1908)
Figs 8–9, 43B

Filistata annulipes Kulczyński, 1908: 376 (♀).

Zaitunia annulipes – Brignoli 1982: 66 (transferred species to *Zaitunia*).

Diagnosis

Zaitunia annulipes differs from the congroupers by males possessing a shorter embolus gently curved in the subapical part and by females having the receptacles with the median units considerably larger than the outer ones (in congroupers embolus is considerably longer and more sharply curved subapically, and the median and outer receptacles are subequal in size – cf. Figs 10I, 11F–G, 12G-I, 13C–D).

Type material

Lectotype (designated here)
CYPRUS: 1 ♀, with labels [SYNTYPI, Cypr I.Z.P.A.N. Warsawa 40/SLU (or 514)], in poor condition, with broken abdomen and part of legs, IZW, examined.

Paralectotypes
CYPRUS: 2 juvs, with same collecting data.

Additional material examined
CYPRUS: 1 ♀, Limassol area, Germasogeia, 34°43' N, 33°05' E, 50–250 m, 16 Apr. 1997, P.T. Lehtinen (ZMUT); 1 ♂, 1 juv., Paramali, 34°42' N, 32°48' E, 100–200 m, 16 Apr. 1997, P.T. Lehtinen (ZMUT); 1 ♂, Larnaka area, Vyzakia, west shore of Larnaka salt lake, 34º53' N, 33º36' E, c. 10 m, 11–16 Apr. 1997, P.T. Lehtinen (ZMUT); 1 ♂, same data (TAU); 2 ♀♀, 1 juv., same data, except 16 Apr. 1997 (ZMUT); 1 ♀, same data (TAU).

Description

Male (from Paramali)

Habitus. See Fig. 8A–B, D.

Body length. 3.19.

Colour. Carapace and legs mostly light brownish-yellow; cephalic part including eye tubercle and leg fasciae diffuse medium brown; clypeus and lateral margins of carapace more intensive brown to dark

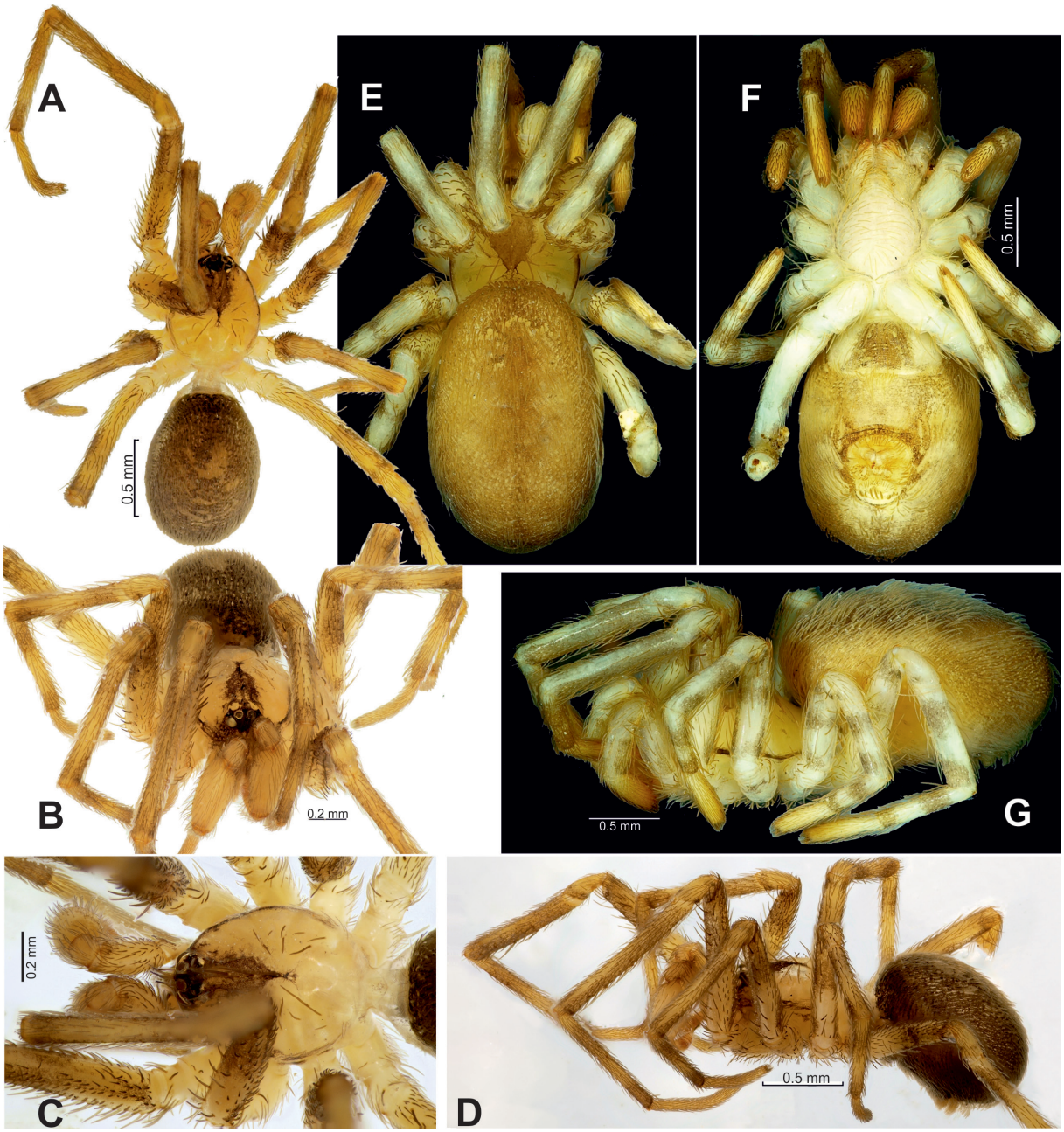

Fig. 8. Somatic characters of *Zaitunia annulipes* (Kulczyński, 1908), ♂ from Paramali (**A–D**) and ♀ from Germasogenea (**E–G**). — **A**, **E**. Habitus, dorsal. **B**. Same, frontal. **C**. Prosoma, dorsal. **D**, **G**. Habitus, lateral. **F**. Same, ventral. Scale bars: A, D–G = 0.5 mm; B–C = 0.2 mm.

brown; labium, maxillae, sternum and leg coxae pale brownish-yellow; abdomen uniformly medium brown.

Carapace (Fig. 8C). 1.28 long, 1.03 wide.

Eyes. AME 0.09, ALE 0.14, PLE 0.13, PME 0.09, AME–AME 0.03.

Palp (Figs 9A–C, 43B). All segments except cymbium with dark pigmentation; femur longer than tibia. Tibia almost 2 times wider than femur. Cymbium longer than bulb; bulb conical, twice as long as diameter of tegulum. Tip of embolus twisted.

Leg measurements. ♂(♀)

	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
Palp	0.80 (0.61)	0.22 (0.35)	0.69 (0.46)	—	0.31 (0.57)	2.02 (1.73)
I	1.75 (1.50)	0.47 (0.47)	1.73 (1.31)	1.62 (1.07)	0.97 (0.87)	6.54 (5.22)
II	1.40 (1.07)	0.44 (0.43)	1.29 (0.81)	1.22 (0.67)	0.83 (0.58)	5.18 (3.56)
III	1.18 (0.89)	0.38 (0.41)	1.11 (0.67)	1.19 (0.60)	0.74 (0.55)	4.60 (3.12)
IV	1.74 (1.29)	0.42 (0.44)	1.56 (0.93)	1.56 (0.91)	0.97 (0.67)	6.25 (4.24)

Female (from Germasogenea)

Habitus. See Fig. 8E–G.

Body length. 3.45.

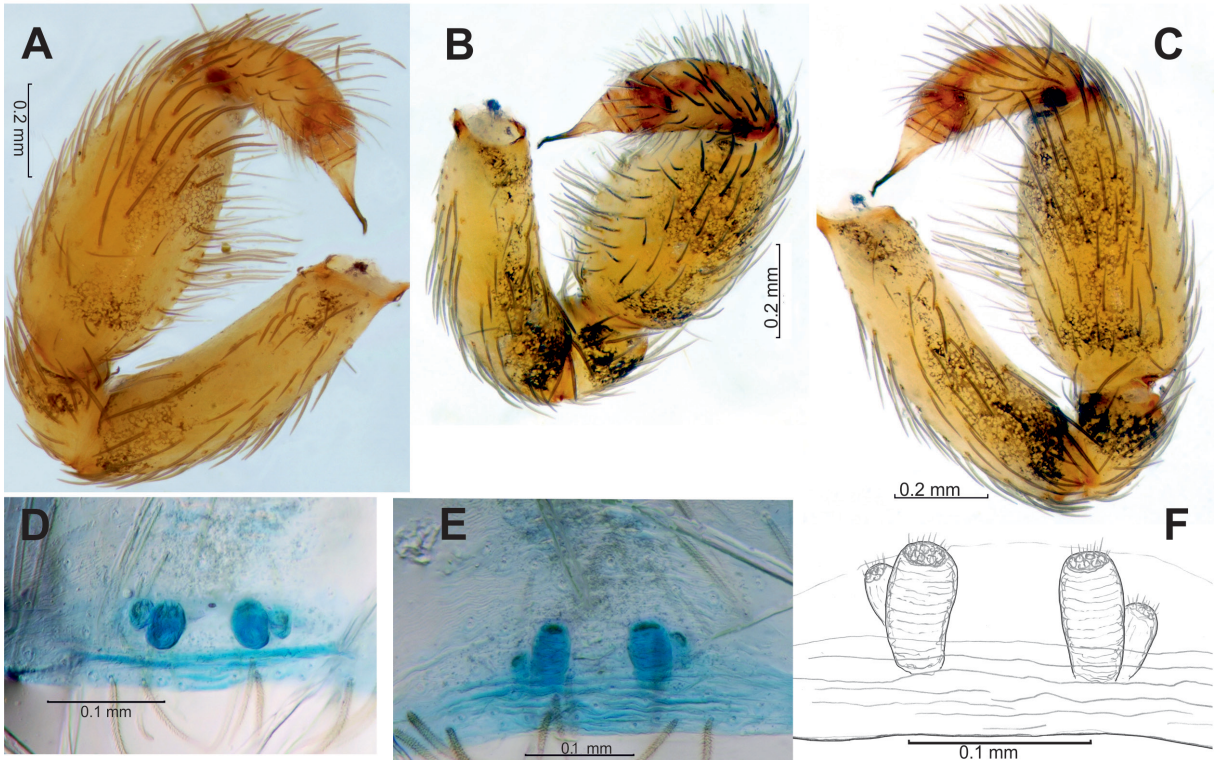

Fig. 9. Copulatory organs of *Zaitunia annulipes* (Kulczyński, 1908), ♂ from Paramali (**A–C**) and ♀ from Germasogenea (**D–F**). — **A–C**. Palp, prolateral, ventro-retrolateral and retrolateral. **D**. Endogyne, anterior. **E–F**. Same, dorsal. Scale bars: A–C = 0.2 mm; D–F = 0.1 mm.

Colour. As in male.

Carapace. 1.26 long, 1.10 wide.

Eyes. AME 0.08, ALE 0.15, PLE 0.11, PME 0.09, AME–AME 0.04.

Endogyne (Fig. 9D–F). With 2 pairs of receptacles. Both pairs with corrugated stems; pores located on heads. Median receptacles two times as long as lateral, separated by about 1.5 diameters.

Variation

Body size in males 3.19–3.67, in females 3.05–3.95. Coloration without noticeable variation.

Note

Male of this species is described for the first time. Although this species was already transferred to *Zaitunia* by Brignoli (1982), this nomenclatorial act was overlooked by Brignoli (1983) himself and by subsequent catalogs (Platnick 1989, 1993, 2015; World Spider Catalog 2015).

Ecology

According to the label data, the species was found in the maquis (Mediterranean shrub) litter.

Distribution

Cyprus (Fig. 46).

Zaitunia kunti sp. nov.
urn:lsid:zoobank.org:act:C7A41607-6945-4838-9001-C8D6471D0A3A
Figs 10–11, 43C

Diagnosis

Zaitunia kunti sp. nov. differs from related species by having the embolus more sharply curved in the subapical part and receptacles subequal in size and clearly separated from each other (in *Z. annulipes*, the embolus is clearly shorter and more gently curved, and the median receptacles are considerably larger than the outer ones; whereas in *Z. minoica* sp. nov., a longer embolus is noticeably less sharply curved in the subapical part, and the receptacles, although subequal in size, almost touch each other (cf. Figs 9, 12G–I, 13C–D).

Etymology

The specific epithet is given after our good friend and colleague, Turkish arachnologist Kadir Boğaç Kunt.

Material examined

Holotype

TURKEY: ♂, “Taurus” (no other data), O. Kraus (SMF 12991).

Paratypes (2 ♀♀)

TURKEY: 1 ♀, Antalya Province, Alanya District, near Elikesik, 36º33'55.6" N, 31º55'30.3" E, alt. 24 m, 8 Jan. 2013, Y.M. Marusik (ZMMU).

CYPRUS: 1 ♀, Troodos Mts, 1 km S of Troodos, 34º55' N, 35º53' E, 1700 m, 11. Apr. 1997, P.T. Lehtinen (ZMUT).

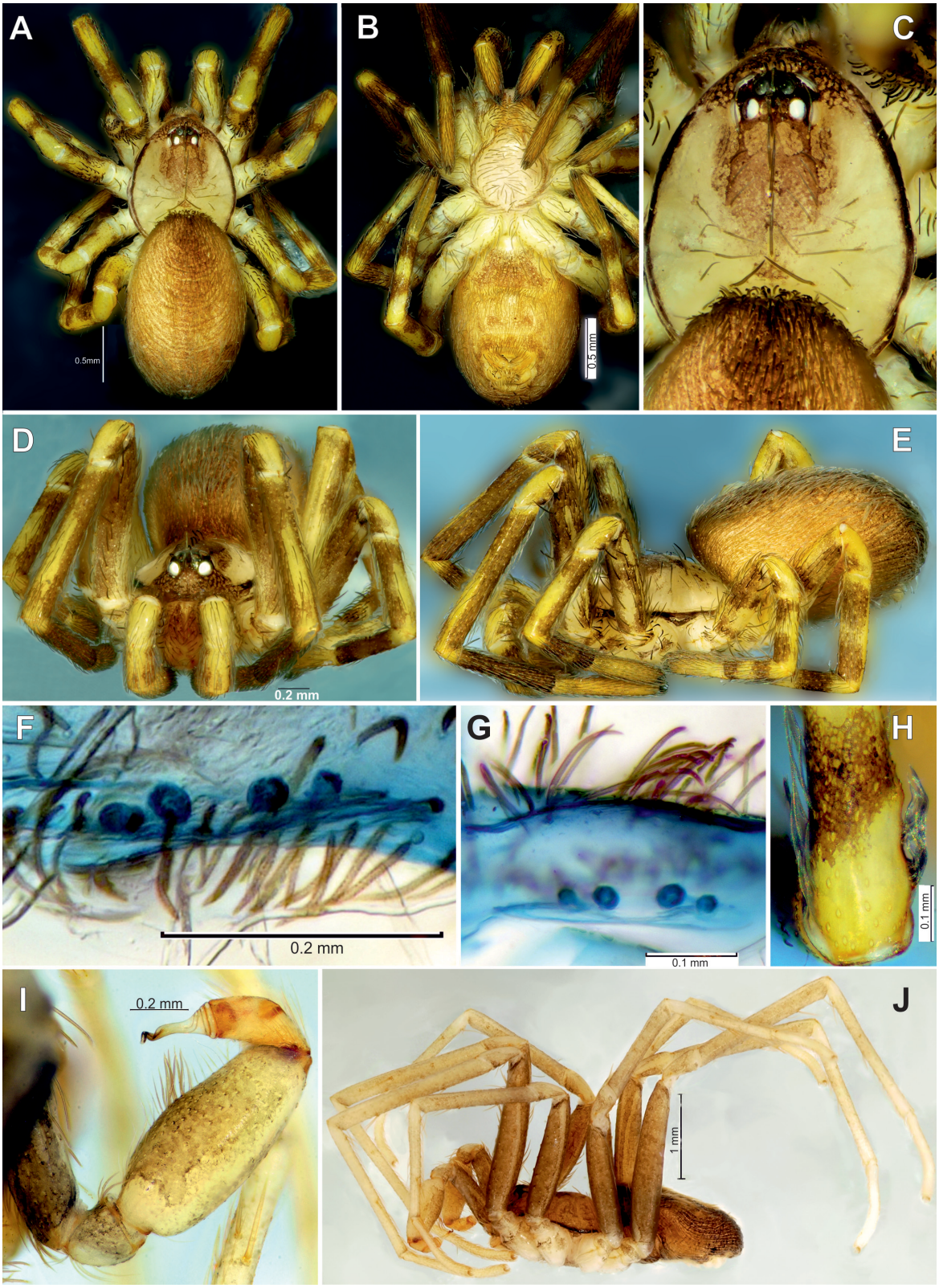

Fig. 10. Somatic characters and copulatory organs of *Zaitunia kunti* sp. nov., paratype, ♀ from Turkey (**A**–**H**) and holotype, ♂ (**I**–**J**). — **A**–**B**. Habitus, dorsal and ventral. **C**. Prosoma, dorsal. **D**–**E**. Habitus, frontal and lateral. **F**–**G**. Endogyne, dorsal. **H**. Calamistrum, dorsal. **I**. Palp, retrolateral. **J**. Habitus, lateral. Scale bars: A–B = 0.5 mm; D–F, I = 0.2 mm; G–H = 0.1 mm; J = 1.0 mm.

Description

Male

Habitus. See Fig. 10J.

Body length. 3.05.

Colour. Carapace dark yellow with brown wide margins, clypeus and postocular area; eye tubercle blackish-brown; chelicerae, all femora and abdomen uniformly yellowish-brown; other parts of body and legs pale brownish-yellow.

Carapace. 1.47 long, 1.28 wide.

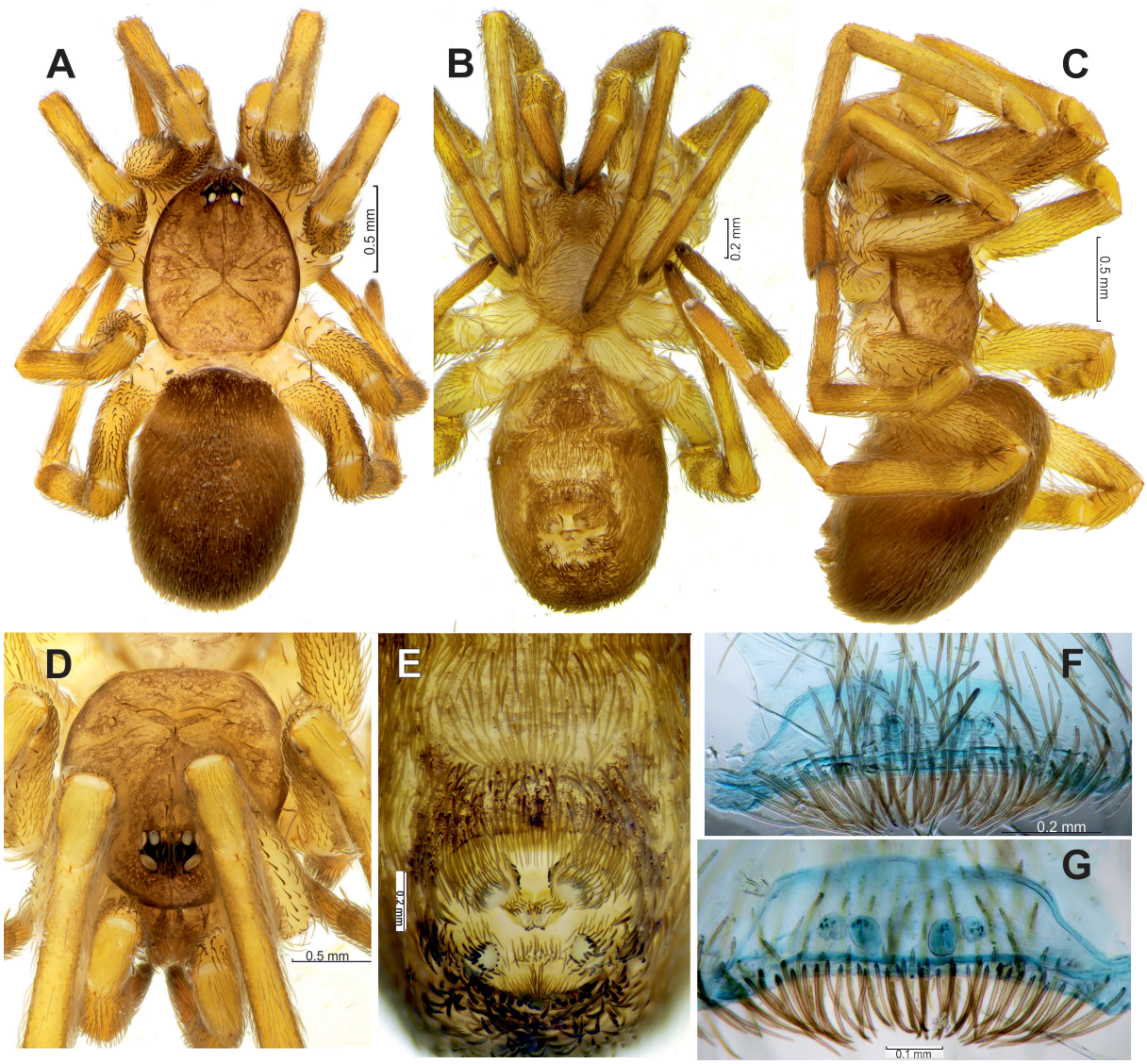

Fig. 11. Somatic characters and endogyne of *Zaitunia kunti* sp. nov., paratype, ♀ from Cyprus. **A–C**. Habitus, dorsal, ventral and lateral. **D**. Prosoma, frontal. **E**. Posterior part of abdomen, showing tracheal spiracle and spinnerets. **F–G**. Endogyne, ventral and dorsal. Scale bars: A, C–D = 0.5 mm; B, E–F = 0.2 mm; G = 0.1 mm.

Eyes. AME 0.12, ALE 0.22, PLE 0.19, PME 0.18, AME–AME 0.10.

Palp (Figs 10I, 43C). All segments with dark pigmentation; femur slightly longer than tibia; tibia 1.1 wider than femur. Cymbium with small dorsal hump, longer than bulb. Tegular part conical; embolic part cylindrical (in lateral view), spermophore meandering in embolic part; tip of embolus screw-shaped.

Leg measurements. ♂(♀)

	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
Palp	0.90 (0.55)	0.42 (0.27)	0.85 (0.36)	—	0.32 (0.50)	2.49 (1.68)
I	2.23 (1.17)	0.72 (0.41)	1.54 (1.14)	1.65 (0.95)	0.90 (0.80)	7.04 (4.47)
II	1.86 (0.91)	0.65 (0.39)	1.32 (0,69)	1.51 (0.65)	0.68 (0.58)	6.02 (3.22)
III	1.78 (0.76)	0.67 (0.32)	1.32 (0.54)	1.30 (0.56)	0.53 (0.46)	5.60 (2.64)
IV	2.13 (1.03)	0.75 (0.38)	1.29 (0.81)	1.53 (0.79)	0.61 (0.54)	6.31 (3.55)

Female (from Elikesik)

Habitus. See Fig. 10A–B, D–E.

Body length. 2.54.

Colour. Carapace, chelicerae and legs mostly medium brownish-yellow; abdomen dorsally, diffuse leg fasciae, cephalic area and reticulate clypeal pattern medium violet-brown; eye tubercle and carapace margins dark violet-brown; sternum light yellow with brownish margins; abdomen ventrally and spinnerets light violet-brown.

Carapace (Fig. 10C). 1.13 long, 0.94 wide.

Eyes. AME 0.06, ALE 0.11, PLE 0.09, PME 0.07, AME–AME 0.03.

Endogyne (Fig. 10F–G). Median receptacles oval, lateral receptacles globular, both pairs without goffering. Heads covered with pores. Median receptacles separated by about 1.5 diameters.

Variation

Carapace length in female paratype from Cyprus 1.68; this specimen has body and leg pattern slightly more contrast than those in female paratype from Turkey (Fig. 11A–C), but the relative size and arrangement of darker marks do not differ sufficiently.

Ecology

The type locality in Turkey belongs to the coastal maquis zone; the female paratype from Cyprus was collected in the highlands (1700 m).

Distribution

South Turkey and Cyprus (Fig. 46).

Zaitunia minoica sp. nov.

urn:lsid:zoobank.org:act:3409E2F9-90A8-41A5-869B-F80B553ED136

Figs 12–13, 43D

Diagnosis

Zaitunia minoica sp. nov. differs from other species of its group by having a longer embolus gradually curved in the subapical part, and by the receptacles subequal in size with widely spaced (more than

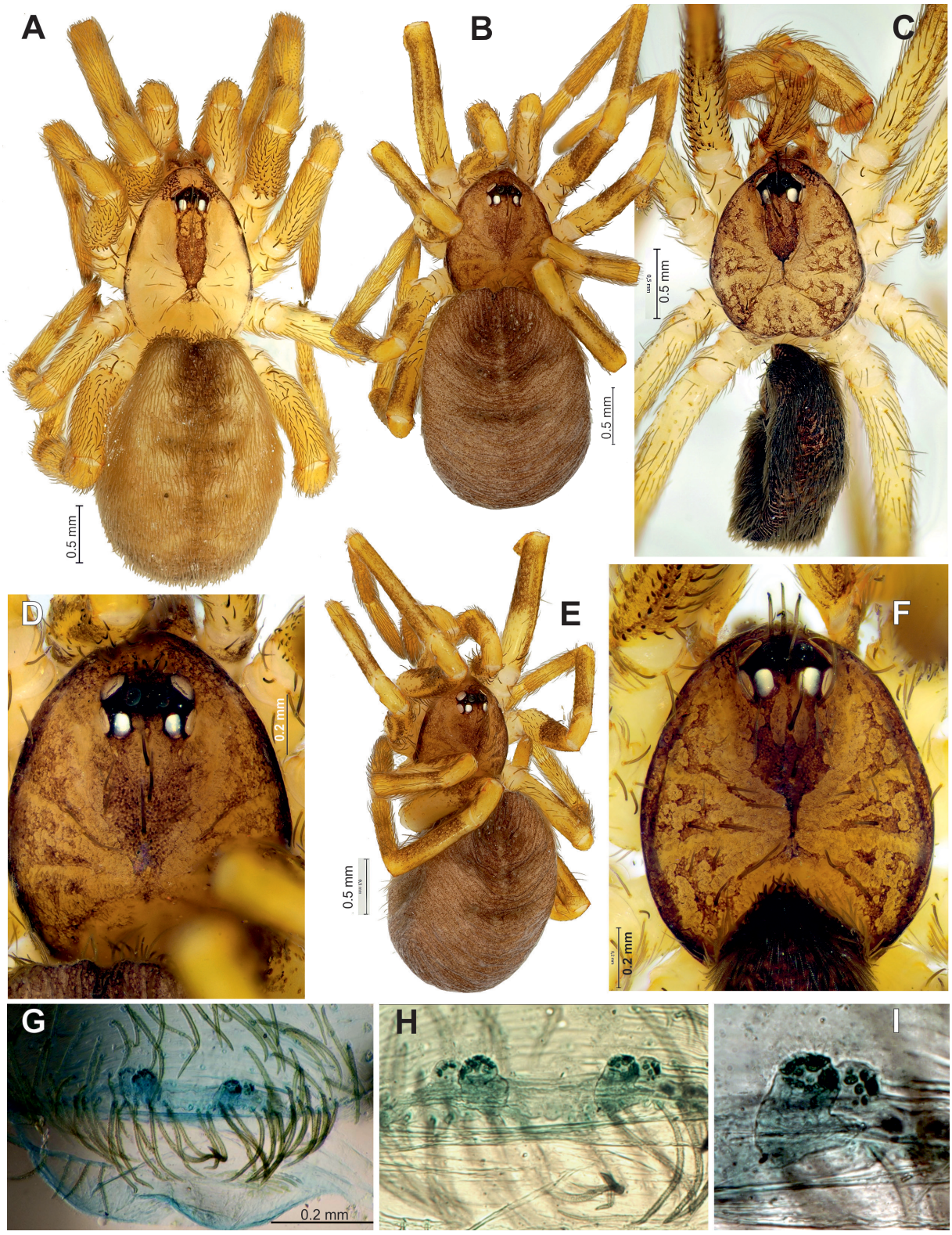

Fig. 12. Somatic characters and endogyne of *Zaitunia minoica* sp. nov., paratypes, ♀♀ (**A–B**, **D–E**, **G–I**) and holotype, ♂ (**C**, **F**). — **A–C**. Habitus, dorsal. **D**, **F**. Prosoma, dorsal. **E**. Habitus, dorso-sublateral. **G–H**. Endogyne, dorsal. **I**. Right pair of receptacles, dorsal. Scale bars: A–C, E = 0.5 mm; D, F–G = 0.2 mm.

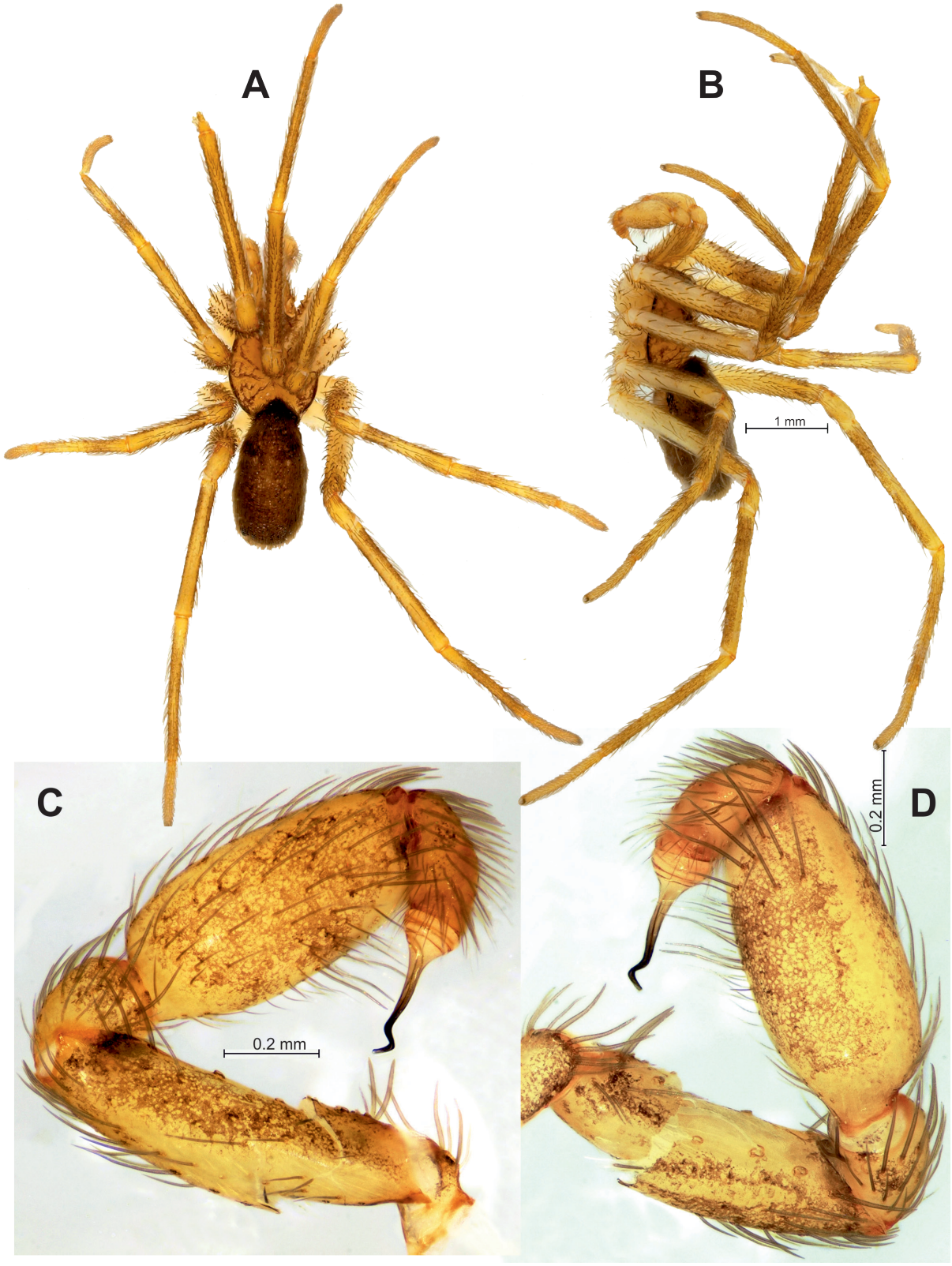

Fig. 13. Somatic characters and palp of *Zaitunia minoica* sp. nov., holotype, ♂. **A–B**. Habitus, dorsal and lateral. **C–D**. Palp, pro- and retrolateral. Scale bars: A–B = 1.0 mm. C–D = 0.2 mm.

2 diameters) median pair (in *Z. annulipes*, the embolus is noticeably shorter and more gently curved, and the median receptacles are considerably larger than the outer ones; whereas in *Z. kunti* sp. nov., the slightly shorter embolus is more sharply curved subapically, and the receptacles are close together (about 1.5 of their diameter) – cf. Figs 9, 10F–G, I).

Etymology

The specific epithet is given after the Minoan civilisation, which flourished during the Bronze Age in Crete.

Material examined

Holotype

GREECE: ♂, Crete Isl., Gouves 16 km E of Iraklion, 1 May 2008, H. Eikamp & U. Kluge (SMF).

Paratypes (5 ♂♂, 16 ♀♀)

GREECE: 2 ♂♂, Crete Isl., same locality as holotype, 4 May 2009, K. Eckl (SMF); 3 ♀♀, SW of Zaros, 5 Apr. 1958, H. Kahmann (SMF); 1 ♀, W of Camaris, 600–800 m, 6 Apr. 1958, H. Kahmann (SMF); 2 ♀♀, Gortys near Ajil Deka, 85–100 m, 9 Apr. 1958, H. Kahmann (SMF); 1 ♂, 2 ♀♀, same, 11 Apr. 1958, H. Kahmann (SMF); 4 ♀♀, E of Agios Fotia (Hagia Photia), 35°11.9' N, 26°10.3' E, 29 m, 20 Apr. 2007, A. Schönhofer (SMF); 1 ♂, Analipsi, 5 May 2008, H. Eikamp & U. Kluge (SMF); 1 ♂, 20 May 2009, K. Eckl (SMF); 1 ♀, Kastri-Arvi, 3 May 2009, K. Eskl (SMF); 1 ♀, Kavousi, 10 May 2009, H. Eikamp & U. Kluge (SMF); 1 ♀, Arvi, Keratokampos, 11 May 2009, K. Eskl & U. Kluge (SMF); 1 ♀, Anogia, 30 km SW of Iraklion, 17 May 2010, K. Eskl & H. Eikamp (SMF).

Description

Male (holotype)

Habitus. See Figs 12C, 13A–B.

Body length. 2.97.

Colour. Carapace dark ochre-yellow, with brownish clypeus, narrow marginal bands, postocular area and radial grooves; eye tubercle brownish-black; labium, sternum and maxillae yellow; chelicerae, palps and legs yellow with diffuse brownish spots and fasciae; abdomen uniformly dark brown.

Carapace (Fig. 12F). 1.35 long, 1.08 wide.

Eyes. AME 0.09, ALE 0.13, PLE 0.12, PME 0.10, AME–AME 0.06.

Palp (Figs 13C–D, 43D). Femur as long as tibia; tibia 1.5 times thicker than femur. Cymbium moderately long and slightly curved, without dorsal hump. Tegulum globular. Embolus long, gradually tapering near base and with parallel margins in mid-part, spermophore in embolus straight, tip of embolus screw-shaped.

Leg measurements. ♂(♀)

	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
Palp	0.86 (0.73)	0.25 (0.34)	0.67 (0.55)	—	0.29 (0.63)	2.07 (2.25)
I	2.02 (1.85)	0.57 (0.58)	2.20 (1.87)	2.11 (1.51)	1.38 (1.08)	8.28 (6.89)
II	1.59 (1.38)	0.46 (0.54)	1.53 (1.22)	1.52 (1.03)	1.03 (0.78)	6.13 (4.95)
III	1.37 (1.22)	0.44 (0.51)	1.29 (0.83)	1.53 (0.97)	0.72 (0.61)	5.35 (4.14)
IV	1.95 (1.57)	0.51 (0.57)	1.94 (1.28)	2.07 (1.28)	1.10 (0.76)	7.57 (5.46)

Female (paratype from Gortys)
Habitus. See Fig. 12A.

Body length. 3.87.

Colour. As in male, but abdomen dorsally, carapace margins and fasciae on palps and legs are somewhat darker.

Carapace. 1.63 long, 1.31 wide.

Eyes. AME 0.09, ALE 0.15, PLE 0.14, PME 0.10, AME–AME 0.05.

Endogyne (Fig. 12G–I). Both pairs of receptacles subglobular, median pair slightly elongate. Median and lateral receptacles close together. Median receptacles separated by more than 2 diameters.

Variation

Carapace length in males varies from 1.25 to 1.47, in females from 1.40 to 1.65. Some specimens have less contrast, with a darker and more diffuse coloration (Fig. 12B, D–E).

Ecology

According to the label data, the species inhabits rocky slopes from seashore to 800 m, covered by shrubs and steppe vegetation, where spiders occur under the stones.

Distribution

Known only from Crete (Fig. 46).

Zaitunia persica species group

Remarks

The group unites almost uniformly light-coloured species with females possessing only one pair of receptacles (entire or subdivided). Males and their characters are unknown for this group. Six members are included: *Z. afghana* (Roewer, 1962) from Afghanistan, and five species from Iran: *Z. akhanii* Marusik & Zamani, 2015, *Z. alexandri* Brignoli, 1982, *Z. brignoliana* sp. nov., *Z. medica* Brignoli, 1982 and *Z. persica* Brignoli, 1982.

Key to species of the *Zaitunia persica* species group
(Only females; males of all included species are unknown.)

1. Receptacles long, sinuous and looped (Figs 15E–G, 18D–E) ……2
– Receptacles short, without loops (Figs 14G–K, 16A–B, D–F, 17D, F–J) ……3

2. Receptacles longer, with four loops (Fig. 18D–E); southern Iran ……***Z. persica*** Brignoli, 1982
– Receptacles shorter, with two loops (Fig. 15E–G); northern Iran ……
……***Z. akhanii*** Marusik & Zamani, 2015

3. Receptacles undivided (Figs 16A, D, 17D, F–J) ……4
– Receptacles subdivided (Figs 14G–K, 16D–F) ……5

4. Receptacles longer, sac-shaped (Fig. 16A–B); southern Iran……***Z. alexandri*** Brignoli, 1982
– Receptacles shorter, knob-shaped (Fig. 17D, F–J), central Iran ……***Z. medica*** Brignoli, 1982

5. Receptacles with stems and subdivided dumbbell-shaped head (Fig. 14G–K); Afghanistan …… ……***Z. afghana*** (Roewer, 1962)
– Receptacles without stems, boomerang-shaped (Fig. 16D–F); Iran ……***Z. brignoliana*** sp. nov.

Zaitunia afghana (Roewer, 1962)
Fig. 14

Filistata afghana Roewer, 1962: 12 (♀). Note: figs 6 and 9 labeled as *F. afghana* refer to *Z. huberi* sp. nov.

Zaitunia afghana – Zonstein *et al*. 2013: 69 (transfer from *Filistata*).

Diagnosis

Zaitunia afghana can easily be distinguished from other species of the group, except *Z. brignoliana* sp. nov., by having the receptacles subdivided apically and with a distinct stem (the receptacles are undivided in most other species and a stem is lacking; in *Z. brignoliana* sp. nov., the subdivided receptacles are wider – cf. Fig. 16D–F).

Material examined

Holotype
AFGHANISTAN: ♀, Helmand Province, Tchehel Dokhteran Cave, Kouh-Ghoramban, near Tchongoulak, Nawzad district, about 75 km N of Gereshk, c. 32º24' N, 64º30' E, 1300 m, 17 Apr. 1957, K. Lindberg (ZMLS L57/3752, A.206; examined). Almost all legs except left legs I and IV are partially missing in the holotype. Paratype of *F. afghana* actually belongs to *Z. huberi* sp. nov.

Description

Female
Habitus. See Fig. 14A–B, D.

Body length. 6.20.

Colour. Whole body and legs light brownish-yellow, carapace with darker brown clypeus (however, with lighter yellow median stripe), long but narrow median spot dilated anteriorly; eye tubercle and narrow bands along carapace margins dark brown; chelicerae with narrow median brownish stripes; palpal and leg femora with narrow and incomplete light brown fasciae; abdomen without dorsal pattern.

Carapace (Fig. 14C). 2.52 long, 1.90 wide.

Eyes. AME 0.09, ALE 0.21, PLE 0.18, PME 0.17, AME–AME 0.04.

Endogyne (Fig. 14G–K). Receptacles with distinct stem and dumbbell-shaped transversal head. Pores cover only the head. Heads separated by distance of twice their diameters.

Leg measurements.

	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
Palp	1.55	0.63	0.89	—	0.98	4.05
I	3.29	0.95	3.23	2.74	1.65	11.86
II	2.52	0.86	—	—	—	—
III	1.88	0.80	—	—	—	—
IV	2.78	0.93	2.07	2.00	1.13	8.91

Male

Unknown.

Remarks

During the present study, we found that Roewer (1962) erroneously assigned two different species of *Zaitunia*, almost indistinguishable from each other by habitus, to the type series. Hence, we redescribe the holotype, but the paratype of *Filistata afghana*, previously redescribed by Zonstein *et al*. (2013), is considered to represent a new species, *Z. huberi* sp. nov., listed and described below.

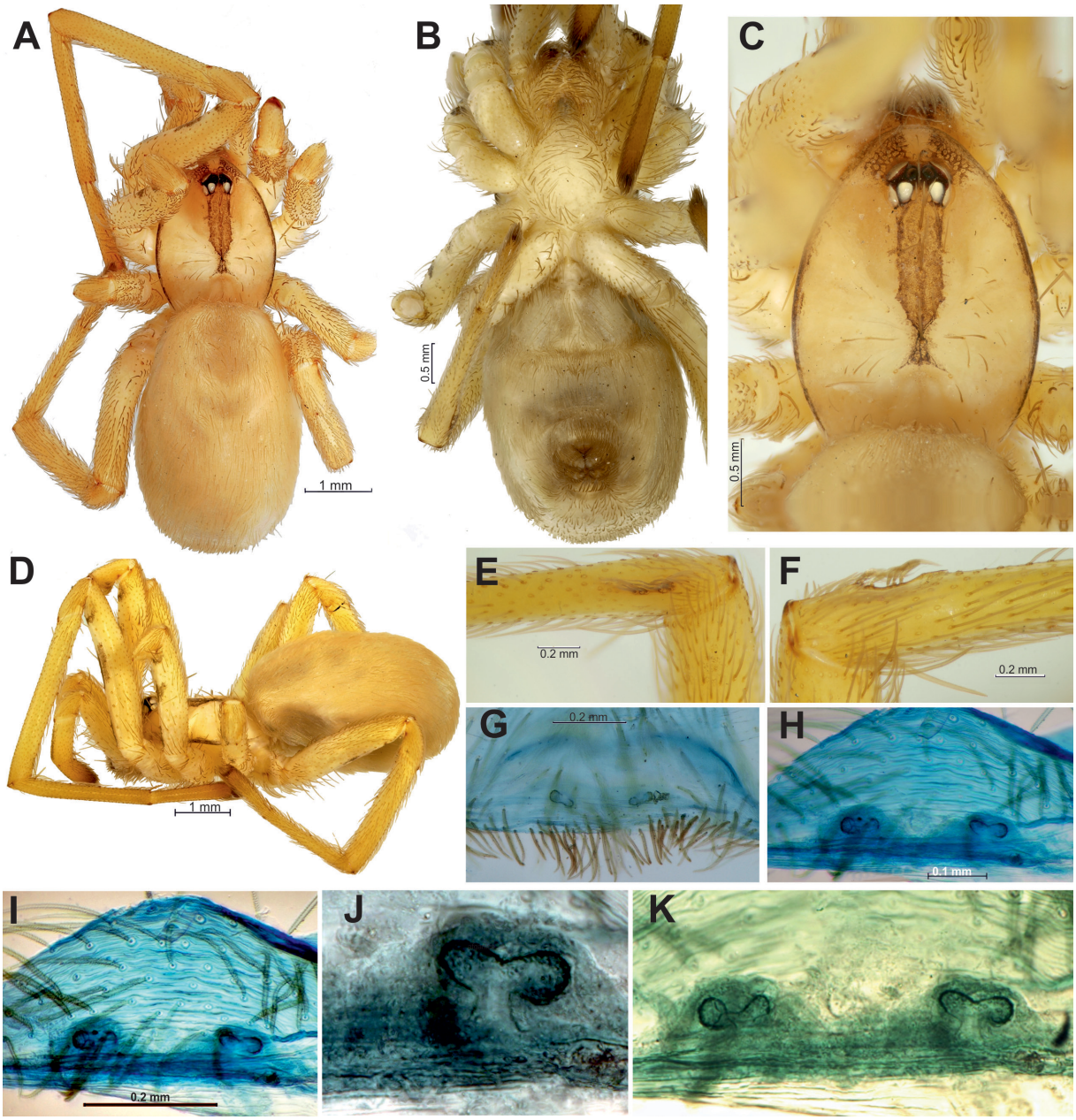

Fig. 14. Somatic characters and endogyne of *Zaitunia afghana* (Roewer, 1962), holotype, ♀. **A–B**. Habitus, dorsal and ventral. **C**. Prosoma, dorsal. **D**. Habitus, lateral. **E–F**. Calamistrum from above and lateral. **G–I**, **K**. Endogyne, dorsal. **J**. Right receptacle, dorsal. Scale bars: A, D = 1.0 mm; B–C = 0.5 mm; E–G, I = 0.2 mm; H = 1.0 mm.

Ecology

According to the label data, the holotype was collected in a cave; other information is not available.

Distribution

Known only from the type locality (Fig. 47).

Zaitunia akhanii Marusik & Zamani, 2015
Fig. 15

Zaitunia akhanii Marusik & Zamani, 2015: 129, figs 4a–f (♀).

Diagnosis

Females of *Z. akhanii* resemble those of *Z. persica* Brignoli, 1982 by having sinuous tube-like receptacles, but the receptacles of *Z. akhanii* have two loops, whereas those of Z. *persica* have four.

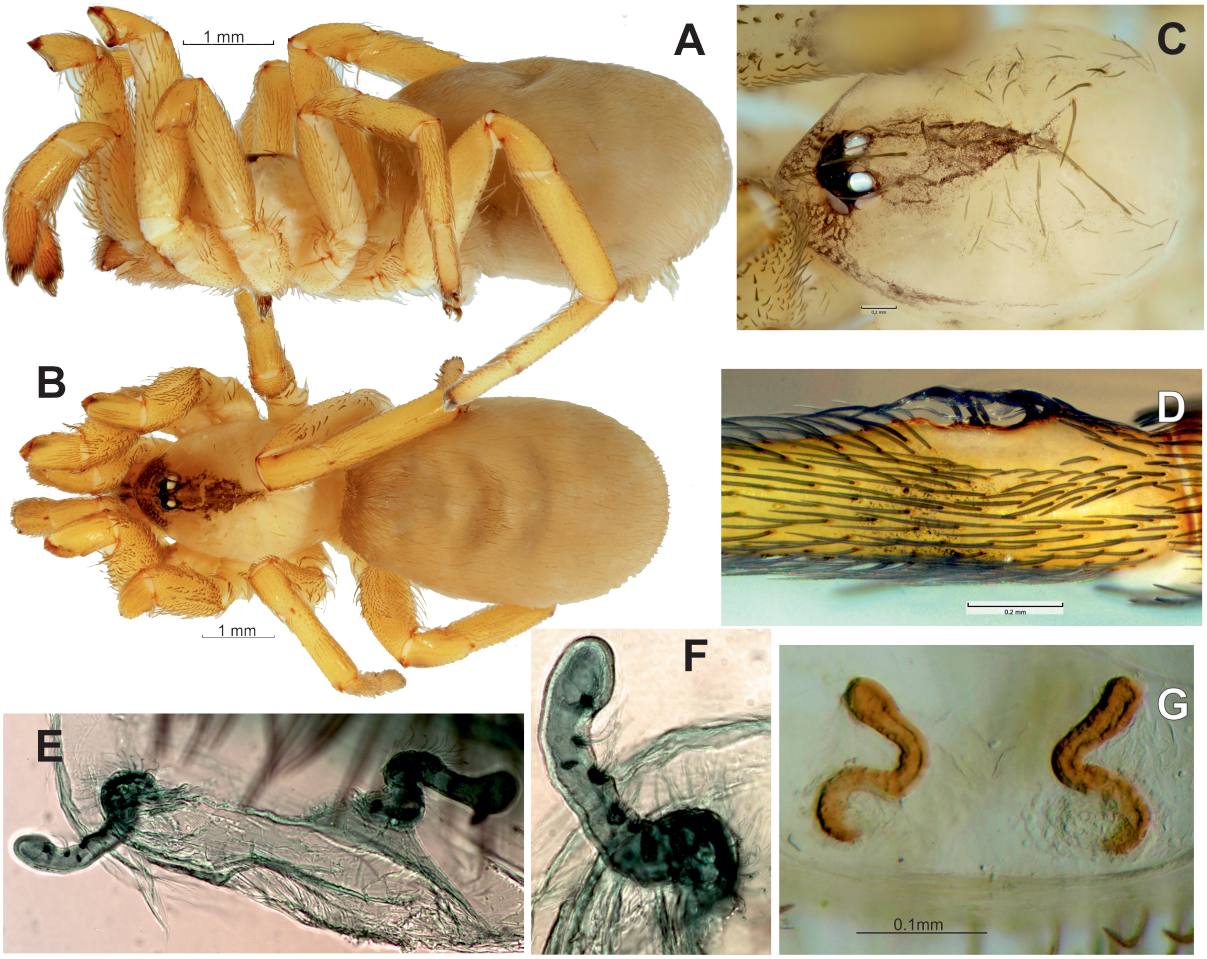

Fig. 15. Somatic characters and endogyne of *Zaitunia akhanii* Marusik & Zamani, 2015, holotype, ♀. **A–B**. Habitus, lateral and dorsal. **C**. Prosoma, dorsal. **D**. Calamistrum lateral. **E**, **G**. Endogyne, dorsal. **F**. Left receptacle, ventral. Scale bars: A–B = 1.0 mm; C–D = 0.2 mm; G = 0.1 mm.

Material examined

Holotype

IRAN: ♀, Tehran Province, southern slopes of Alborz Mountains, 35°48.5' N, 51°23.0' E, Jul. 2014, A. Zamani (SMF).

Paratypes

IRAN: 7 ♀♀, same data as holotype (ZMMU, ZMUT).

Description

Female (paratype)

Habitus. See Fig. 15A–B.

Body length. 5.20.

Colour. Light yellowish, with distinct pattern on carapace and legs: clypeus entirely dark, wide dark median band terminating near fovea; femora I–III with median-ventral spot. Abdomen uniformly yellowish-grey, without darker pattern.

Carapace (Fig. 15C). 2.16 long, 1.60 wide.

Eyes. AME 0.09, ALE 0.16, PLE 0.11, PME 0.12, AME–AME 0.03.

Endogyne (Fig. 15E–G). With one pair of sinuous tube-like receptacles. Receptacles wavy, bent twice, gland pores not distinct in low magnification but easily visible after contrast coloring (Fig. 15F); pores distributed evenly along receptacle while absent on heads. Receptacles spaced in mid-part by more than 4 diameters.

Leg measurements. Paratype ♀.

	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
Palp	1.20	0.60	0.68	—	0.80	3.28
I	3.12	0.80	2.28	2.00	1.20	9.40
II	1.76	0.72	1.48	1.44	0.88	6.28
III	1.52	0.60	1.20	1.20	0.76	5.28
IV	2.08	0.80	1.68	1.68	0.88	7.12

Male

Unknown.

Variation

Total body length 4.80–7.20. Pale specimens may have light clypeus and may lack spots on femora.

Ecology

Specimens were found in large, dusty cribellate webs made around human dwellings.

Distribution

Known only from the type locality in Tehran (Fig. 47).

Zaitunia alexandri Brignoli, 1982
Fig. 16A–B

Zaitunia alexandri Brignoli, 1982: 74, fig. 15 (♀).

Zaitunia alexandri – Marusik & Zamani 2015: 131, fig. 5b (♀).

Diagnosis

By structure of the endogyne, *Z. alexandri* resembles *Z. medica*, but differs from it and all other congeners by their entire, relatively short and robust sac-shaped receptacles (Fig. 16A–B).

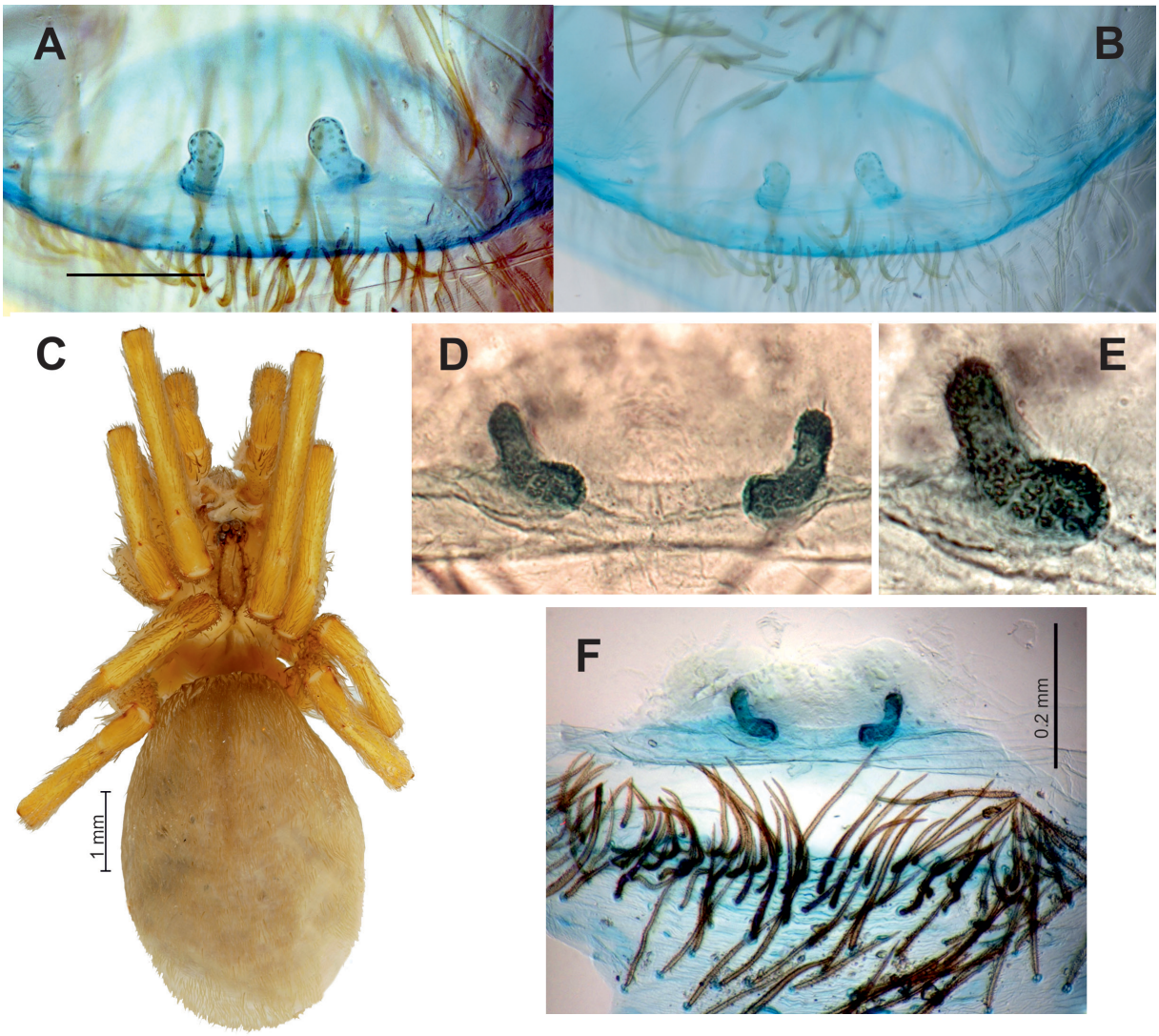

Fig. 16. *Zaitunia alexandri* Brignoli, 1982 (**A–B**) and *Z. brignoliana* sp. nov. (**C–F**), holotype; ♀♀, habitus and structure of endogyne. — **A–B**, **D**, **F**. Endogyne, dorsal. **C**. Habitus, dorsal. **E**. Left receptacle, dorsal. Scale bars: A, F = 0.2 mm; C = 1.0 mm.

Material examined

Holotype

IRAN: ♀, Fars Province, vicinity of Kuhenjan, 29º14' N, 52º57' E, 1500 m, 27 May 1976, S. Zerunian (MSNV).

Description

Female

Body length. 5.32.

Colour. Carapace, chelicerae, labium and sternum pale yellowish-brown, carapace with darker brownish margins, clypeus and postocular area; eye tubercle dark brown; palps and legs with weak, diffuse darker brown spots; abdomen uniformly greyish-yellow.

Carapace. 1.68 long, 1.33 wide.

Eyes. AME 0.08, ALE 0.15, PLE 0.12, PME 0.10, AME–AME: 0.05.

Endogyne (Fig. 16A–B). Receptacles sac-like, with cylindrical body and rounded tip, not corrugated; gland pores distributed evenly and not forming clusters. Receptacles separated by 2.5 diameters.

Leg measurements.

	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
Palp	1.05	0.44	0.58	—	0.81	2.95
I	1.82	0.65	1.68	1.42	0.98	6.91
II	1.31	0.56	1.02	0.96	0.71	5.11
III	1.10	0.52	0.89	0.85	0.58	4.46
IV	1.62	0.70	1.32	1.18	0.65	6.04

Male

Unknown.

Distribution

Known only from the type locality (Fig. 47).

Zaitunia brignoliana sp. nov.

urn:lsid:zoobank.org:act:3E52AB5D-C6E9-44C0-AF4C-CE5975C739A4

Fig. 16C–F

Diagnosis

Zaitunia brignoliana sp. nov. is easily distinguished from other species of the group, except *Z. afghana*, by having boomerang-shaped receptacles subdivided into two lobes and lacking a stem (undivided in most other members; whereas *Z. afghana* have a distinct stem and the receptacles are dumbbell-shaped – cf. Figs 16D–F and 14G–K, respectively).

Etymology

The specific epithet is given after the prominent Italian arachnologist Paolo Marcello Brignoli (1942–1986) who described three species of *Zaitunia* from Iran.

Material examined

Holotype

IRAN: ♀, Yazd Province, 10 km E of Ardakan, 32º19.9' N, 54º12.3' E, 1235 m, 11 Apr. 2004, V. Vignoli & P. Crucitti (SMF).

Description

Female

Habitus. See Fig. 16C.

Body length. 2.54.

Colour. Carapace, chelicerae and legs mostly medium brownish-yellow; abdomen dorsally, diffuse leg fasciae, cephalic area and reticulate clypeal pattern medium violet-brown; eye tubercle and carapace margins dark violet-brown; sternum light yellow with brownish margins; abdomen ventrally and spinnerets light violet-brown.

Carapace. 1.13 long, 0.94 wide.

Eyes. AME 0.06, ALE 0.11, PLE 0.09, PME 0.07, AME–AME 0.03.

Endogyne (Fig. 16D–F). Receptacles without stems, boomerang-shaped, wider than high; whole receptacle densely covered by glandular pores; inner margins of receptacle bases separated by 4 diameters.

Leg measurements.

	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
Palp	0.55	0.27	0.36	—	0.50	1.68
I	1.17	0.41	1.14	0.95	0.80	4.47
II	0.91	0.39	0.69	0.65	0.58	3.22
III	0.76	0.32	0.54	0.56	0.46	2.64
IV	1.03	0.38	0.81	0.79	0.54	3.55

Male

Unknown.

Distribution

Known only from the type locality (Fig. 47).

Zaitunia medica (Brignoli, 1982)
Fig. 17

Zaitunia medica Brignoli, 1982: 72, fig. 16 (♀).

Zaitunia medica – Marusik & Zamani 2015: 131, figs 5c–d (♀).

Material examined

Holotype

IRAN: ♀, Isfahan Province, Laybid, 33º28' N, 50º42' E, 2100 m, 7 Jul. 1975, P.M. Brignoli & M. Di Rao (MSNV).

Paratype

IRAN: 1 ♀, same data as holotype.

Diagnosis

In structure of the vulva, females of *Z. medica* resemble those of *Z. alexandri*, but differ from them and all other congeners by their unpaired, very short and robust knob-shaped (transverse oval) receptacles (Fig. 17D, F–H).

Description

Female (holotype)

Habitus. See Fig. 17A–B.

Body length. C. 8.00 (pro- and opisthosoma are separate).

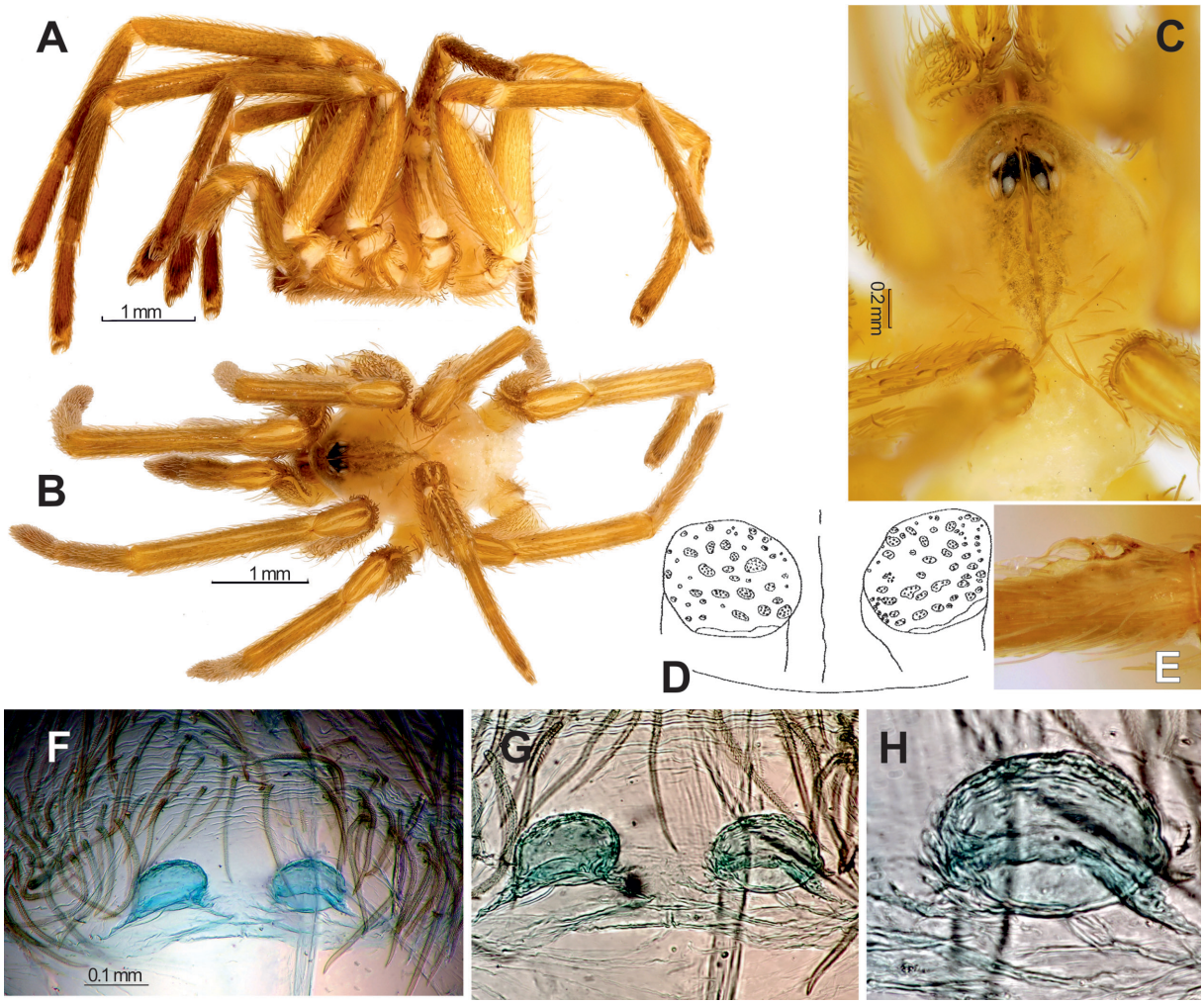

Fig. 17. Somatic characters and endogyne of *Zaitunia medica* Brignoli, 1982, holotype, ♀. A. Prosoma, lateral. **B–C**. Prosoma, dorsal. **D**, **F–G**. Endogyne, dorsal (D: after Brignoli 1982). **E**. Calamistrum, dorsal. **H**. Right receptacle, dorsal. Scale bars: A, B = 1.0 mm; C = 0.2 mm; F = 0.1 mm.

Colour. Whole spider pale brownish-yellow; eye tubercle brownish-black; chelicerae and distal segments of legs I–IV light reddish-brown; carapace (except clypeus) and abdomen without discernible pattern.

Carapace (Fig. 17C). 3.04 long, 2.36 wide.

Eyes. AME 0.10, ALE 0.21, PLE 0.18, PME 0.17, AME–AME 0.07.

Endogyne (Fig. 17F–H). Receptacles hemispherical to transverse oval, wider than high, separated by their width, covered by a few fine pores (Fig. 17D).

Leg measurements (holotype).

	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
Palp	1.40	0.81	0.98	—	1.17	4.36
I	3.17	1.18	2.89	2.82	1.76	11.82
II	2.50	1.04	2.01	1.98	1.31	8.84
III	2.12	0.82	1.51	1.54	0.93	6.92
IV	2.82	1.11	2.42	2.37	1.30	10.02

Note

It is worth noting that Brignoli (1982) illustrated a more elongate receptacle with a stem that had distinct pores on the top, whereas the examined holotype has receptacles lacking a stem and covered with less distinct pores.

Male

Unknown.

Distribution

Known only from the type locality (Fig. 47).

Zaitunia persica Brignoli, 1982
Fig. 18

Zaitunia persica Brignoli, 1982: 70, figs 13–14 (♀).

Zaitunia persica – Marusik & Zamani 2015: 133, fig. 5a (♀).

Diagnosis

Females of *Z. persica* resemble those of *Z. akhanii* by having sinuous, tube-like receptacles, but *Z. persica* has four loops (or bends), whereas *Z. akhanii* has only two loops.

Material examined

Holotype

IRAN: ♀, Fars Province, mountains 10 km E of Dehbid, 29º55' N, 52º55' E, 2100 m, 24 May 1976, P.M. Brignoli (MSNV).

Paratype

IRAN: 1 ♀, same data as holotype.

Description

Female (holotype)

Habitus. See Fig. 18A.

Body length. 5.90.

Colour. Carapace and chelicerae brownish-yellow; carapace with brown to dark brown central area, clypeus and margins; eye tubercle brownish-black; maxillae, labium, sternum and leg coxae pale brownish-yellow; palps and legs medium brownish-yellow with incomplete brownish fasciae; abdomen uniformly pale yellowish-grey without darker pattern.

Carapace (Fig. 18B). 1.41 long, 1.23 wide.

Eyes. AME 0.07, ALE 0.14, PLE 0.13, PME 0.11, AME–AME 0.04.

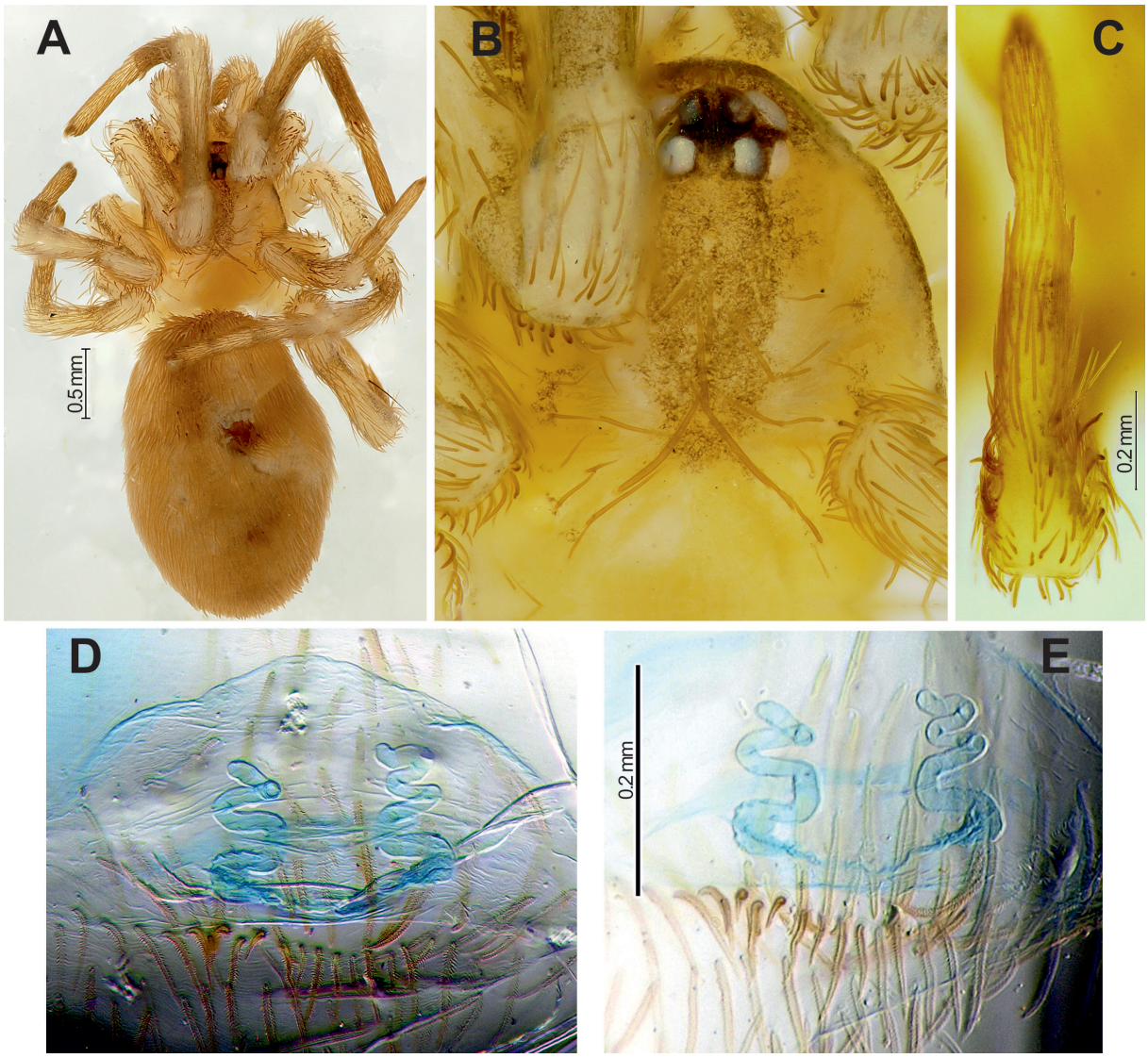

Fig. 18. Somatic characters and endogyne of *Zaitunia persica* Brignoli, 1982, holotype, ♀. **A**. Habitus, dorsal. **B**. Prosoma, dorsal. **C**. Metatarsus and tarsus IV, dorsal. **D–E**. Endogyne, dorsal. Scale bars: A = 0.5 mm; C, E = 0.2 mm.

Endogyne (Fig. 18D–E). Receptacle long, cylindrical, tube-like, bent 4–5 times. Glandular pores indistinct.

Leg measurements (holotype).

	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
Palp	0.84	0.42	0.49	—	0.63	2.38
I	1.52	0.64	1.54	1.31	0.90	5.91
II	1.21	0.57	0.99	0.97	0.68	4.42
III	1.07	0.46	0.71	0.76	0.53	3.53
IV	1.48	0.61	1.23	1.08	0.61	5.01

Male

Unknown.

Distribution

Known only from the type locality (Fig. 47).

***Zaitunia logunovi*-group**

Remarks

This group includes only one light-coloured species. The dorsal body and legs with very weak darker pattern. Cymbium with brush of thick and dense setae on ventral and lateral edges (lacking in other groups). The cap-shaped tegulum is much shorter than the relatively long cymbium. The embolus is very short and twisted. The endogyne has two pairs of receptacles. The only member of this group, *Z. logunovi* sp. nov., is found in Kazakhstan and Kyrgyzstan.

Zaitunia logunovi sp. nov.

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Figs 19–21, 42A–B, 43E

Diagnosis

Males of *Z. logunovi* sp. nov. differ from other congeners by a very short embolus directed forward (only *Z. schmitzi* possesses a similarly short embolus, but in the latter case the embolus is sideward-directed, cf. Fig. 7A–D). The ventral brush of setae on the cymbium adjoining the bulb is more well-developed than in any other congener (cf. Figs 24C, 28G–I, 30I). Females are easily distinguished from all other female congeners except *Z. annulipes* and *Z. halepensis* sp. nov. by having long, non-divergent median receptacles considerably exceeding the small and globular lateral pair in size (Fig. 21). Females of *Z. logunovi* sp. nov. differ from those of *Z. annulipes* and *Z. halepensis* sp. nov. by the shape of their digitiform (not clublike) median receptacles, which are considerably thinner than in the two latter species (cf. Figs 5C–D, 9D–F).

Etymology

This species is named after our friend and colleague Dmitri Logunov (University of Manchester, Manchester, UK).

Material examined

Holotype

KYRGYZSTAN: ♂, foothills of Kyrghyz Mts, Chon-Aryk 2 km S of Bishkek, 42º47' N, 74º34' E, 1100–1200 m, 20 May 1984, S.V. Ovchinnikov (TAU).

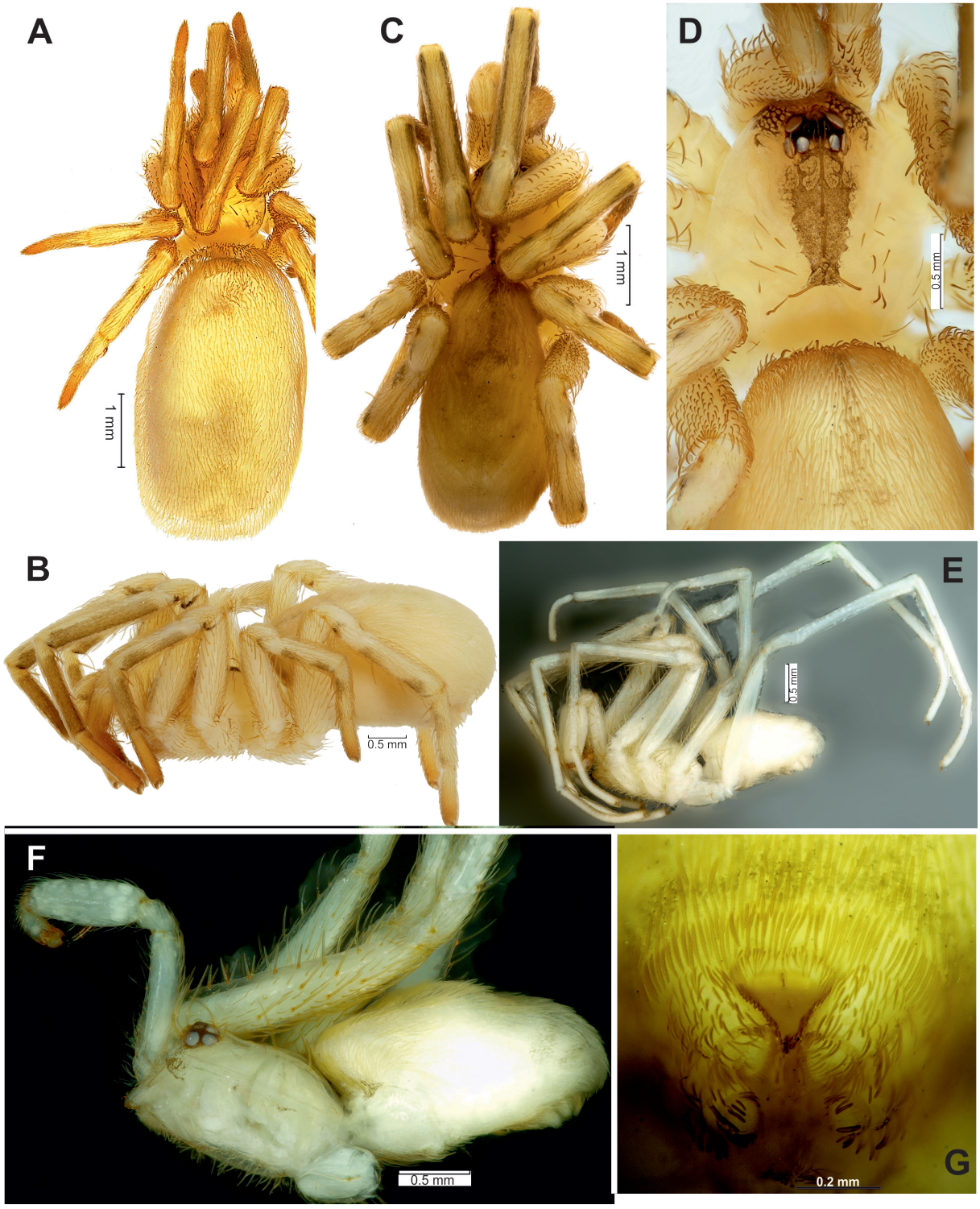

Fig. 19. Somatic characters of *Zaitunia logunovi* sp. nov., paratypes, ♀♀ (**A**–**D**, **G**), and holotype (**E**) and paratype (**F**), ♂♂. — **A**, **C**. Habitus, dorsal. **B**, **E**–**F**. Same, lateral. **D**. Prosoma, dorsal. **G**. Spinnerets, ventral. Scale bars: A, C = 1.0 mm; B, D–F = 0.5 mm; G = 0.2 mm.

Paratypes (9 ♂♂, 44 ♀♀)
KYRGYZSTAN: 1 ♂, 8 ♀♀, same data as holotype.

KAZAKHSTAN: 6 ♀♀, 1 ♀ subad., north-western foothills of Trans-Ili Mts, Argaity gorge, 4 km SE of Akterek town, 43º15' N, 75º25' E, c. 1200 m, 22 May 1988, I.N. Smigunova (TAU); 3 ♂♂, surroundings

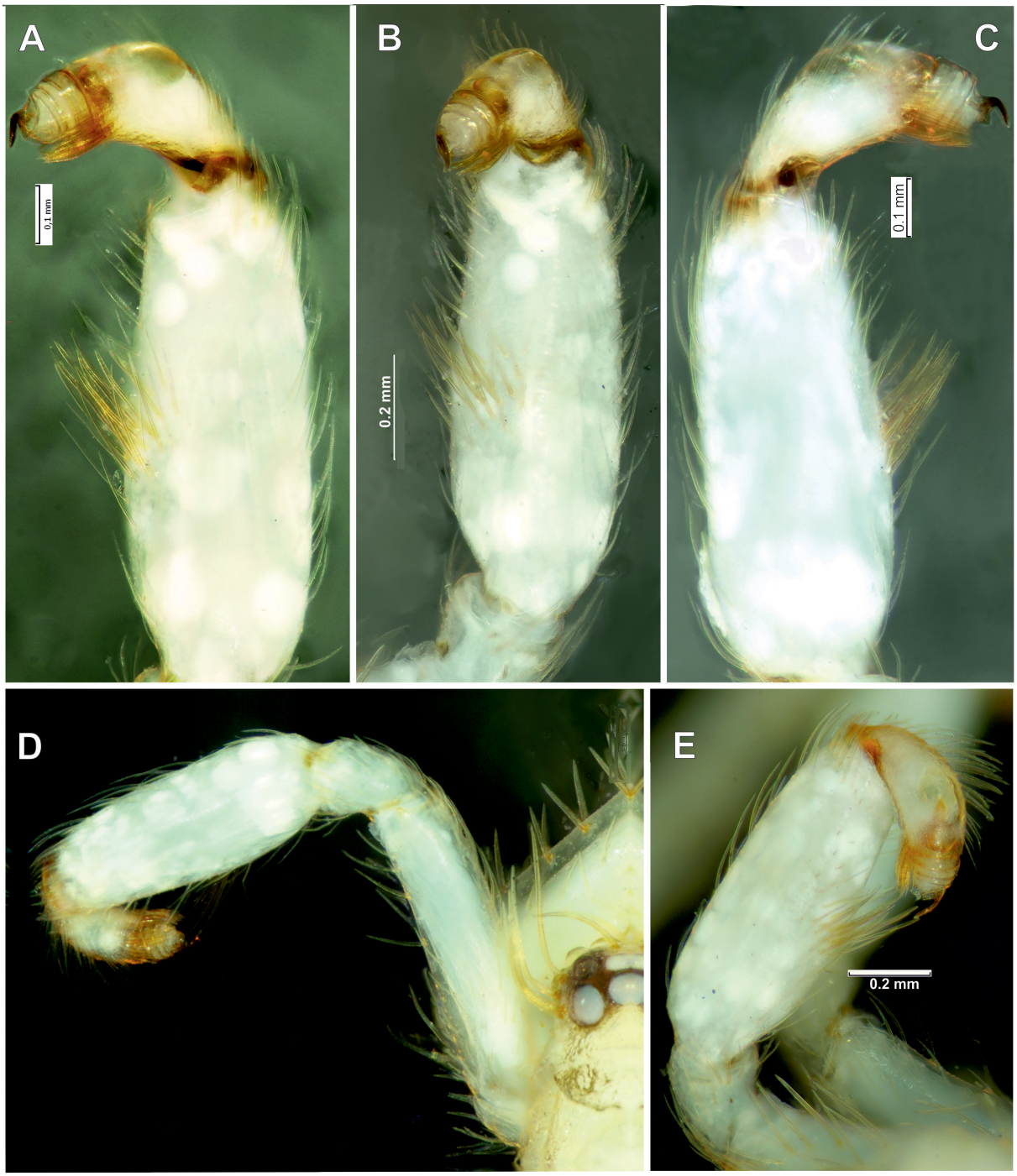

Fig. 20. Palp of *Zaitunia logunovi* sp. nov., paratype, ♂. **A–C**. Terminal part, retrolateral, ventro-retrolateral and prolateral. **D–E**. Entire palp, prolateral and proventral. Scale bars: A, C = 0.1 mm; B, E = 0.2 mm.

of Kordai (= Georgievka) town, 43º02' N, 74º43' E, 600–650 m, 11 Jun. 1983, S.V. Ovchinnikov (TAU); 6 ♀♀, Chu-Ili Mts, Kordai Pass, 37 km NE of Kordai (Georgievka) town, 43º15' N, 74º50' E, 1200 m, 7 Apr. 1983, S. Zonstein & S.V. Ovchinnikov (TAU); 2 ♂♂, 5 ♀♀, same locality, 13–14 Jun. 1990, A.A. Feodorov & A.A. Zyuzin (TAU); 10 ♀♀, same region, mountains 4–5 km N of Otar town, 43º32' N, 75º12' E, 11 May 1988, C.K. Tarabaev & M. Zarko (TAU); 1 ♂, 6 ♀♀, same region, 18.5 km NW of Kenen town, 43º30' N, 74º53' E, 15 Jun. 1990, A.A. Feodorov & A.A. Zyuzin (TAU); 1 ♂, 2 ♀♀, same data (ZMMU); 1 ♂, same region, 61 km on the Kopa-Kolshengel road, 4 km E of road, hills, 43º38.5' N, 75º48.2' E, 26 May 2003, A. Feodorov & N. Poddubskii (AMNH).

Description

Male (holotype)

Habitus. See Fig. 19E.

Body length. 2.82.

Colour. Whole spider pale greyish-yellow; eye tubercle brownish-black; Y-shaped median spot occupying cephalic portion and extending to clypeus, and narrow margins of carapace light brown, as well as a weak and diffuse dorsal abdominal pattern consisting of interrupted median line anteriorly and a few transverse fasciae posteriorly.

Carapace (Fig. 42A). 1.24 long, 1.03 wide.

Eyes. AME 0.07, ALE 0.13, PLE 0.12, PME 0.10, AME–AME 0.04.

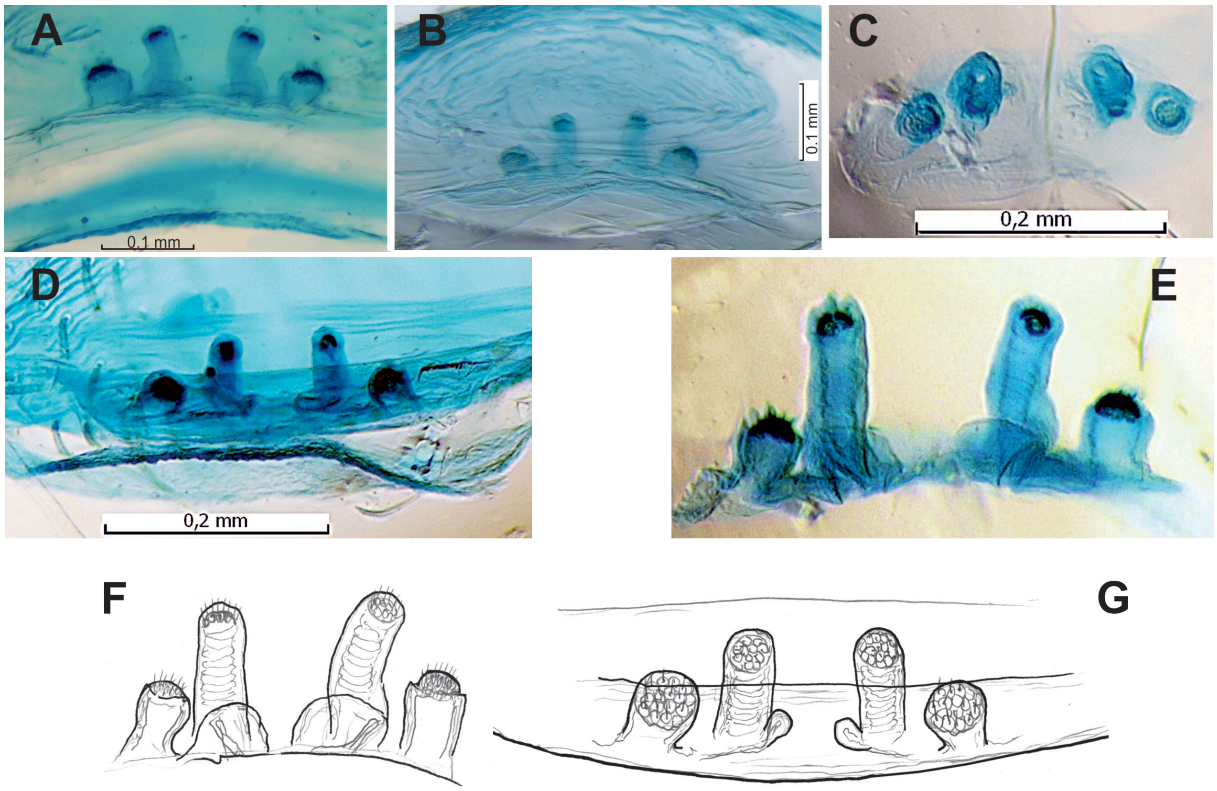

Fig. 21. Endogyne of *Zaitunia logunovi* sp. nov., paratype, ♀. **A–B**, **E–F**. Endogyne, dorsal. **C**. Receptacles, posterior. **D**, **G**. Endogyne, dorsal-anterior. Scale bars: A–B = 0.1 mm; C–D = 0.2 mm.

Palp (Figs 20, 43E; paratype from the type locality). Relatively long and slender; pale, without pigmentation; femur slightly longer than tibia; diameter of tibia 1.33 times wider than in femur; cymbium with distinct dorsal hump, about 2 times longer than bulb, retro- and proventral edge of cymbium with brush of thick and dense setae; bulb hemispherical; embolus short and screw-shaped, without a neck.

Leg measurements ♂(♀).

	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
Palp	0.82 (0.61)	0.28 (0.35)	0.79 (0.46)	—	0.32 (0.57)	2.02 (1.73)
I	1.93 (1.50)	0.52 (0.47)	1.83 (1.31)	1.81 (1.07)	1.15 (0.87)	6.54 (5.22)
II	1.49 (1.07)	0.45 (0.43)	1.39 (0.81)	1.43 (0.67)	0.90 (0.58)	5.18 (3.56)
III	1.34 (0.89)	0.43 (0.41)	1.17 (0.67)	1.37 (0.60)	0.83 (0.55)	4.60 (3.12)
IV	1.88 (1.29)	0.54 (0.44)	1.76 (0.93)	1.94 (0.91)	1.09 (0.67)	6.25 (4.24)

Female (paratype from Kordai)

Habitus. See Fig. 19C.

Body length. 4.67.

Colour. As in male, but darker brownish pattern of carapace is more developed; dorsal abdominal pattern weaker; legs with a few incomplete darker fasciae.

Carapace (Figs 19D, 42B). 1.78 long, 1.43 wide.

Eyes. AME 0.07, ALE 0.17, PLE 0.15, PME 0.10, AME–AME 0.05.

Endogyne (Fig. 21). Both pairs of receptacles cylindrical and with corrugated stems; median receptacles twice as long as laterals and about 1.3 times thinner, median receptacles with wide base and, in anterior view (Fig. 21C), both pairs of same diameter; gland pores cover only tips of receptacles.

Variations

Carapace length in males varies from 1.15 to 1.40, in females from 1.47 to 1.85. Darker pattern and markings in some specimens are almost indistinct (Fig. 19A).

Ecology

The species was found in steppe habitats in foothills and low mountains.

Distribution

Southeastern Kazakhstan and northern Kyrgyzstan (Fig. 48).

***Zaitunia spinimana*-group**

Remarks

This group includes relatively pale-coloured species. Only the clypeus, post-ocular area and dorsal abdominal pattern are slightly darker than the pale background colour. Legs I–IV mostly lacking darker fasciae and are concolorous with the prosoma. The conical tegulum is much shorter than the cymbium. The embolus is relatively long to very long. The endogyne with two pairs of receptacles. Three species are included: *Z. martynovae* (Andreeva & Tyshchenko, 1969) from Tajikistan, *Z. spinimana* sp. nov. from Turkmenistan and Kazakhstan, and (tentatively, because of the unknown male) *Zaitunia inderensis* Ponomarev, 2005 from western Kazakhstan.

Key to species of *Zaitunia spinimana*-group
(Male of *Z. inderensis* is unknown.)

1. Males ……2
– Females ……3

2. Femur, tibia and metatarsus I with numerous long ventral and prolateral spines (Fig. 27A); basal embolic keel absent; embolus shorter, with one loop (Figs 27C–E, 44A); northwestern Turkmenistan, southwestern Kazakhstan ……***Z. spinimana*** sp. nov.
– Femur, tibia and metatarsus I armed with a few unmodified spines (Fig. 23C); basal embolic keel present; embolus longer, with two loops (Figs 24A–D, 43F); Tajikistan, southern Turkmenistan …… ……***Z. martynovae*** (Andreeva & Tyshchenko, 1969)

3. All receptacles are subequal in size (Fig. 27H–I) ……***Z. spinimana*** sp. nov.
– Median and lateral receptacles differ in size (Figs 25, 26B–C, E) ……4

4. Median receptacles considerably smaller than lateral pair (Fig. 26B–C, E); western Kazakhstan ……***Z. inderensis*** Ponomarev, 2005
– Median receptacles considerably larger than lateral pair (Fig. 25) …… ……***Z. martynovae*** (Andreeva & Tyshchenko, 1969)

Zaitunia inderensis Ponomarev, 2005
Figs 22, 42C

Zaitunia inderensis Ponomarev, 2005: 43, fig. 1a–b (♀).

Zaitunia inderensis – Fomichev & Marusik 2013: 85, figs 10–11, 15 (♀).

Diagnosis

By the structure of the vulva, females of *Z. inderensis* resemble *Z. spinimana* sp. nov., but differ from it and all other congeners by the enlarged lateral receptacles which are considerably larger and more robust than the median pair (Fig. 22E).

Material examined

Holotype
KAZAKHSTAN: ♀, Atyrau Province, Inder plateau, karst sinkhole 20 km E of Inderborskiy (=Inderbor) town, 48º33' N, 52º01' E, 29 Sept. 1986, A.V. Ponomarev (ZMMU).

Paratypes (5 ♀♀)
KAZAKHSTAN: 2 ♀♀, same data as holotype; 3 ♀♀, same data, but 25 May 1987 (ZMMU).

Description

Female (holotype)
Habitus. See Fig. 22A.

Body length. 3.66.

Colour. Whole spider pale yellowish-grey; eye tubercle brownish; abdomen lacking dorsal pattern.

Carapace (Fig. 42C). 1.34 long, 1.02 wide.

Eyes. AME 0.07, ALE 0.13, PLE 0.10, PME 0.09, AME–AME 0.04.

Endogyne (Fig. 22B–C, E). Median and lateral receptacles closely spaced and arranged almost in one longitudinal line (median receptacles partly hide lateral ones). Median receptacles very short; lateral receptacles diverging, clublike, with corrugated stems, head of receptacles separated by about 2.5 of their diameter; median receptacles separated by less than 1.5 diameters.

Leg measurements.

	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
Palp	0.62	0.30	0.46	—	0.51	1.89
I	1.32	0.48	1.16	0.99	0.84	4.79
II	1.01	0.43	0.78	0.70	0.58	3.50
III	0.87	0.41	0.63	0.79	0.55	3.25
IV	1.18	0.45	0.91	0.90	0.73	4.17

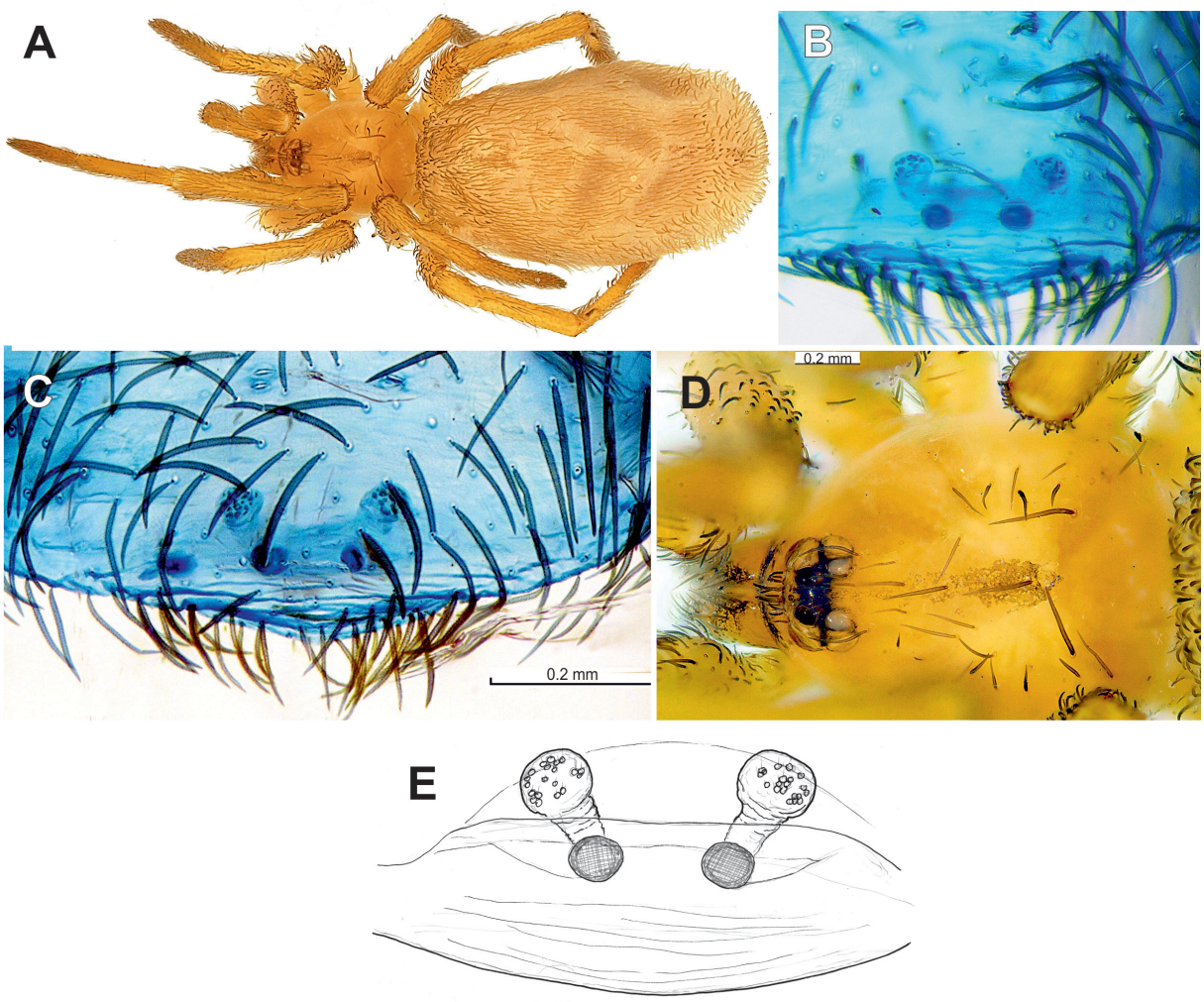

Fig. 22. Somatic characters and endogyne of *Zaitunia inderensis* Ponomarev, 2005, paratype, ♀. **A**. Habitus, dorsal. **B–C**, **E**. Endogyne, dorsal. **D**. Prosoma, dorsal. Scale bars: A, C–D = 0.2 mm.

Male
Unknown.

Variation

Carapace length in female paratypes varies from 1.19 to 1.40; no distinction in the colouration is evident.

Ecology

According to label data and the original description (Ponomarev 2005), the species was found in a low, semi-desert karst plateau.

Distribution

Known only from the type locality (Fig. 48).

Zaitunia martynovae (Andreeva & Tyshchenko, 1969)
Figs 23–26, 43F, 50F

Filistata martynovae Andreeva & Tyshchenko, 1969: 374, fig. 1 (♀).

Filistata martynovae – Andreeva 1976: 19, figs 13–14 (♀).
Zaitunia martynovae – Zonstein 1990: 50 (transfer from *Filistata*).

Diagnosis

By the structure of the bulb, *Z. martynovae* resembles *Z. spinimana* sp. nov., but differs from it and all other male congeners by the long and flattened corkscrew-shaped embolus (Figs 25A–D, 43F). Females are easily distinguished from all other congeners due to their large and swollen median receptacles (Fig. 26).

Type material

Holotype
TAJIKISTAN: ♀, Sanglok Mts, Tutkaul Village, 10 Sep. 1966, E. Martynova (depository unknown, not examined).

Material examined (1 ♂, 37 ♀♀, 2 ♀♀ subad., 5 juvs)
TAJIKISTAN: 1 ♀, Aruktau Mts, surroundings of Gandzhina, 37°58' N, 68°34' E, 700–900 m, 19–20 Apr. 1986, S. Zonstein (TAU); 1 ♀ subad., same data, but 13 Apr. 1987 (TAU); 3 ♀♀, same data, but 11 Apr. 1988 (TAU); 1 ♀, same data, but 19 Apr. 1989 (TAU); 1 ♂, 6 ♀♀, same data, but 21 Apr. 2015, S. Zonstein (TAU); 3 ♀♀, 2 ♀♀ subad., same data, but 37°57.7' N, 68°33.7' E, 716 m, 21 Apr. 2015, Y.M. Marusik (ZMMU); 2 ♀♀, Sanglok Mts, 1 km W of Khodzharki (= Sebiston), 38°15' N, 69°15' E (10 km SE of Tutkaul village), 1300 m, 18 May 2002, S. Zonstein (TAU); 2 ♀♀, Pyandzh Karatau Mts, surroundings of Mt. Astana, 37°23' N, 69°15' E, 1400–1600 m, 23 Apr. 1991, S. Zonstein (TAU); 7 ♀♀, 1 juv., same data, but 37°23.2' N, 69°14.8' E, 1674 m, 4 May 2015, Y.M. Marusik (ZMMU); 3 ♀♀, same data, but 37°22.8' N, 69°14.7' E, 1600 m, 4 May 2015, S. Zonstein (TAU); 1 ♀, 1 juv., foothills 8 km E of Pyandzh town, 37°14.7' N, 69°14.0' E, 464 m, 5 May 2015, Y.M. Marusik (ZMMU); 2 ♀♀, Khodzha-Mumin salt dome, 37°45.9' N, 69°38.6' E, 470 m, 25 Apr. 2015, S. Zonstein (TAU); 1 ♀, 2 juvs, same data, but Yu.M. Marusik (ZMMU); 1 ♀, 1 juv., Rangentau Mts, env. of Khurson, 38°10.7' N, 68°39.7' E, 724 m, clay cliff near road, 4 May 2015, Y.M. Marusik (ZMMU).

TURKMENISTAN: 3 ♀♀, Central Kopetdagh Mts, northern slope of Ulydepe Mts, 14 km W of Gektepe, 38º09'45" N, 57º47'05" E, 600 m, 1 Apr. 2002, A.V. Gromov (ZMMU).

Note

Tutkaul village, the type locality of *Filistata martynovae* Andreeva & Tyshchenko, is now covered by the water of the Nurek Reservoir.

Description

Male (Gandzhina)

Habitus. See Fig. 24A, C.

Body length. 3.47.

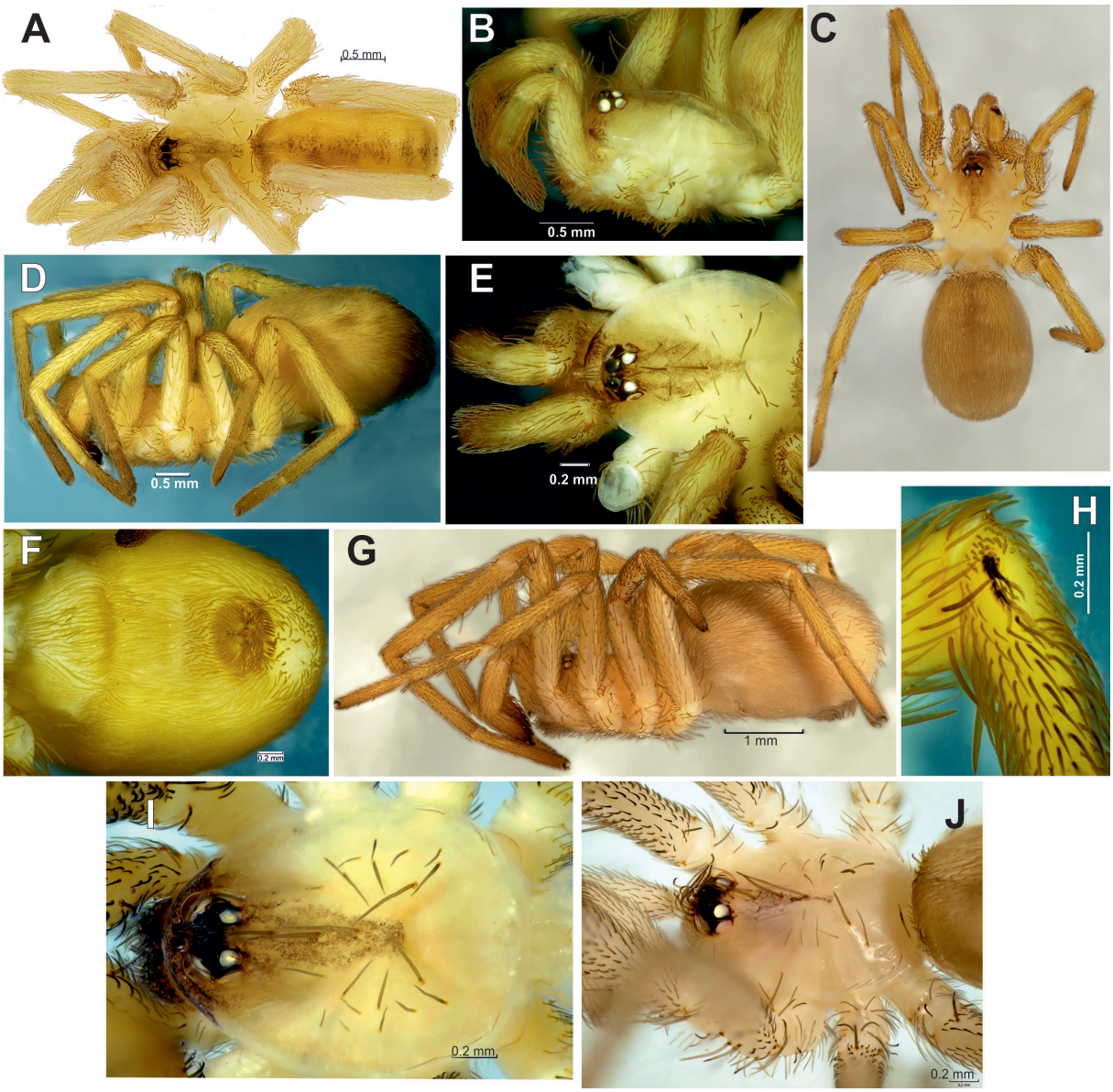

Fig. 23. Somatic characters of *Zaitunia martynovae* (Andreeva & Tyshchenko, 1969) from Gandzhina (**A**, **C**, **G**, **I–J**) and Kopetdagh (**B**, **D–F, H**); ♀♀ (**A–I**) and ♂ (**J**). — **A**, **C**. Habitus, dorsal. **B**. Prosoma, lateral. **D**, **G**. Habitus, lateral. **E**, **I**. Prosoma, dorsal. **F**. Abdomen, ventral. **H**. Calamistrum, dorsal. **J**. Prosoma, dorso-lateral. Scale bars: A–B, D = 0.5 mm; E–F, H–J = 0.2 mm; G = 1.0 mm.

Colour. Prosoma and legs pale greyish-brownish-yellow; eye tubercle brownish-black; diffuse and narrow median line light brown (but margins of carapace not darkened), abdomen dorsally light brownish with diffuse pattern of slightly darker narrow median line anteriorly and a few transverse fasciae posteriorly.

Carapace (Fig. 24B, D). 1.52 long, 1.26 wide.

Eyes (Fig. 25E). AME 0.07, ALE 0.11, PLE 0.09, PME 0.08, AME–AME 0.08.

Palp (Figs 25A–D, 43F). Relatively long and slender, 1.78 times longer than carapace; tibia 1.3 times wider than femur, dorso-distally with brush of strong setae; cymbium shorter than bulb; bulb sinuous in lateral view; spermophore sinuous in embolic neck; embolus longer than neck and equal in length to tegulum + neck, embolus bent twice.

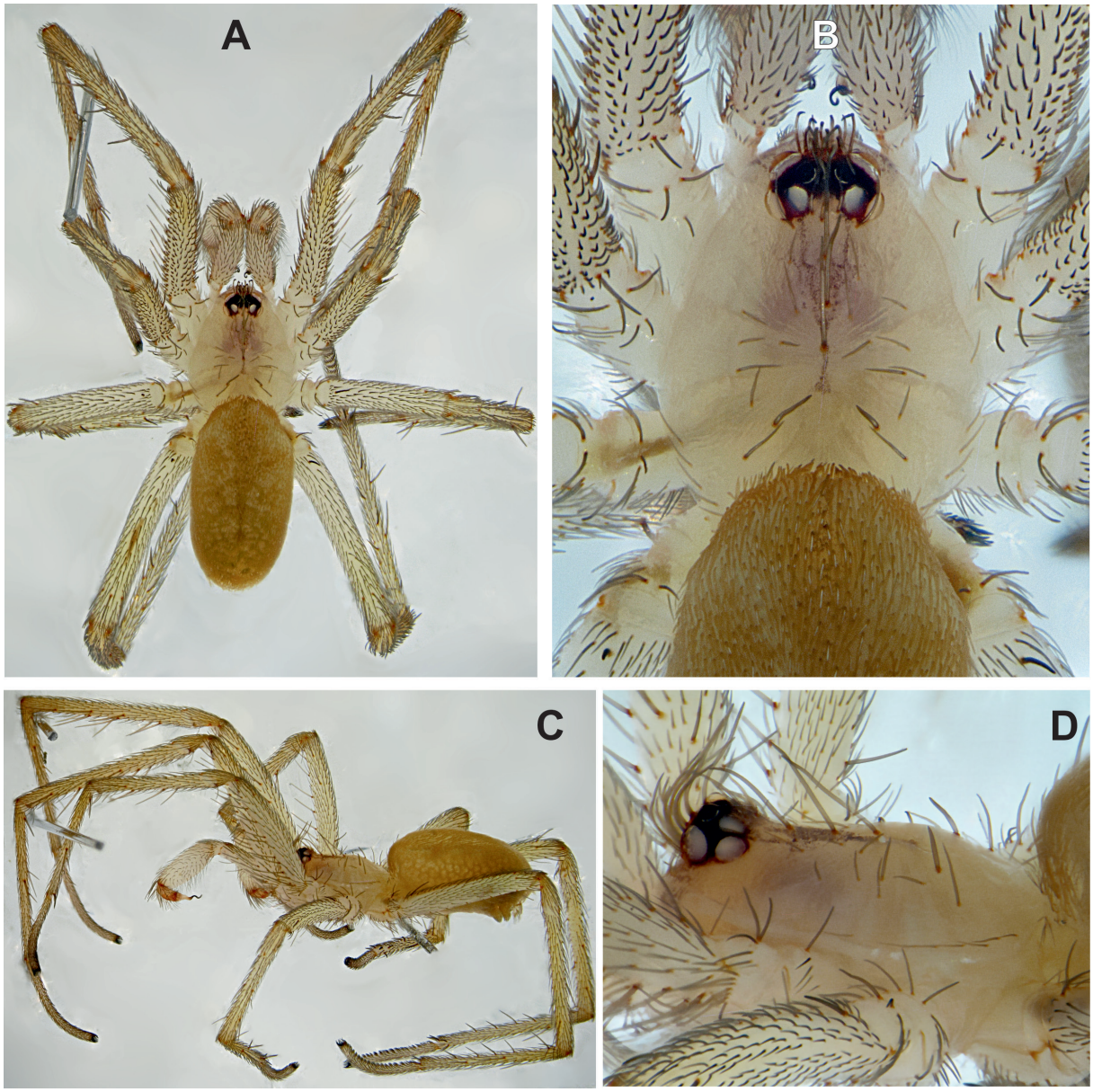

Fig. 24. Somatic characters of *Zaitunia martynovae* (Andreeva & Tyshchenko, 1969), ♂ from Gandzhina. **A**, **C**. Habitus, dorsal and lateral. **B**, **D**. Prosoma, dorsal and lateral.

Leg measurements. ♂(♀)

	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
Palp	1.07 (0.93)	0.29 (0.36)	1.01 (0.55)	—	0.34 (0.67)	2.71 (2.51)
I	2.43 (1.95)	0.57 (0.57)	2.55 (1.89)	2.46 (1.57)	1.89 (1.18)	9.90 (7.16)
II	1.94 (1.53)	0.49 (0.51)	1.76 (1.28)	1.94 (1.17)	1.28 (0.84)	7.41 (5.33)
III	1.81 (1.26)	0.51 (0.47)	1.58 (0.97)	1.79 (0.98)	0.96 (0.76)	6.65 (4.44)
IV	2.34 (1.76)	0.48 (0.59)	2.17 (1.41)	2.43 (1.30)	1.54 (0.86)	8.96 (5.92)

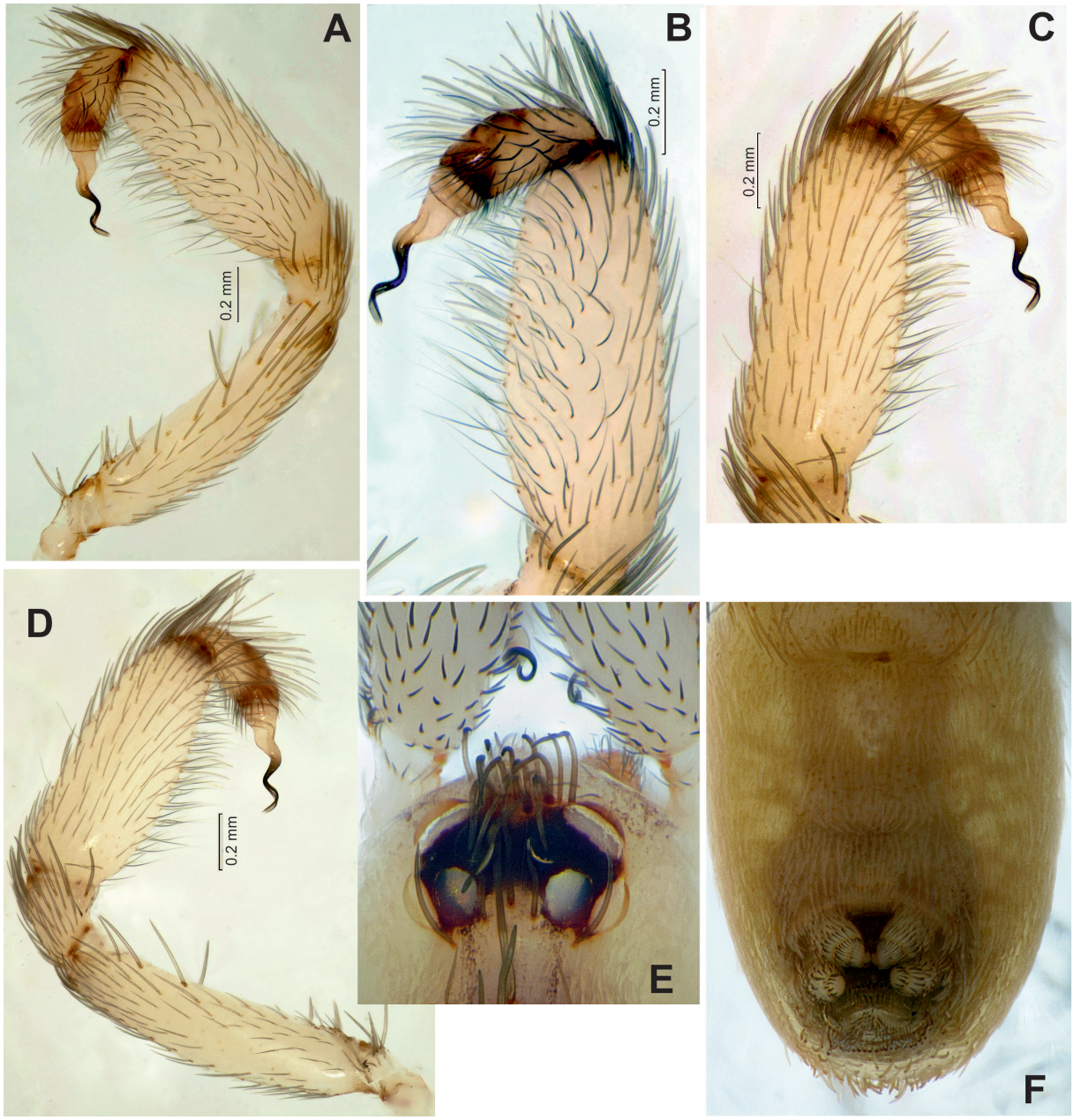

Fig. 25. Palp and somatic characters of *Zaitunia martynovae* (Andreeva & Tyshchenko, 1969), ♂ from Gandzhina. **A**, **D**. Palp, retro- and prolateral. **B–C**. Terminal part of palp, retro-ventral and prolateral. **E**. Cephalic part of carapace, dorsal. **F**. Abdomen, ventral.

Female (Gandzhina)

Habitus. See Fig. 23C, G.

Body length. 4.35.

Colour. As in male but abdomen slightly darker dorsally, and ventrally with darker X-shaped spot in genital area.

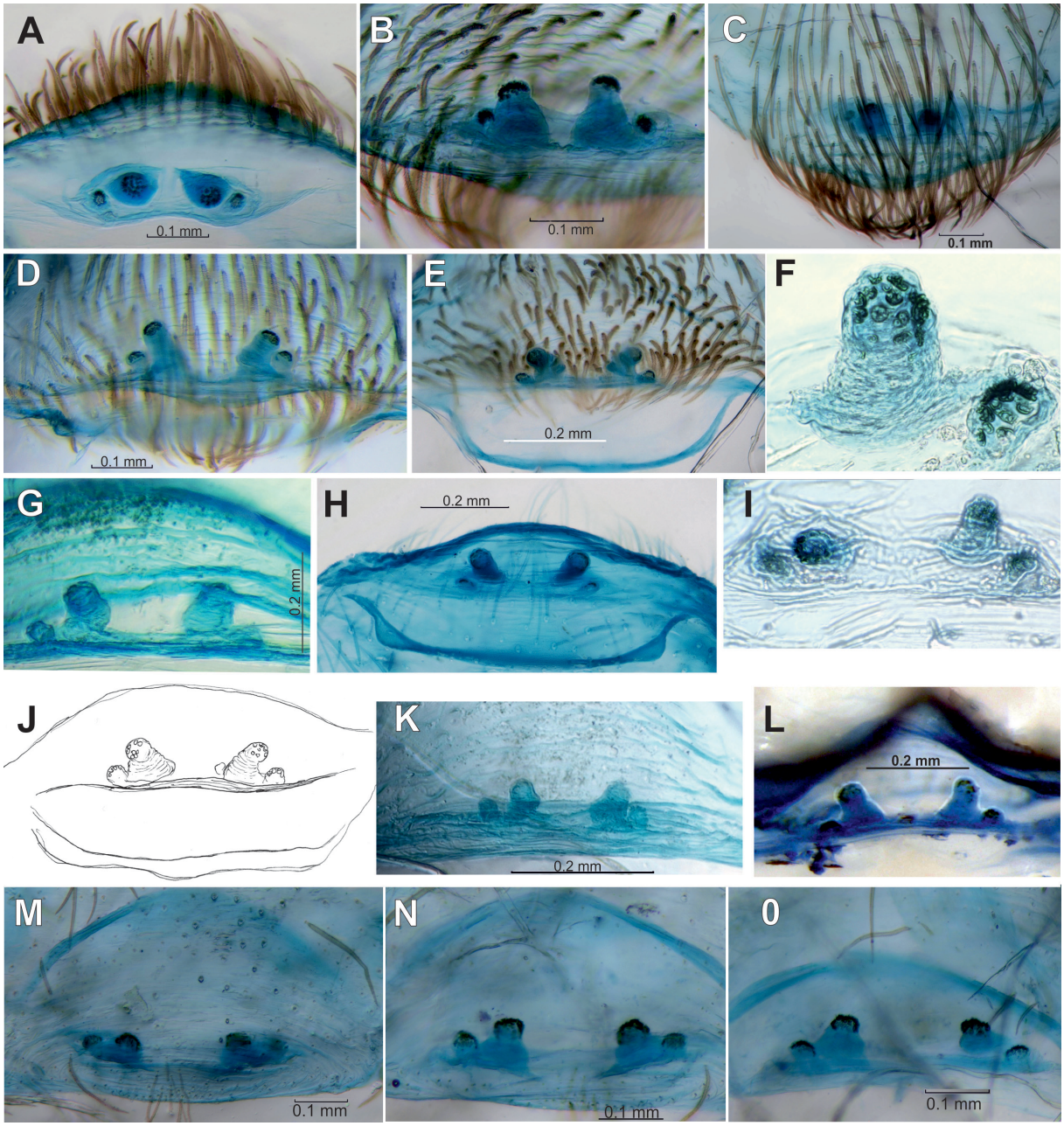

Fig. 26. *Zaitunia martynovae* (Andreeva & Tyshchenko, 1969), structure of endogyne in ♀♀ from Gandzhina (**A–C**, **J**), Kopetdagh (**D–E**), Babatagh (**F–I**, **K–L**) and Pyandzh Karatau (**M–O**). — **A**, **I**. Endogynal plate from above. **B**, **D**, **L**, **N–O**. Endogyne, dorsal. **C**, **M**. Endogyne, ventral. **E**, **G**, **H**, **J–K**. Endogyne, dorsal-anterior. **F**. Right pair of receptacles, dorsal-anterior.

Carapace (Fig. 23I). 1.62 long, 1.29 wide.

Eyes. AME 0.07, ALE 0.13, PLE 0.11, PME 0.09, AME–AME 0.06.

Endogyne (Fig. 26A–C). With large and wide conical median receptacles and small globular lateral receptacles; median receptacles with corrugated stem, their bases separated by less than the diameter of their heads, heads separated by 1.6 of their diameter; heads of both pairs densely covered with gland pores.

Variations

Carapace length in females varies from 1.50 to 1.75. Variation of coloration and structure of the endogyne in females from Tajikistan and Turkmenistan is shown in Figs 23A–B, D–F, and 26D–O, respectively. The body and leg pattern, including the X-shaped spot in the female genital area, may be well-developed or indistinct.

Ecology

This species is found in different habitats from foothill steppes and shrubland to open *Juniperus* forest in the middle mountain belt. The spiders occur under stones (Fig. 50B), and in crevices in clay escarps (Fig. 50C) and rock outcrops (Fig. 50D) where they build small webs below or near the cavity entrance (Fig. 50E, a close-up view of such a web is also shown in Fig. 50F).

Distribution

Tajikistan and Turkmenistan (Fig. 48).

Zaitunia spinimana sp. nov.
urn:lsid:zoobank.org:act:FC2C0EDF-90DD-4D31-B159-45BA263BC9D8
Fig. 27

Zaitunia sp. – Zyuzin & Tarabaev 1994: 399.

Diagnosis

By structure of the bulb, *Z. spinimana* sp. nov. resembles *Z. martynovae* but differs from the latter by its shorter and narrower corkscrew-shaped embolus (cf. Figs 24A–D, 43F, 27C–E, 44A). Additionally, it differs from *Z. martynovae* and all other congeners by having a femur, tibia and metatarsus I with unusually numerous, long spines (Figs 27A). By structure of the vulva, *Z. spinimana* sp. nov. is similar to *Z. inderensis*; they differ by the receptacles, which are subequal in size (Fig. 27H–I).

Etymology

The specific epithet is derived from the Latin *spina-* (thorn, spine) and *-manus* (hand, appendage); the proposed name refers to the spiny legs of the male.

Material examined

Holotype

TURKMENISTAN: ♂, Ustyurt Plateau (southern part), Kaplankyr Nature Reserve, 29 Apr. 1986, L. Mitroshina (TAU).

Paratype

KAZAKHSTAN: 1 ♀, Mangystau Province, 40 km S of Aktau, 7 Jun. 2013, G. Abdurrakhmanov (ZMMU).

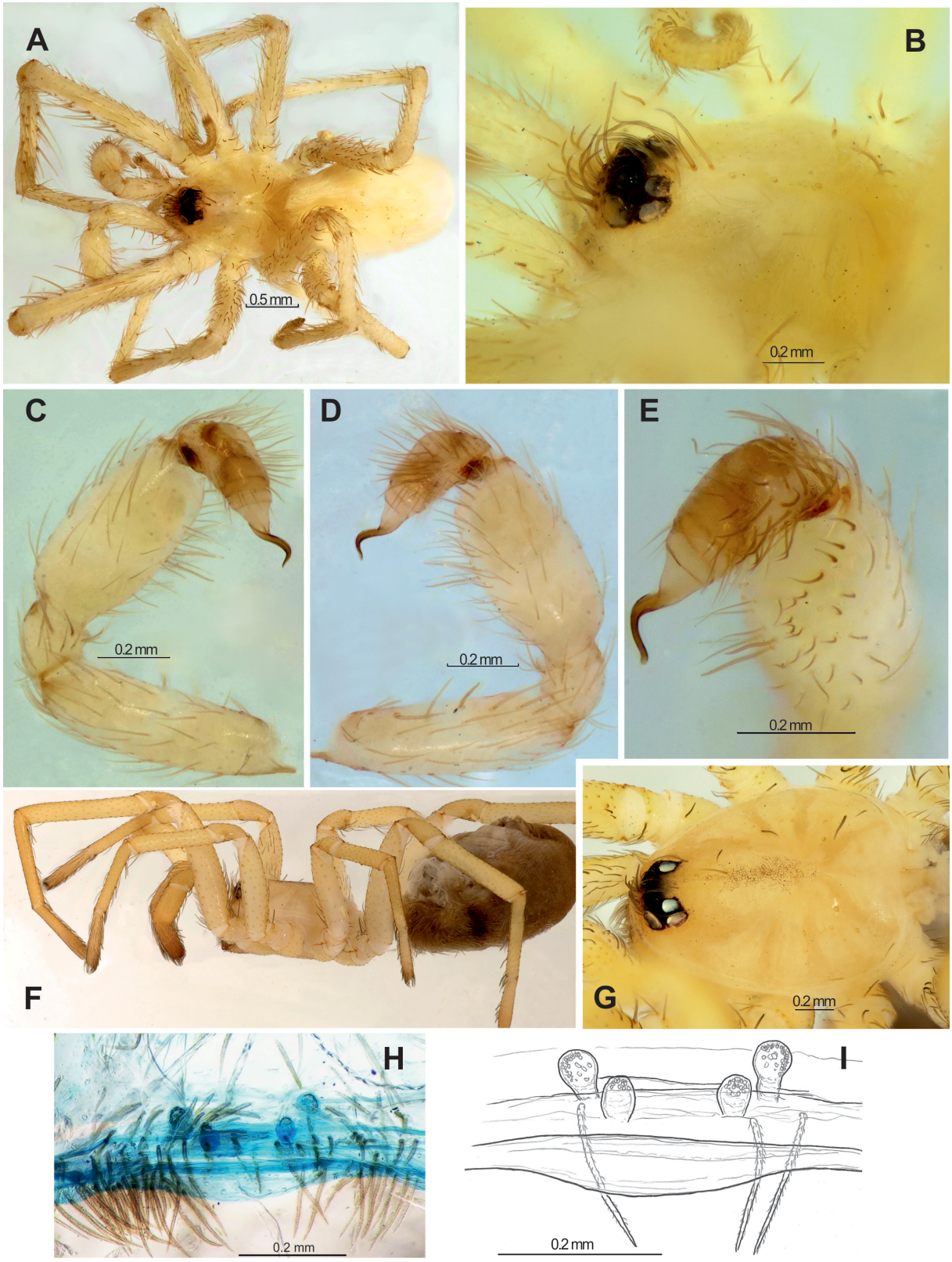

Fig. 27. Somatic characters and copulatory organs of *Zaitunia spinimana* sp. nov., holotype, ♂ (**A–E**) and paratype, ♀ (**F–I**). — **A**, **F**. Habitus, dorsal and lateral. **B**, **G**. Prosoma, dorso-lateral. **C–D**. Palp, pro- and retrolateral. **E**. Cymbium and bulb, anterior-retrolateral. **H–I**. Endogyne, dorsal.

Note

The holotype male and the only collected paratype female are very similar in possessing a very similar shape of the carapace (flattened more than usual) and a similar conformation of the eye group. Although the distance between the localities listed above is about 500 km, these slightly hilly and extremely uniform desert landscapes have no significant natural barriers. We prefer currently to treat these specimens as the same species (with no serious objectives against this assumption) rather than consider them representatives of two very close but distinct species.

Description

Male

Habitus. See Fig. 27A.

Body length. 2.60.

Colour. Whole body and legs pale yellowish-white; clypeus with weak pale orange area; eye tubercle marked with medium to dark brown; abdomen dorsally with slightly darker and almost indistinct narrow median stripe.

Carapace. 1.12 long, 0.96 wide.

Eyes (Fig. 27B). AME 0.08, ALE 0.13, PLE 0.11, PME 0.08, AME–AME 0.06.

Palp (Figs 27C–E, 44A). Femur and tibia subequal in length; tibia 1.4 times wider than femur; cymbium slightly shorter than bulb; spermophore relatively wide; neck of embolus shorter than embolus proper; embolus long and arched, slightly screw-shaped.

Special characters. Leg I with numerous long spines, located proapically on femur, prolaterally and ventrally on tibia and metatarsus (Fig. 27A).

Leg measurements. ♂(♀)

	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
Palp	0.63 (0.73)	0.22 (0.29)	0.58 (0.48)	—	0.28 (0.57)	1.71 (2.08)
I	1.61 (1.54)	0.46 (0.51)	1.47 (1.48)	1.35 (1.27)	1.09 (0.88)	5.98 (5.68)
II	1.33 (1.23)	0.43 (0.46)	1.15 (1.06)	1.08 (0.95)	0.84 (0.70)	4.83 (4.40)
III	1.14 (1.03)	0.36 (0.44)	1.04 (0.84)	1.03 (0.84)	0.58 (0.59)	4.15 (3.74)
IV	1.52 (1.49)	0.44 (0.53)	1.43 (1.17)	1.48 (1.15)	0.64 (0.75)	5.51 (5.09)

Female

Habitus. See Fig. 27F.

Body length. 3.87.

Colour. As in male except for darker brownish abdomen.

Carapace (Fig. 27G). 1.62 long, 1.23 wide.

Eyes. AME 0.07, ALE 0.13, PLE 0.10, PME 0.08, AME–AME 0.06.

Endogyne (Fig. 27H–I). Both pairs of receptacles club-like, lateral receptacles longer than median, with distinct corrugated stem; median receptacles separated by more than 2.5 diameters; gland pores cover entire head of lateral receptacles and only top of median ones.

Ecology

According to Zyuzin & Tarabaev (1994) and the label data, this species occurs in upland desert area; no more details are known.

Distribution

Northwestern Turkmenistan, southwestern Kazakhstan (Cis-Caspian area) (Fig. 48).

Zaitunia beshkentica species group

Remarks

This group includes pale-coloured species. The clypeus, post-ocular area, dorsal abdominal pattern and sometimes lateral margins of the carapace are slightly darker than the pale background colour. Legs I–IV, mostly lacking darker fasciae, are concolorous with the prosoma. The conical tegulum is much shorter than the cymbium. The relatively long embolus is provided with a well-developed raised keel. The vulva has two pairs of receptacles. Four species are included: *Z. beshkentica* (Andreeva & Tyshchenko, 1969) from Tajikistan, Turkmenistan and Uzbekistan, *Z. psammodroma* sp. nov. from Turkmenistan, *Z. wunderlichi* sp. nov. from Kyrgyzstan, and (tentatively, because the male is unknown) *Z. huberi* sp. nov. from Afghanistan.

Key to species of the *Zaitunia beshkentica*-group
(Male of *Z. huberi* sp. nov. and female of *Z. psammodroma* sp. nov. are unknown.)

1. Males ……2
– Females ……4

2. Metatarsus IV shortened and thickened with distal comb of short spines (Fig. 30G, K); palpal tibia and embolic keel shorter (Figs 30H–J, 44C); Turkmenistan ……***Z. psammodroma*** sp. nov.
– Metatarsus IV unmodified (as in Figs 28A, D–F, 31E); palpal tibia and embolic keel longer (Figs 28G–I, 32A–G, 44B, D) ……3

3. Embolic keel lower and longer, and rounded at median part of terminal hook (Figs 32D–F, 44D); Kyrgyzstan ……***Z. wunderlichi*** sp. nov.
– Embolic keel higher and shorter, and ends abruptly at basal part of terminal hook (Figs 28G–I, 44B); Tajikistan, Uzbekistan ……***Z. beshkentica*** (Andreeva & Tyshchenko, 1969)

4. Receptacles short, globular and subequal in size (Fig. 30C–E); Afghanistan ……***Z. huberi*** sp. nov.
– Receptacles more elongate and noticeably differing by size (Figs 29I–K, 32H–I) ……5

5. Median receptacles smaller than lateral pair (Fig. 33A–B) ……***Z. wunderlichi*** sp. nov.
– Median receptacles larger than lateral pair (Fig. 29I–K) …… ……***Z. beshkentica*** (Andreeva & Tyshchenko, 1969)

Zaitunia beshkentica (Andreeva & Tyshchenko, 1969)
Figs 28–29, 33C, 42D–E, 44B

Filistata beshkentica Andreeva & Tyshchenko, 1969: 376, fig. 2 (♀).

Filistata beshkentica – Andreeva 1976: 18, figs 10–12 (♀).
Zaitunia beshkentica – Zonstein 1990: 50 (transfer from *Filistata*).

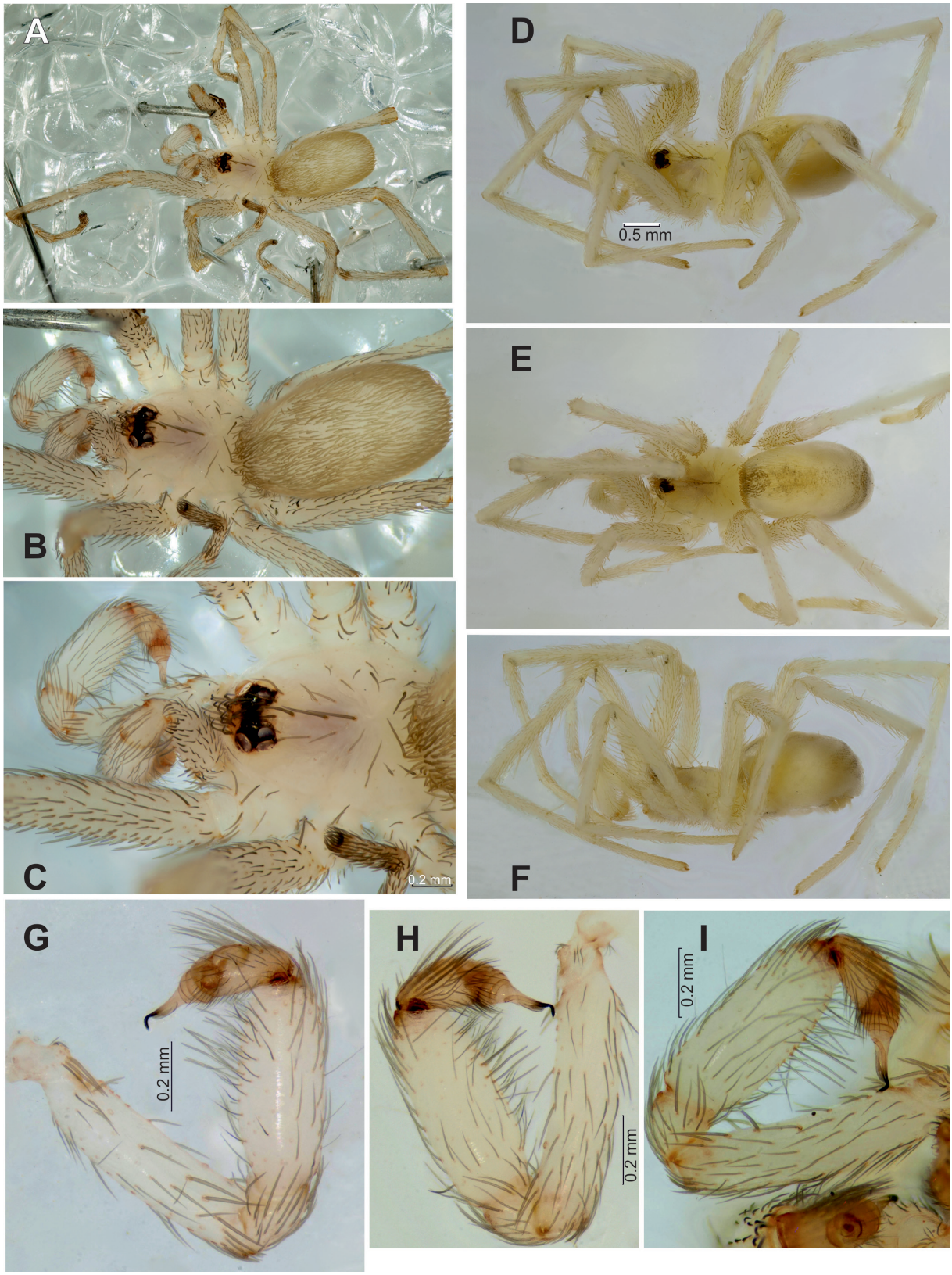

Fig. 28. Somatic characters and palp of *Zaitunia beshkentica* (Andreeva & Tyshchenko, 1969), ♂♂ from Khurshedi (**A**–**C**, **G**–**I**) and Babatagh (**D**–**F**). — **A**, **E**. Habitus, dorsal. **B**. Body, dorsal. **C**. Prosoma, dorsal. **D**, **F**. Habitus, doro-lateral and lateral. **G**. Palp, retrolateral. **H**–**I**. Same, prolateral.

Diagnosis

Males of *Z. beshkentica* are similar to those of *Z. wunderlichi* sp. nov. but differ from them by the shape of the raised embolic keel, which terminates more abruptly (cf. Figs 28G–I and 32D–F), whereas females rather resemble *Z. huberi* sp. nov. in vulval structure but differ from the latter species by the shape of the median receptacles, which are longer and tubiform (vs shorter and rounded in *Z. huberi* sp. nov., cf. Figs 29I–K, 30C–E).

Type material

Holotype

TAJIKISTAN: ♀, Beshkent Valley, Chiluchor-Chashma, 8 May 1965, E. Martynova (depository unknown, not examined).

Material examined (4 ♂♂, 20 ♀♀, 8 juvs)

TAJIKISTAN: 1 ♀, Beshkent Valley, Chiluchor-Chashma, 37°17' N, 68°02' E, 400 m, 17 Apr. 1989, S. Zonstein (TAU); 1 ♀, same locality, but 19 Apr. 2015, S. Zonstein (TAU); 2 ♀♀, Tigrovaya Balka (Tiger

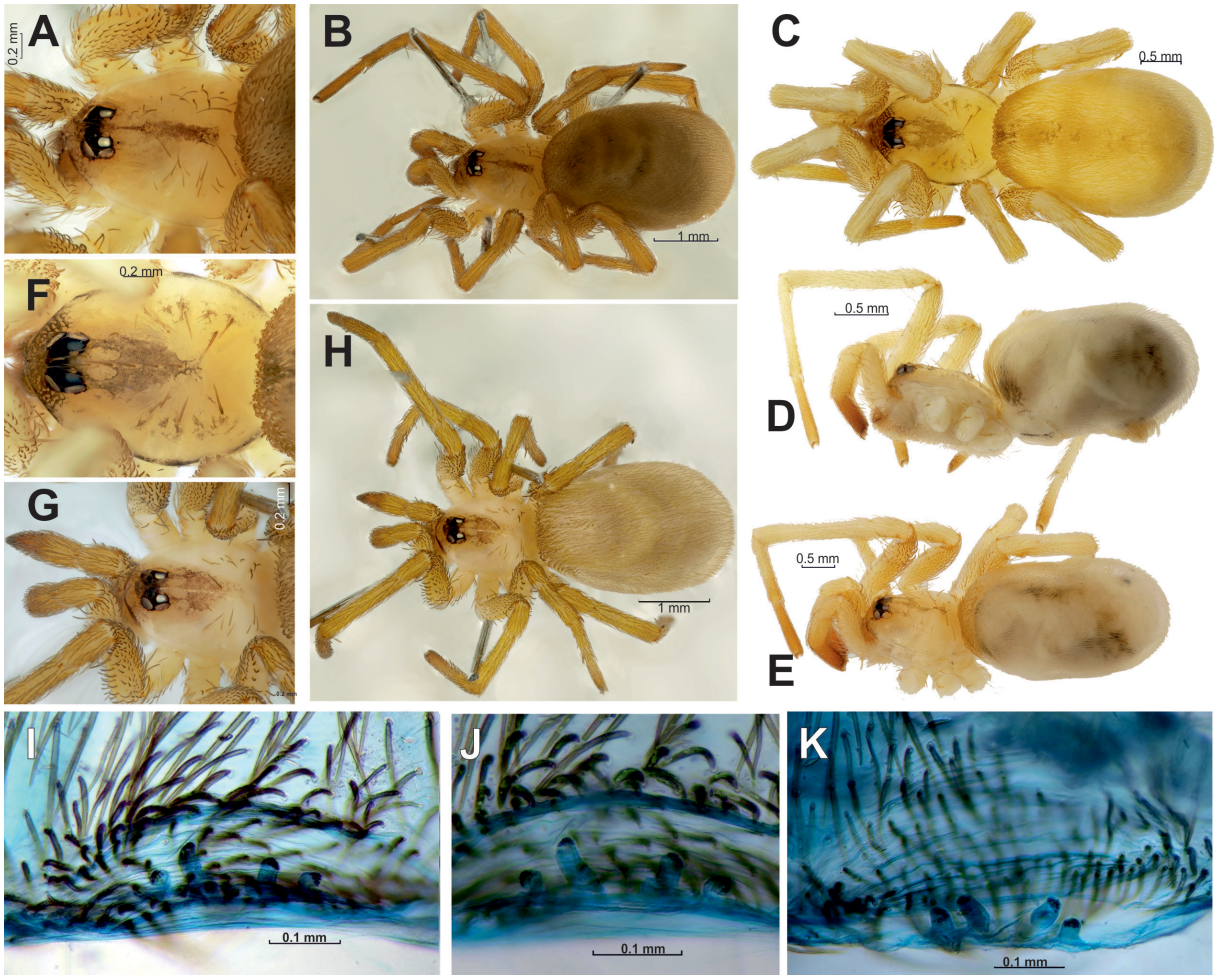

Fig. 29. Somatic characters and endogyne of *Zaitunia beshkentica* (Andreeva & Tyshchenko, 1969), ♀♀ from Chiluchor-Chashma (**A–B**), Babatagh (**C–F**) and Khurshedi (**G–K**). — **A**, **F–G**. Prosoma, dorsal. **B–C**, **H**. Habitus, dorsal. **D–E**. Same, lateral and dorso-lateral. **I–K**. Endogyne, dorsal.

Gorge), 37°08' N, 68°17' E, 18 Apr. 1989, S. Zonstein (TAU); 1 ♂, 2 ♀♀, 4 juvs, Khurshedi, 37°09.1' N, 68°04.2' E, 342 m, stony desert, chiefly under shrubs, 19 Apr. 2015, Y.M. Marusik (ZMMU); 1 juv., foothills of Hissar Mts, Varzob valley, 10 km N of Dushanbe, surroundings of Varzob Lake, 38°40.6' N, 68°47.4' E, 985 m, 3 May 2015, Y.M. Marusik (ZMMU); 1 ♂, Hissar Mts, Takob Gorge, near Dehmalik Village, 38°50.8' N, 68°54.6' E, 805 m, 8 May 2015, Y.M. Marusik & M. Saidov (TAU).

UZBEKISTAN: 1 ♂, Babatagh Mts, 2.5 km ESE of Mt. Zarkassa, 1800 m, 37°58' N, 68°11' E, 1 May 1995, S. Zonstein (TAU); 7 ♀♀, 1 juv., same data, but eastern slope of Mt. Zarkassa, 37°59' N, 68°11' E, 1800 m (TAU); 2 ♀♀, same data, but 37°59' N, 68°10' E, 2000 m (TAU); 4 ♀♀, 2 juvs, western foothills of Babatagh Mts, Argamchi Gorge 13 km ESE of Denau, 38°12.8' N, 68°03.2' E, 630 m, 30 Apr. 2002, A.V. Gromov (ZMMU); 1 ♂, 1 ♀, same, eastern foothills, Uzu,n 6.5 km W of Akmechet, 38°03.2' N, 68°14.3' E, 1123 m, 25 May 2003, L. Prendini & A.V. Gromov (AMNH).

Description

Male (Zarkassa)

Habitus. See Fig. 28D–F.

Body length. 2.95.

Color. Whole spider pale greyish-brownish-yellow; eye tubercle brownish-black; diffuse and narrow median line and margins of carapace light brown, as well as a weak and diffuse dorsal abdominal pattern consisting of interrupted median line anteriorly and a few transverse fasciae posteriorly.

Carapace (Fig. 42D). 1.28 long, 1.02 wide.

Eyes. AME 0.07, ALE 0.11, PLE 0.09, PME 0.08, AME–AME 0.08.

Palp (Fig. 44B; also Fig. 28G–I, ♂ from Khurshedi). Femur distinctly longer than tibia; tibia less than 1.5 times wider than femur; cymbium longer than bulb; keel of embolic neck with rounded terminal end; embolus bent at right angle.

Leg measurements. ♂(♀)

	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
Palp	0.87 (0.72)	0.28 (0.29)	0.74 (0.44)	—	0.32 (0.53)	2.21 (1.98)
I	1.95 (1.09)	0.54 (0.48)	1.90 (1.14)	1.88 (1.07)	1.33 (0.82)	7.60 (4.60)
II	1.79 (0.98)	0.48 (0.36)	1.49 (0.84)	1.42 (0.79)	1.00 (0.61)	6.18 (3.58)
III	1.58 (0.84)	0.47 (0.33)	1.11 (0.57)	1.36 (0.71)	0.78 (0.52)	5.30 (2.97)
IV	1.97 (1.22)	0.53 (0.41)	1.69 (0.98)	1.92 (0.97)	1.09 (0.60)	7.20 (4.18)

Female (Chiluchor-Chashma)

Habitus. See Fig. 29B.

Body length. 4.05.

Colour. As in male.

Carapace (Fig. 29A). 1.36 long, 0.94 wide.

Eyes. AME 0.05, ALE 0.11, PLE 0.09, PME 0.07, AME–AME 0.04.

Endogyne (Figs 29I–K, 33C). Median receptacles diverging; both pairs with corrugated stems; lateral receptacles globular, and median receptacles subconical (wide base and thinner head); heads of median receptacles separated by 3 diameters, and bases separated by one diameter; gland pores cover tops of heads only.

Variations

Carapace length in females varies from 1.30 to 1.95. Specimens inhabiting lowland desert areas are almost uniformly pale-yellowish, with darker pattern on the body and legs very weak to absent (sometimes only metatarsi and tarsi are slightly dark, but the eye tubercle is still black). By contrast, specimens collected in foothills have typical though somewhat paler coloration, with darker median lanceolate spots on carapace and abdomen combined with weak and diffuse transverse fasciae on legs and in the posterior part of the abdomen (cf. Fig. 29A–H).

Ecology

Spiders were collected in desert, semi-desert and dry steppe biotopes in piedmont plains and low foothills and in the middle mountain zone with open park woods composed of *Juniperus* spp. and *Acer* spp.

Distribution

Known from western Tajikistan and southern Uzbekistan (Fig. 49).

Zaitunia huberi sp. nov.
urn:lsid:zoobank.org:act:F999D3D3-7D62-44BD-9297-AB022AEA817E
Fig. 30A–F

Filistata afghana Roewer, 1962: 12, figs 6, 9 (♀, in part, misidentified).

Zaitunia afghana – Zonstein *et al*. 2013: 69, figs 13, 21–27 (♀, misidentified).

Diagnosis

By structure of the vulva, *Z. huberi* sp. nov. resemble *Z. beshkentica* but differ from them by the shape of the median receptacles, which are shorter and round (*vs* longer and tube-shaped in *Z. beshkentica*, cf. Figs 29I–K, 30C–E).

Etymology

The specific epithet is given after the prominent German arachnologist Bernhard Huber, who has transferred some misplaced Asian genera from Pholcidae to Filistatidae.

Material examined

Holotype

AFGHANISTAN: ♀, surroundings of Pol-e Khumri city, 35º57' N, 68º42' E, 700 m, 9 Nov. 1957, K. Lindberg (SMF).

Paratype

AFGHANISTAN: 1 juv., collected and deposited together with holotype.

Description

Female

Habitus. See Fig. 30A–B.

Body length. 5.35.

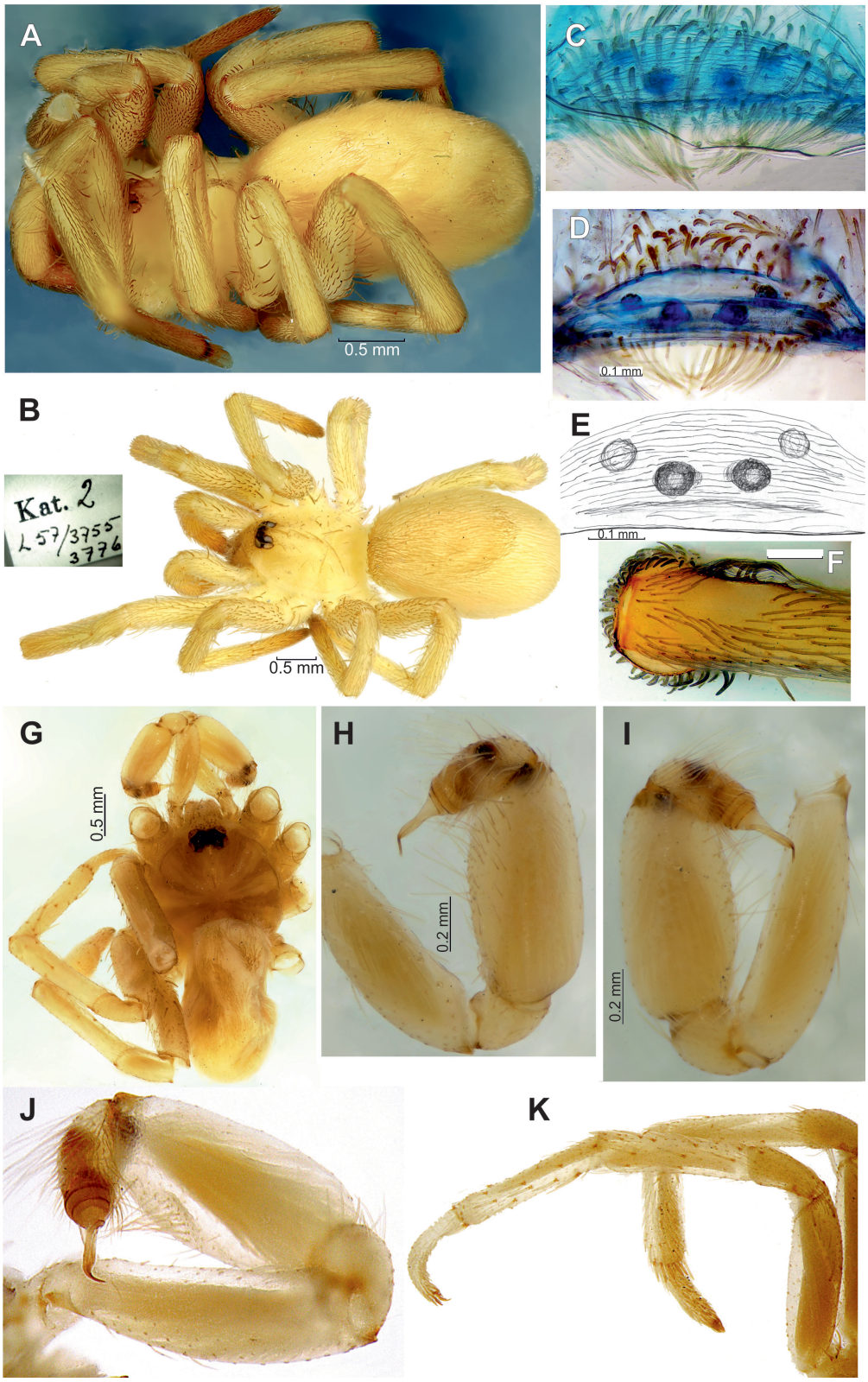

Fig. 30. Somatic characters and copulatory organs of *Zaitunia huberi* sp. nov., holotype, ♀ (**A**–**F**) and *Z. psammodroma* sp. nov., holotype, ♂ (**G**–**K**). — **A**. Habitus, dorso-lateral. **B**, **G**. Habitus, dorsal. **C**, **E**. Endogyne, ventral. **D**. Endogyne, dorsal. **F**. Calamistrum, lateral. **H**, **J**. Palp, retrolateral. **I**. Palp, prolateral. **K**. Legs III and IV, prolateral.

Colour. Whole body and legs light brownish-yellow, abdomen without dorsal pattern, tarsi of palp and legs I–IV darkened, eye tubercle blackish-brown.

Carapace. 2.13 long, 1.77 wide.

Eyes. AME 0.09, ALE 0.23, PLE 0.20, PME 0.20, AME–AME 0.11.

Endogyne (Fig. 30C–E). Both pairs of receptacles globular, median receptacles separated from each other by the same distance as lateral and median receptacles; median receptacles larger, separated by less than one diameter.

Leg measurements.

	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
Palp	1.17	0.65	0.87	—	0.97	3.66
I	2.33	0.87	2.23	1.97	1.30	8.70
II	1.97	0.83	1.65	1.63	1.05	7.13
III	1.75	0.75	1.33	1.38	0.97	6.18
IV	2.37	0.80	1.85	1.83	1.03	7.88

Male

Unknown.

Note

See comments in the redescription of the holotype of *Z. afghana*. Both of these species are very similar in somatic characters, which probably misled Roewer (1962). Nevertheless, they differ so drastically in the structure of the endogyne (cf. Figs 14G–K, 30C–E) that they are assigned here to different species groups.

Distribution

Known only from the type locality (Fig. 49).

Zaitunia psammodroma sp. nov.

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Fig. 30G–K

Diagnosis

The species differs from all other congeners in having modified metatarsi IV – shortened, distally dilated and flattened, with ventrodistal spines (Fig. 30G, K).

Etymology

The specific epithet is derived from *psammo-* (a combining form of the Greek *psámmos*, "sand") + *-droma* (a combining form of the Greek *drómos* meaning "running"), indicating the ability of these spiders to run on a loose, sandy substrate.

Material examined

Holotype

TURKMENISTAN: ♂, Karakum Desert, Repetek Nature Reserve, c. 38º34' N, 63º10' E, 200 m, 3 May 1972, V.I. Kuznetzov (TAU).

Paratype

TURKMENISTAN: 1 ♂, same data as holotype (ZMMU).

Description

Male (holotype)

Habitus. See Fig. 30G.

Body length. 3.37.

Colour. Carapace light yellowish-orange, other parts of body and legs uniformly pale greyish-yellow.

Carapace. Subcircular, 1.47 long, 1.42 wide.

Eyes. AME 0.09, ALE 0.14, PLE 0.12, PME 0.10, AME–AME 0.09.

Palp (Figs 30H–J, 44C). Femur in prolateral view ⅓ longer than tibia and 1.5 times thinner; cymbium slightly shorter than bulb; embolic neck straight, with thin, straight keel, its width equal to spermophore diameter; embolus relatively long and thin, bent ventrally.

Leg measurements.

	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
Palp	0.97	0.42	0.78	—	0.32	2.49
I	2.23	0.72	1.54	1.65	0.90	7.04
II	1.86	0.65	1.32	1.51	0.68	6.02
III	1.78	0.67	1.32	1.30	0.53	5.60
IV	2.13	0.75	1.29	1.53	0.61	6.31

Special characters. Tibia and metatarsus III with c. 20 short spines each; metatarsus IV short and flattened, with 7–8 short and stout ventroapical spines (Fig. 30K).

Female

Unknown.

Variation

Carapace length in males varies from 1.42 to 1.45; no differences in coloration are evident.

Ecology

The species occurs in an extra-arid sandy desert with *Haloxylon* shrubs; the males were collected in pitfall traps in rodent colonies. Most likely the spiders inhabit abandoned gerbil burrows.

Distribution

Known only from the type locality (Fig. 49).

Zaitunia wunderlichi sp. nov.

urn:lsid:zoobank.org:act:E06085D0-2BB4-435E-91F8-F7C25685B36A

Figs 31–32, 33A–B, D, 42F, 44D

Diagnosis

By the structure of the bulb, *Z. wunderlichi* sp. nov. is similar to *Z. beshkentica*, but differs by the shape of the raised embolic keel, which terminates more gently (cf. Figs 28G–I, 32D–F), whereas females differ by the structure of the vulva, which is more similar to those of *Z. maracandica* and *Z. ferghanensis* sp. nov.; they differ from both these species by the shorter median receptacles (cf. Figs 33A–B, D, 35E–J, 38E–I).

Etymology

This species is named after the famous German arachnologist, our friend and colleague Jörg Wunderlich.

Material examined

Holotype

KYRGYZSTAN: ♂, Ferghana Mts, Baubashata Range, Yarodar, 2.5 km E of Arslanbob, 41°20'12" N, 72°58'23" E, 1450 m, 12 Aug. 1981, S. Zonstein (TAU).

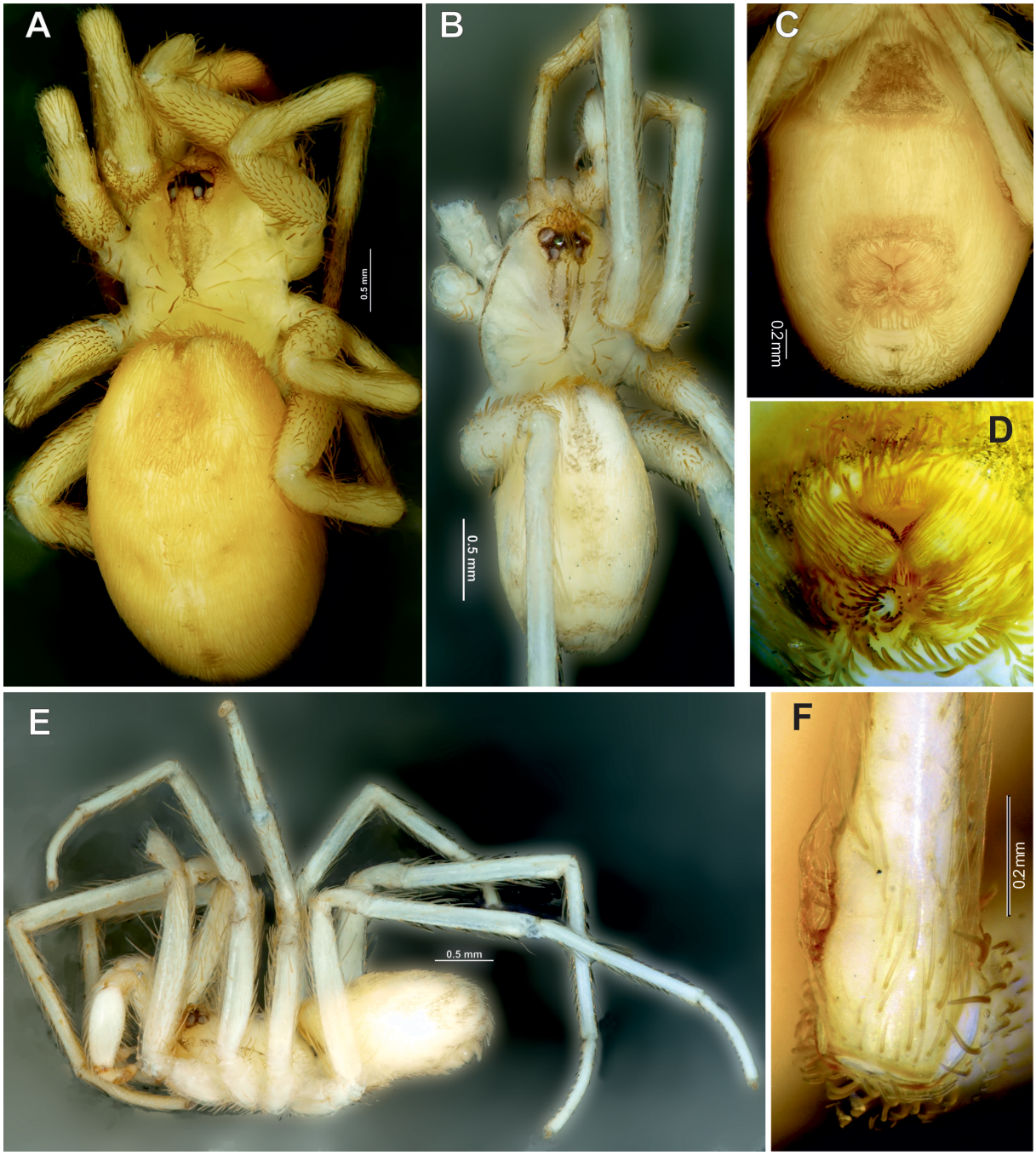

Fig. 31. Somatic characters of *Zaitunia wunderlichi* sp. nov., paratype, ♀ (**A**, **C–D**, **F**), paratype (**B**), ♂ and holotype (**E**), ♂. — **A–B**. Habitus, dorsal. **C**. Abdomen, ventral. **D**. Spinnerets, ventral. **E**. Habitus, lateral. **F**. Calamistrum, lateral.

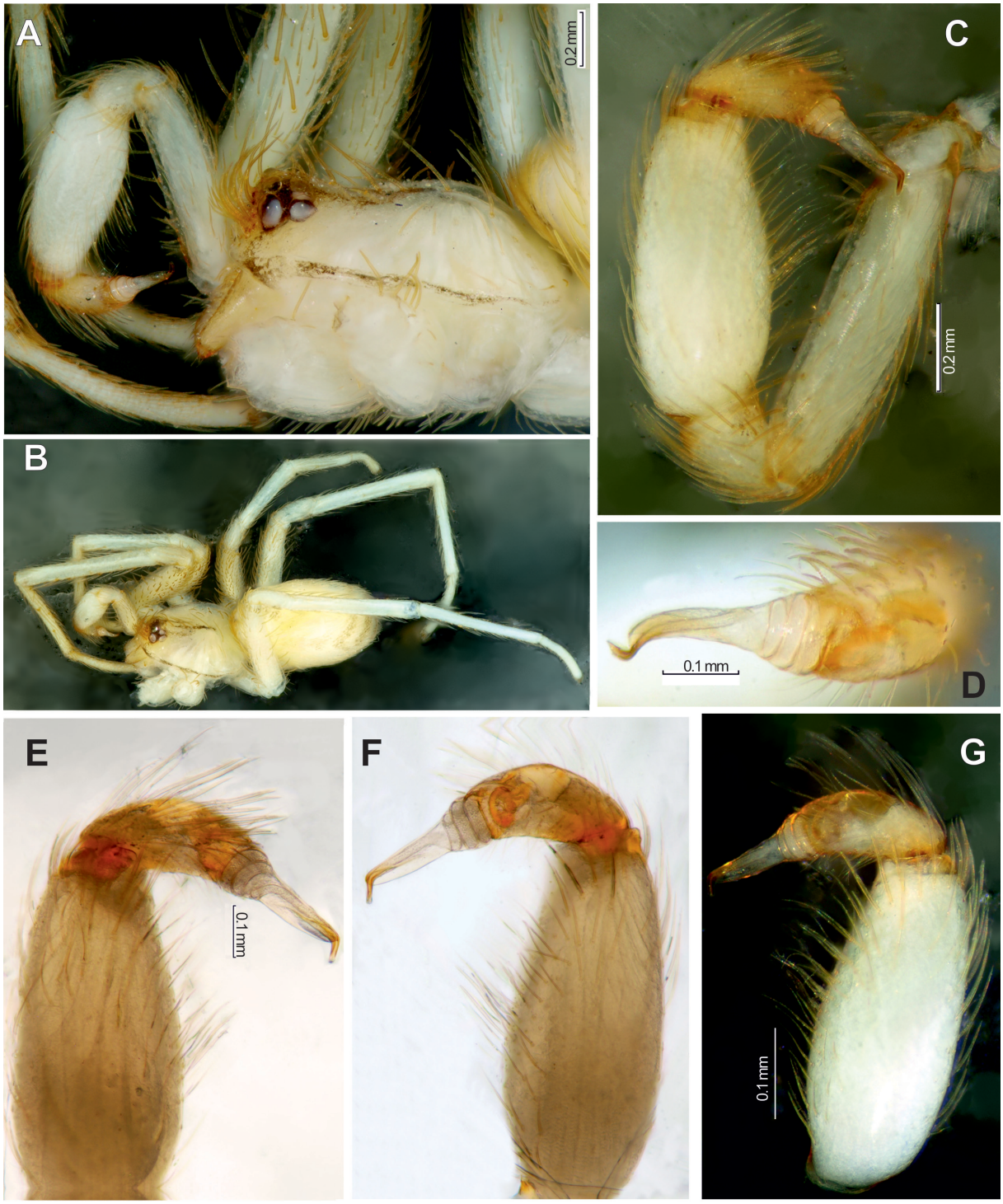

Fig. 32. Somatic characters and copulatory organs of *Zaitunia wunderlichi* sp. nov., paratype, ♂. — **A**. Prosoma, lateral. **B**. Habitus, dorso-lateral. **C**. Palp, prolateral. **D**. Cymbium and bulb, dorsal. **E**. Terminal part of palp, prolateral. **F**–**G**. Same, retrolateral.

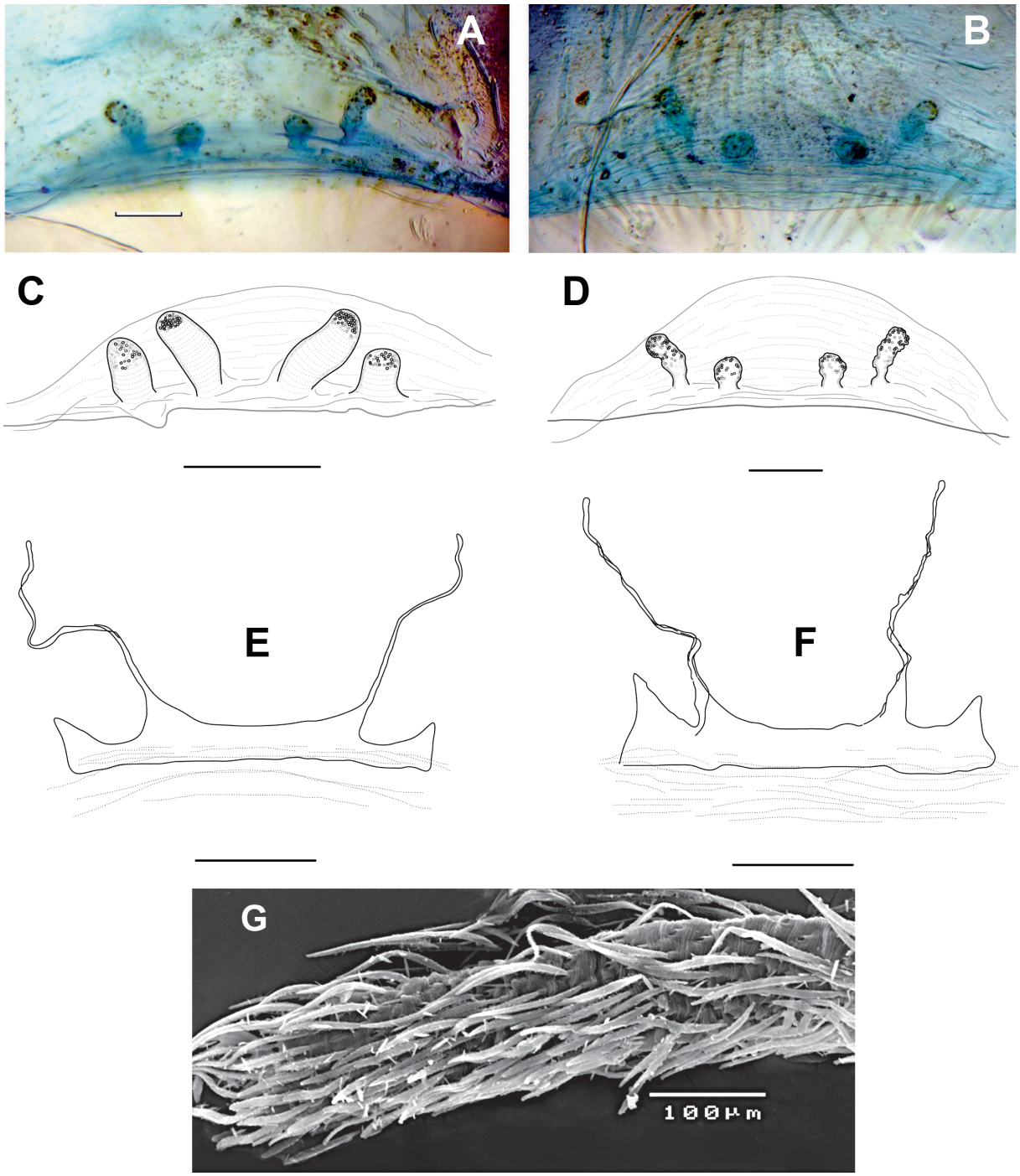

Fig. 33. Somatic characters and copulatory organs of *Zaitunia wunderlichi* sp. nov., paratype, ♀ (**A–B**, **D**), *Z. beshkentica* (Andreeva & Tyshchenko, 1969), ♀ from Babatagh Mts (**C**), *Z. logunovi* sp. nov., paratype, ♂ (**E**, **G)** and *Z. schmitzi* (Kulczyński, 1911), ♀ from Jerusalem area (**F**). — **A–D**. Endogyne, dorsal (**A**, **C–D**) and ventral (**B)**. **E–F**. Posterior respiratory system, dorsal. **G**. Close-up view of male tarsus IV, prolateral, showing pseudosegmentation. Scale bars: A–B, D–G = 0.1 mm; C = 0.2 mm.

Paratypes (2 ♂♂, 1♀)
KYRGYZSTAN: 2 ♂♂, same data as holotype (TAU, ZMMU); 1♀, Chatkal Mts, Arkit, 41º48' N, 71º57' E, 1300 m, 2 May 1983, S. Zonstein (ZMMU).

Note

Although males and the only collected female listed above were found in two separate areas distant from each other by about 100 km, they are very similar in having the same type of body and legs colouration, as well as in possessing a very similar carapace setation and a similar conformation of the eye group. Additionally, they all occurred in almost identical humid biotopes. Thus, we have no doubt that in both these situations, we are dealing with representatives of the same species.

Description

Male (holotype)
Habitus. See Fig. 31E.

Body length. 2.78.

Colour. Whole spider pale greyish-yellow; eye tubercle dark brown; Y-shaped median spot occupying cephalic portion and extending to clypeus, and margins of carapace light brown; weak and diffuse dorsal abdominal pattern consisting of lancet-shape median spot anteriorly and a few transverse fasciae posteriorly pale brown.

Carapace (Fig. 42F). 1.18 long, 1.00 wide.

Eyes. AME 0.06, ALE 0.10, PLE 0.10, PME 0.10, AME–AME 0.06.

Palp (Figs 32C–G, 44D). Femur slightly longer than tibia (in prolateral view); tibia 1.5 times wider that femur; cymbium as long as bulb; keel of embolic neck with straight margin (not curved in terminal part); tip of embolus bent downward.

Leg measurements. ♂(♀)

	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
Palp	0.76 (0.84)	0.24 (0.35)	0.76 (0.57)	—	0.23 (0.62)	1.99 (2.38)
I	1.61 (1.69)	0.51 (0.56)	1.60 (1.63)	1.47 (1.44)	1.08 (1.14)	6.27 (6.46)
II	1.26 (1.41)	0.46 (0.52)	1.13 (1.12)	1.12 (0.97)	0.83 (0.71)	4.80 (4.73)
III	1.19 (1.15)	0.43 (0.52)	0.97 (0.91)	1.13 (0.86)	0.77 (0.63)	4.49 (4.07)
IV	1.68 (1.55)	0.56 (0.56)	1.48 (1.24)	1.61 (1.25)	1.01 (0.80)	6.34 (5.40)

Female
Habitus. See Fig. 31A.

Body length. 4.11.

Colour. As in male, except without darkened carapace margins.

Carapace. 1.59 long, 1.27 wide.

Eyes. AME 0.08, ALE 0.15, PLE 0.12, PME 0.10, AME–AME 0.05.

Endogyne (Fig. 33A–B, D). Both pairs of receptacles long (especially lateral pair), cylindrical with somewhat dilated heads; lateral and median receptacles separated by about one diameter; lateral receptacles longer than median; median receptacles separated by 3 diameters; pores cover the entire receptacle.

Variation

Length of the carapace in males varies from 1.15 to 1.23, the body and leg colouration does not vary significantly.

Ecology

The species inhabits humid habitats including walnut forest of *Juglans regia* L. in the middle mountain belt, where it certainly prefers more open slopes, occurring under stones in low forest and shrubs.

Distribution

Southern Kyrgyzstan (Western Tian-Shan Mts) (Fig. 49).

***Zaitunia maracandica*-group**

Remarks

This group includes pale-coloured species. The clypeus, post-ocular area, dorsal abdominal pattern and often also lateral margins of the carapace are slightly darker than the pale background colour. Legs I–IV with or without darker fasciae. The conical tegulum is much shorter than the cymbium. The relatively long embolus is provided with a low, more or less reduced keel. The vulva has two pairs of receptacles. Five species are included: *Z. ferghanensis* sp. nov. from Kyrgyzstan and Uzbekistan, *Z. maracandica* (Charitonov, 1946) from Uzbekistan and Kazakhstan and (tentatively, because of unknown male characters) *Z. feti* sp. nov. from Turkmenistan, *Z. minuta* sp. nov. from Uzbekistan and *Z. zonsteini* Fomichev & Marusik, 2013 from Kazakhstan.

Key to species of the *Zaitunia maracandica*-group
(Males of *Z. feti* sp. nov., *Z. minuta* sp. nov. and *Z. zonsteini* are unknown.)

1. Males ……2
– Females ……3

2. Palpal tibia considerably swollen, vestigial embolic keel terminates more gently (Figs 37D–E, 44F); Uzbekistan, southern Kazakhstan ……***Z. maracandica*** (Charitonov, 1946)
– Palpal tibia only slightly swollen, vestigial embolic keel terminates more steeply (Figs 35A–C, 44E); Kyrgyzstan, Uzbekistan ……***Z. ferghanensis*** sp. nov.

3. Receptacles short, globulate or stump-shaped, subequal in size; lateral and median receptacles located near each other (Figs 40, 41I–M) ……4
– Receptacles more elongate and noticeably differ by size, lateral and median receptacles more distant from each other (Figs 35E–J, 36D–E, 38E–I) ……5

4. Receptacles stump-shaped, with only few gland-pores apically (Fig. 40); Uzbekistan …… ……***Z. minuta*** sp. nov.
– Receptacles globulate, with more numerous gland-pores spread evenly (Fig. 41I–M); Kazakhstan ……***Z. zonsteini*** Fomichev & Marusik, 2013

5. Distance between lateral and median receptacles is shorter; lateral pair of receptacles longer than median pair (Fig. 35E–J) ……***Z. ferghanensis*** sp. nov.

– Distance between lateral and median receptacles is longer; lateral pair of receptacles subequal to median pair or shorter (Figs 38E–I, 36D–E) ……6

6. Receptacles are subequal in size (Fig. 38E–I) ……***Z. maracandica*** (Charitonov, 1946)
– Median receptacles considerably longer than lateral pair (Fig. 36D–E); Turkmenistan …… ……***Z. feti*** sp. nov.

Zaitunia ferghanensis sp. nov.
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Figs 34–35, 44E

Diagnosis

By structure of the bulb, males of *Z. ferghanensis* sp. nov. resemble those of *Z. maracandica* but differ by the shape of the palpal tibia, which is considerably less swollen and lacks thickened setae, as well as by the shape of the vestigial embolic keel, which terminates more sharply than in the latter species (cf. Figs 35A–D, 37A–C). Females are similar by the structure of the vulva to *Z. maracandica* and *Z. wunderlichi* sp. nov.; they differ from the former species by the relative size of the median receptacles, which are larger than the lateral pair (in *Z. maracandica*, all receptacles are subequal in size, cf. Fig. 38I), and from the latter by the longer median and lateral receptacles (which are shorter in *Z. wunderlichi* sp. nov., cf. Fig. 33A–B, D). Unlike *Z. maracandica* and *Z. wunderlichi* sp. nov., the lateral receptacles in *Z. ferghanensis* sp. nov. are dilated basally (Fig. 35E–J).

Etymology

Named after the distribution area, Ferghana Valley.

Material examined

Holotype
KYRGYZSTAN: ♂, eastern border of Ferghana Valley, foothills of Alai Mts, Mt. Taht-i-Suleiman in Osh city, 40º32' N, 72º47' E, 1100 m, 7 Jun. 1985, A.A. Zyuzin (TAU).

Paratypes (2 ♂♂, 5 ♀♀, 4 ♀♀ subad.)
KYRGYZSTAN: 2 ♂♂, same data as holotype (TAU, ZMMU); 2 ♀♀, 3 ♀♀ subad., Kugart riverbank near Djalal-Abad city, 40º57' N, 72º57' E, 770 m, 29 Apr. 1982, S. Zonstein (TAU); 1 ♀, 1 ♀ subad., same locality, but 29 Aug. 1982 (TAU); 1 ♀, Kurshab River valley 16 km E of Osh city, 40º30' N, 73º02' E, 1200–1400 m, 1 Jun. 1988, S.N. Rybin (ZMMU).

UZBEKISTAN: 1 ♀, surroundings of Ferghana city, 40º23' N, 71º47' E, 14 May 1981, D.M. Schwetz (TAU).

Description

Male (holotype)
Habitus. See Fig. 34B.

Body length. 3.14.

Colour. Whole spider medium brownish-yellow; eye tubercle dark brown to brownish-black; cephalic part, clypeus and margins of carapace not darkened; abdomen with almost indistinct and slightly interrupted darkened spot dorso-medially.

Carapace (Fig. 34F; paratype from the type locality). 1.44 long, 1.09 wide.

Eyes. AME 0.09, ALE 0.14, PLE 0.13, PME 0.11, AME–AME 0.05.

Palp (Figs 35A–D, 44E). Femur and tibia subequal in length; tibia about 1.5 times wider than femur, wider in basal part than terminally; cymbium and bulb subequal in length; bulb conical, embolus gently curved and roundly bent subapically.

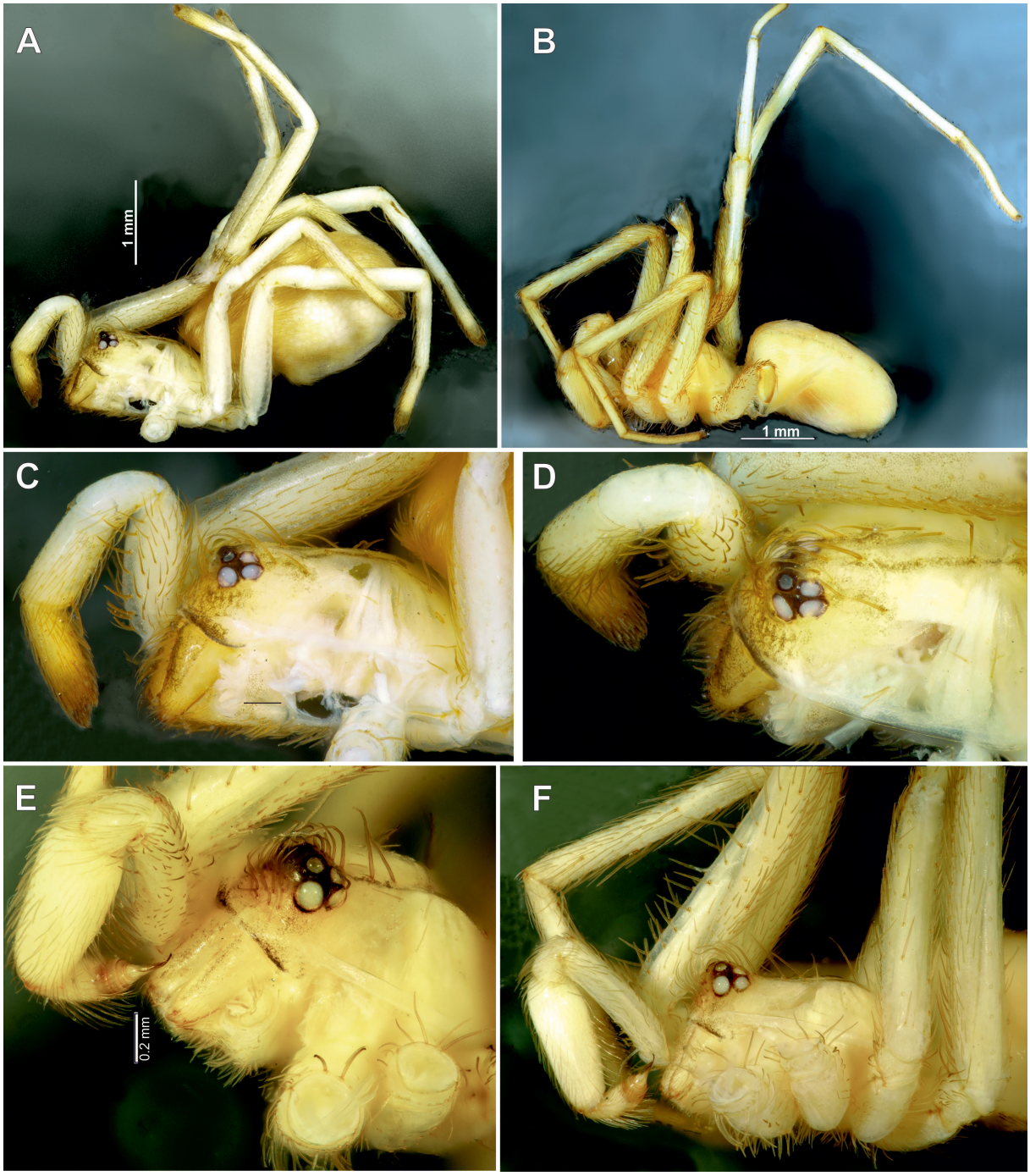

Fig. 34. Somatic characters of *Zaitunia ferghanensis* sp. nov., paratype, ♀ from Kurshab (**A**, **C–D**) and paratype, ♂ from Osh (**B**, **E–F**). — **A–B**. Habitus, lateral. **C**, **F**. Prosoma, lateral. **D**. Same, dorso-lateral. **E**. Same, fronto-lateral.

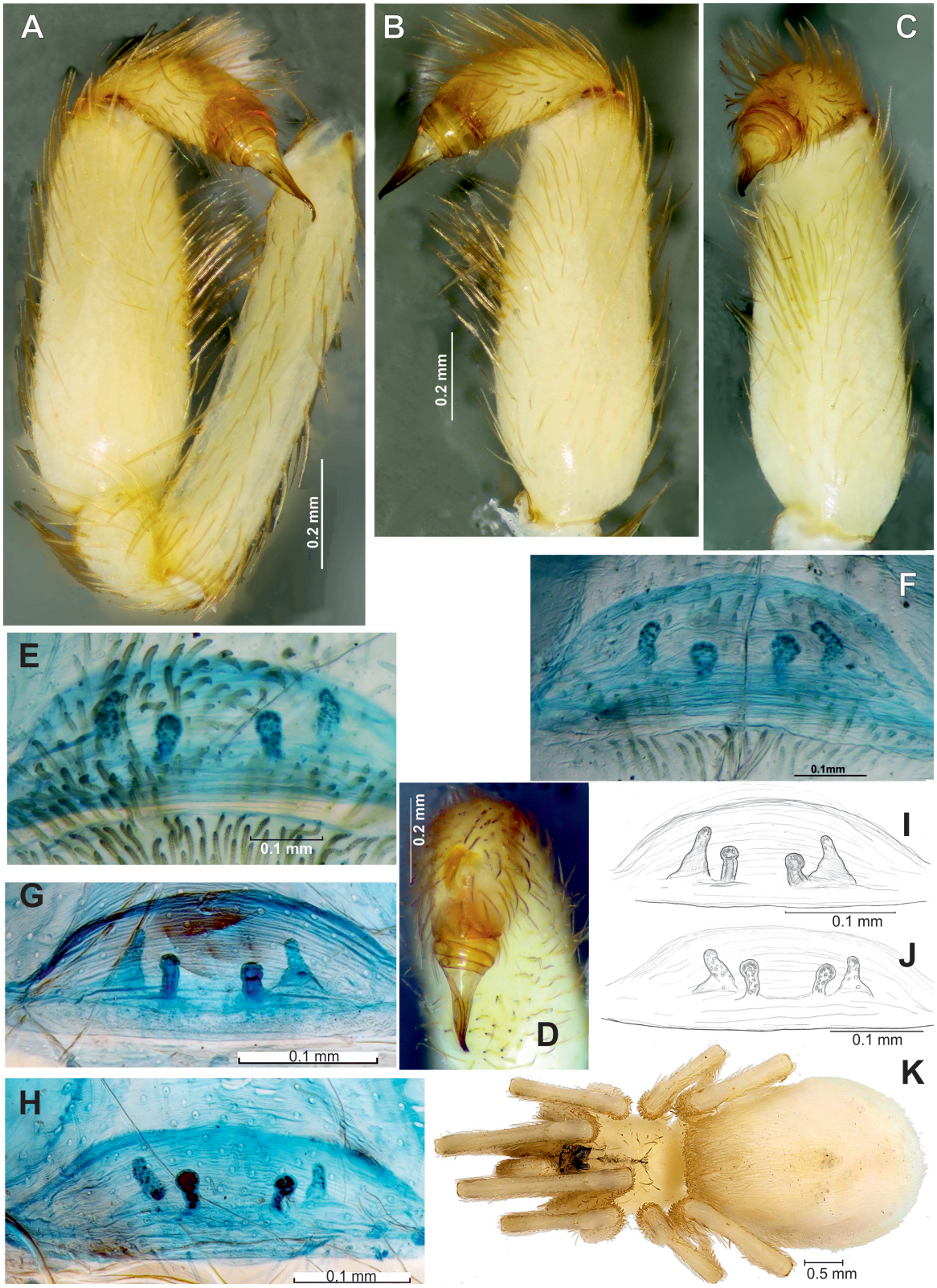

Fig. 35. Copulatory organs and somatic characters of *Zaitunia ferghanensis* sp. nov., paratype, ♂ from Osh (**A**–**D**) and paratypes, ♀♀ from Djalal-Abad (**E**–**J**) and Ferghana (**K**). — **A**. Palp, prolateral. **B**–**D**. Terminal part of palp, retrolateral, ventral and dorsal. **E**–**J**. Endogyne (variants), dorsal. **K**. Habitus, dorsal.

Leg measurements. ♂(♀)

	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
Palp	1.09 (0.87)	0.27 (0.39)	0.91 (0.54)	—	0.36 (0.74)	2.63 (2.54)
I	2.12 (1.85)	0.59 (0.62)	2.07 (1.73)	2.04 (1.44)	1.37 (1.00)	8.19 (6.64)
II	1.95 (1.37)	0.55 (0.53)	1.64 (1.11)	1.60 (0.97)	1.17 (0.72)	6.91 (4.70)
III	1.59 (1.26)	0.53 (0.54)	1.43 (0.94)	1.69 (1.03)	0.94 (0.68)	6.18 (4.45)
IV	2.35 (1.78)	0.61 (0.67)	2.19 (1.37)	2.43 (1.39)	1.44 (0.86)	9.02 (6.07)

Female (Kurshab)

Habitus. See Fig. 34A.

Body length 4.11.

Colour. As in male but darker brownish pattern on carapace (narrow median longitudinal stripe, two shorter stripes located sideward and reticulated area covering clypeus) better developed; abdomen also a little darker, with almost indistinct brownish median spot.

Carapace (Fig. 34C–D). 1.53 long, 1.19 wide.

Eyes. AME 0.09, ALE 0.14, PLE 0.13, PME 0.10, AME–AME 0.05.

Endogyne (Fig. 35E–J). Receptacles separated; median receptacles club-like, and lateral receptacles subconical; both pairs with corrugated stems; head of median receptacles separated by 3 diameters; pores present on stem and heads.

Variation

Carapace length in males varies from 1.35 to 1.47, in females from 1.40 to 1.65. Carapace with clypeus and margins slightly or noticeably pigmented; abdomen with or without weak dorsal pattern, consisting of a narrow interrupted median stripe and several pairs of short lateral chevrons (Figs 34, 35K).

Ecology

This species inhabits semi-desert habitats in piedmont plains and foothills.

Distribution

Kyrgyzstan, Uzbekistan (Fig. 49).

Zaitunia feti sp. nov.

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Fig. 36

Diagnosis

By the structure of the endogyne, *Z. feti* sp. nov. resembles *Z. maracandica* but differs by the extended median receptacles, which are considerably longer than the lateral pair (vs similarly long in the latter species, cf. Figs 36D–E, 38E–I).

Etymology

The specific epithet is given after our good friend and colleague Victor Fet (Marshall University, USA), the author of many works devoted to the spiders of Turkmenistan.

Material examined

Holotype

TURKMENISTAN: 1 ♀, western foothills of Kughitang Mts (also known as Koytendagh Mts), near Svintsovyi Rudnik, 37°52' N, 66°27' E, 14 May 1985, A.V. Tanasevitch (ZMMU).

Description

Female (holotype)

Habitus. See Fig. 36A–B.

Body length. 4.37.

Colour. Body and legs pale brownish-yellow, carapace with contrasting median brown spot and narrow margins; eye tubercle blackish-brown; legs with distinct brown marks and fasciae; abdomen with brown dorsal pattern consisting of contrasting narrow median band combined in posterior third with a few pairs of weak and diffuse lateral chevrons.

Carapace. 1.38 long, 1.12 wide.

Eyes. AME 0.07, ALE 0.14, PLE 0.12, PME 0.10, AME–AME 0.07.

Fig. 36. Somatic characters and endogyne of *Zaitunia feti* sp. nov., holotype, ♀. **A**–**B**. Habitus, dorso-lateral and lateral. **C**. Abdomen, ventral. **D**–**E**. Endogyne, dorsal.

Endogyne (Fig. 36D–E). Median receptacles club-like, wide at the base, with heads wider than stems, pore glands cover whole receptacle, receptacles separated by almost 3 diameters of heads. Lateral receptacles globular, with short stems; heads of median and lateral receptacles separated by one diameter.

Leg measurements.

	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
Palp	0.67	0.34	0.42	—	0.52	1.95
I	1.39	0.52	1.31	1.21	1.13	5.56
II	1.13	0.47	0.92	0.84	0.63	3.99
III	0.92	0.46	0.67	0.78	0.56	3.39
IV	1.38	0.49	1.05	0.98	0.66	4.56

Male

Unknown.

Ecology

The holotype was collected in the desert foothill area; other details are unknown.

Distribution

Known only from the type locality (Fig. 49).

Zaitunia maracandica (Charitonov, 1946)
Figs 37–38, 42G–H, 44F

Filistata maracandica Charitonov, 1946: 20, fig. 3 (subad. ♀).

Filistata maracandica – Charitonov 1969: 66 (subad. ♀).
Zaitunia maracandica – Zonstein 1990: 50 (transfer from *Filistata*).

Diagnosis

In the structure of the bulb, males of *Z. maracandica* resemble *Z. ferghanensis* sp. nov. but differ by the shape of the palpal tibia, which is considerably more swollen, with thickened setae, as well as by the shape of the vestigial embolic keel, which terminates more gently than in *Z. ferghanensis* sp. nov. (cf. Figs 35A–D, 37A–C). In the structure of the endogyne, *Z. maracandica* is similar to *Z. ferghanensis* sp. nov. and *Z. wunderlichi* sp. nov., but differs from these species by the shape of the median receptacles, which are subequal to the lateral pair (by contrast, in *Z. ferghanensis* sp. nov. the lateral receptacles are largest, cf. Fig. 38E–J) and from *Z. wunderlichi* sp. nov. by the longer median receptacles (which are shorter in the latter species; cf. Fig. 33A–B, D).

Type material

Lectotype (designated here)
UZBEKISTAN: ♀ subad., southern foothills of Zaravshan Mts, 9–12 km north of Kitab, 21 Mar. 1942, D.M. Fedotov (ZMPU; examined).

Paralectotypes
UZBEKISTAN: 2 juvs, same data as holotype.

Other material examined (2 ♂♂, 23 ♀♀, 5 ♀♀ subad., 6 juvs)
UZBEKISTAN: 2 ♀♀, 10 km N of Kitab, 39°12' N, 66°54' E, 800–850 m, 9 Apr. 1990, S. Zonstein & S.V. Ovchinnikov (TAU); 1 ♀, surroundings of Bakhmal, 40°04' N, 67°39' E, 5 May 1990, A.A. Zyuzin

& A.A. Feodorov (TAU); 1 ♀, north-western slope of Hissar Mts, Ishkent, 38°51' N, 66°58' E, 1200 m, 6 Apr. 1989, S. Zonstein (TAU); 4 ♀♀, 2 juvs, surroundings of Bukhara, 39°46' N, 64°26' E, 25 May 1981, D.M. Schwetz (TAU); 4 ♀♀, 3 ♀♀ subad., Ishmantop near Gallaaral, 39°59' N, 67°35' E, 5 May 1990, A.A. Feodorov & A.A. Zyuzin (TAU); 1 ♂, Ulus, 53 km W of Samarkand, 39°34' N, 66°23' E, 550 m, 7 May 1990, A.A. Feodorov & A.A. Zyuzin (TAU); 3 ♀♀, same data, but 8 May 1990 (TAU); 3 ♀♀, 3 juvs, western tip of Zeravshan Mts, foothills, Beshbarmak (now Djam), 47 km SW of Samarkand, 39°24' N, 66°27' E, 700–800 m, 8 May 1990, A.A. Feodorov & A.A. Zyuzin (TAU).

KAZAKHSTAN: 1 ♂, desert ravine in vicinity of Arys city, 42º26' N, 68º48' E, 21 May 1987, D.V. Logunov (ZMMU); 2 ♀♀, Karatau Mts, Bayaldyr Canyon, c. 43°40' N, 68°33' E, 500–800 m, 11 Jun. 1989, A.A. Zyuzin (TAU); 2 ♀♀ subad., 1 juv., same mountain ridge, surroundings of Zhunusata town, 43º53' N, 68º47' E, 700–900 m, 23 Apr. 1988, C.K. Tarabaev (TAU); 2 ♀♀, same region, Boroldaitau

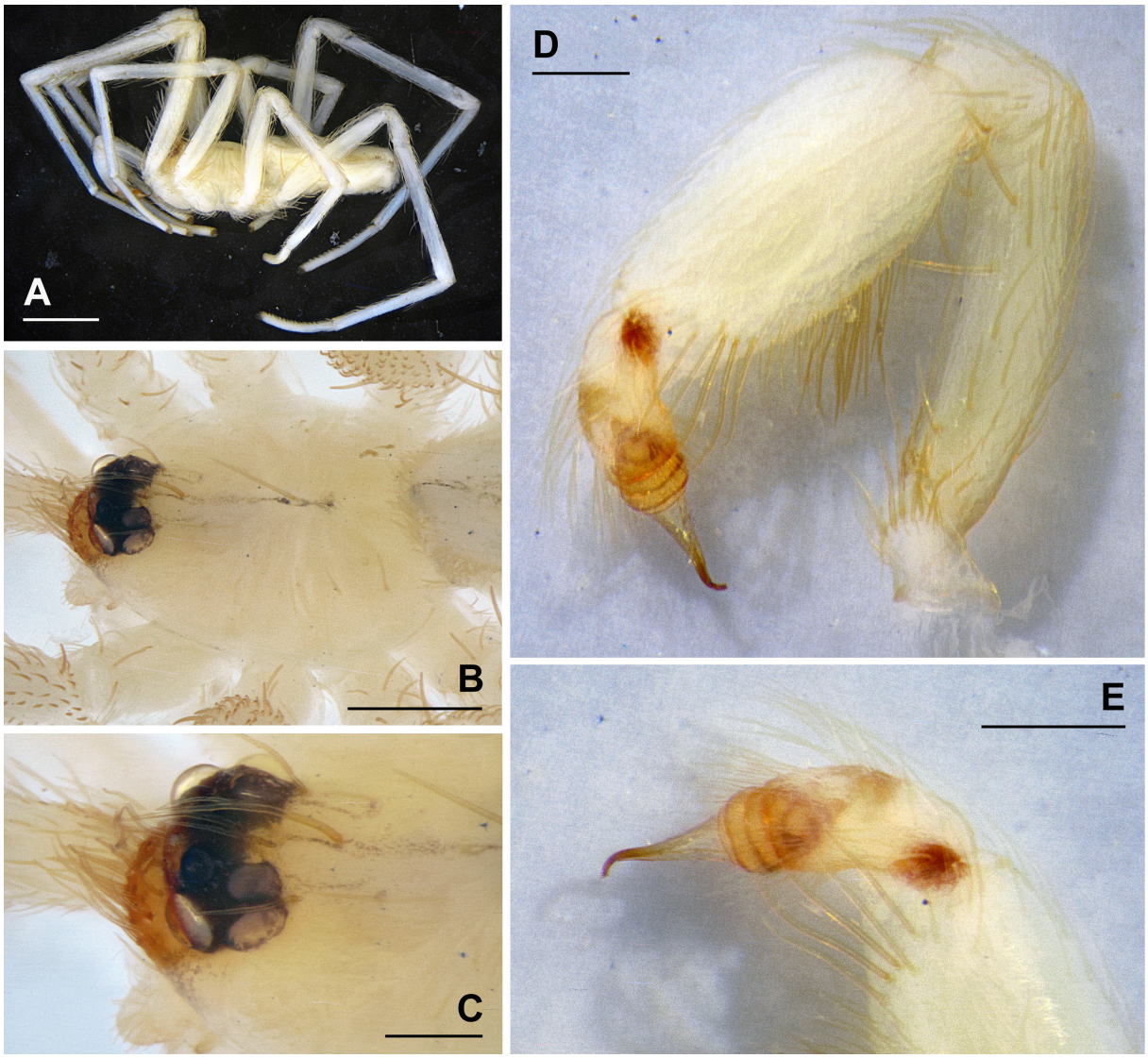

Fig. 37. Somatic characters and palp of *Zaitunia maracandica* (Charitonov, 1946), ♂ from Ulus. **A**. Habitus, lateral. **B–C**. Prosoma, laterodorsal. **D–E**. Palp, retro- and prolateral. Scale bars: A = 1.0 mm; B = 0.5 mm; C–E = 0.2 mm.

Mts, Boroldai river canyon, c. 42°52' N, 69°56' E, 600–800 m, 16 Apr. 1988, C.K. Tarabaev (TAU); 1 ♀, Kyzylkum Desert, Zhautkan well, 43 km W of Bairkum town, 11 May 1995, A.A. Zyuzin (ZMMU).

Description

Male (Ulus)

Habitus. See Fig. 37A.

Body length. 3.27.

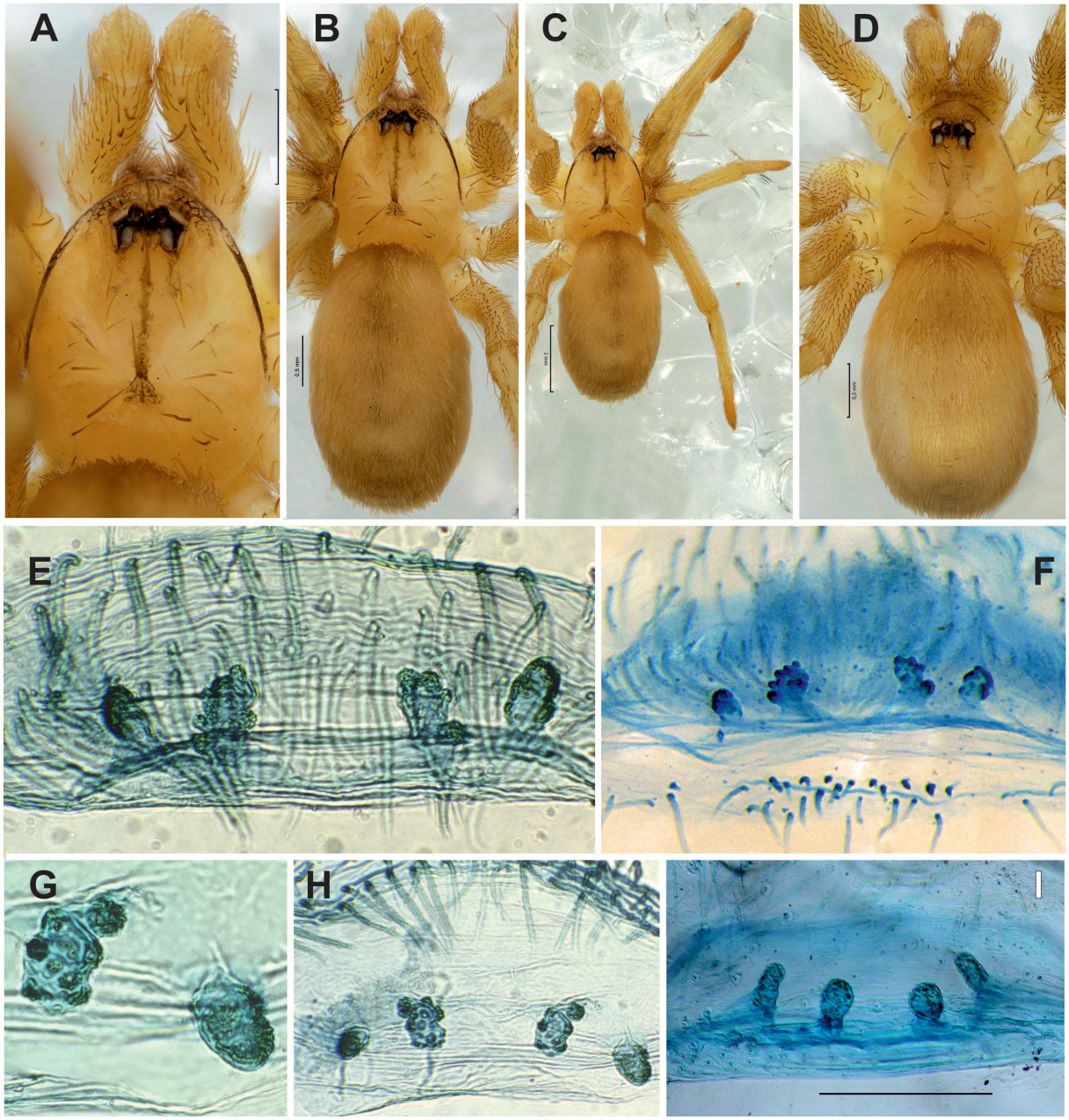

Fig. 38. Somatic characters and endogyne of *Zaitunia maracandica* (Charitonov, 1946), ♀♀ from Bukhara (**A**–**D**), Kitab (**E**–**H**) and Ulus (**I**). **A**. Prosoma, dorsal. **B**, **D**. Body, dorsal. **C**. Habitus, dorsal. **E**–**F**, **I**. Endogyne, dorsal. **G**. Right pair of receptacles, anterior. **H**. Endogyne, anterior. Scale bars: B, D = 0.5 mm; C = 1.0 mm; I = 0.2 mm.

Colour. Body and legs pale greyish-yellow; clypeus reddish-brown; eye tubercle blackish-brown; carapace with weak and narrow darker median line spreading from central area to eye tubercle; carapace margins not darkened; abdomen dorsally with narrow diffuse, interrupted and almost indistinct pale brown median line.

Carapace (Figs 37B, 42G). 1.49 long, 1.14 wide.

Eyes (Fig. 37C). AME 0.09, ALE 0.14, PLE 0.13, PME 0.11, AME–AME 0.05.

Palp (Figs 37D–E, 44F). Femur longer than tibia and almost 2 times thinner; tibia with a few strong ventro-retrolateral setae in terminal part; cymbium subequal in length to bulb; bulb conical; embolic part long and straight; ventral keel of embolic neck gradually tapering; tip of embolus bent downward.

Leg measurements. ♂(♀)

	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
Palp	1.05 (0.92)	0.36 (0.46)	0.78 (0.61)	—	0.28 (0.84)	2.47 (2.83)
I	2.18 (1.94)	0.63 (0.63)	1.98 (1.80)	1.89 (1.53)	1.38 (1.18)	8.06 (7.08)
II	1.77 (1.50)	0.55 (0.60)	1.54 (1.23)	1.56 (1.15)	1.12 (0.91)	6.54 (5.39)
III	1.62 (1.39)	0.55 (0.58)	1.36 (1.06)	1.60 (1.12)	0.83 (0.86)	5.96 (5.01)
IV	2.13 (1.94)	0.57 (0.63)	2.01 (1.42)	1.72 (1.42)	1.13 (0.89)	7.56 (6.30)

Female (Kitab)

Habitus. See Fig. 38C.

Body length. 4.33.

Colour. As in male, but abdomen dorsally and carapace margins are somewhat darker.

Carapace (Fig. 42H). 1.62 long, 1.34 wide.

Eyes. AME 0.07, ALE 0.13, PLE 0.11, PME 0.08, AME–AME 0.08.

Endogyne (Fig. 38E–I). All receptacles with corrugated stems, equally spaced; median receptacles club-like, heads separated by 1.6 diameters, shorter than lateral; lateral receptacles conical, with wide bases, slightly bent mesally in the middle part, converging; gland pores evenly distributed on both pairs of receptacles.

Variation

Carapace length in females varies from 1.53 to 2.05; spiders may have darker marks and fasciae on the carapace, legs and abdomen, or these marks may be almost completely absent on the pale background (cf. Fig. 38A–D).

Ecology

This species occurs in various habitats from foothill deserts, steppes and shrubs to open *Juniperus* forest in the middle mountain belt.

Distribution

Uzbekistan and southern Kazakhstan (Fig. 49).

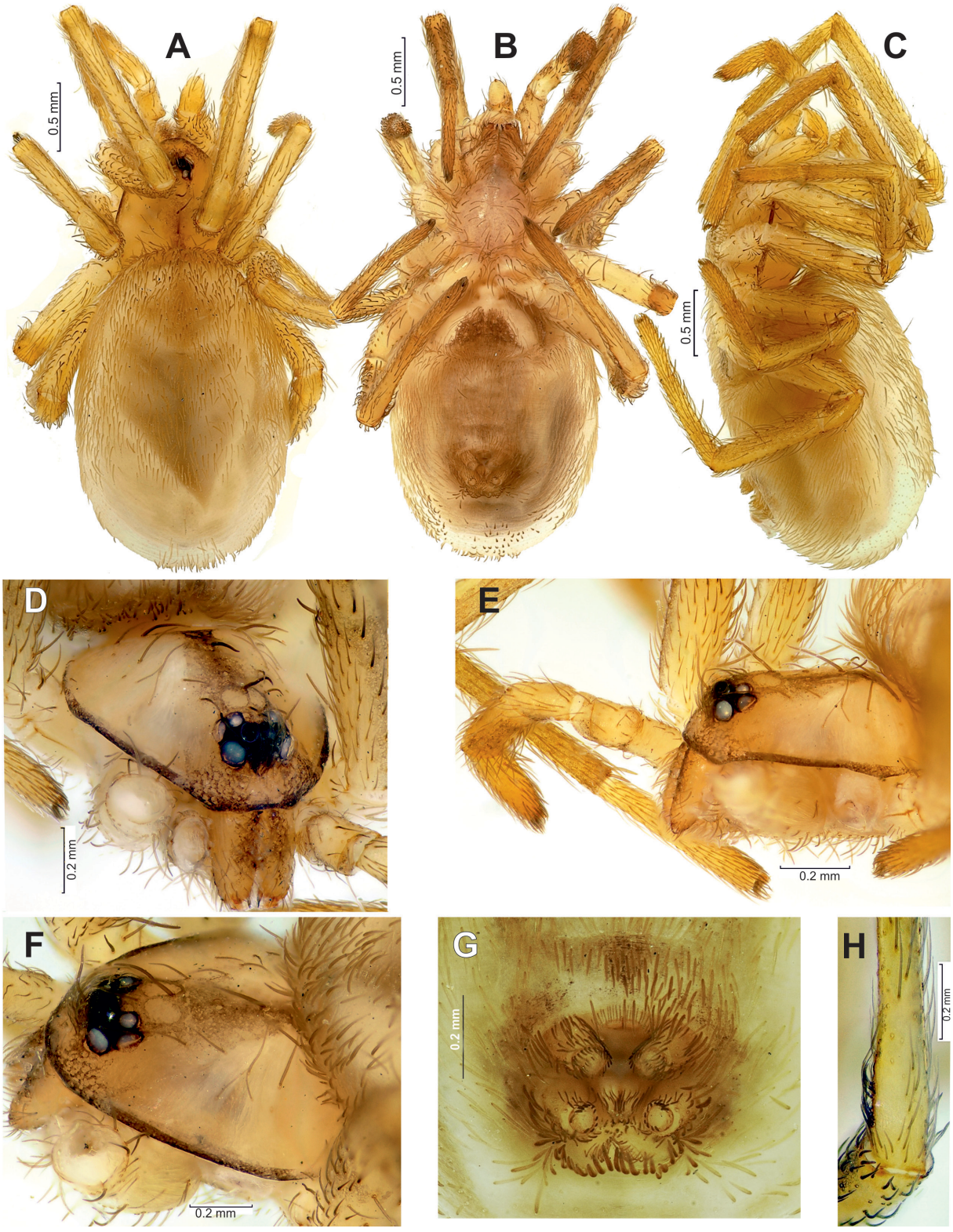

Fig. 39. Somatic characters of *Zaitunia minuta* sp. nov., holotype, ♀. **A**–**C**. Habitus, dorsal, ventral and lateral. **D**–**F**. Prosoma, fronto-lateral, lateral, and dorso-lateral. **G**. Spinnerets, ventral. **H**. Metatarsus IV, dorsal.

Zaitunia minuta sp. nov.
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Figs 39–40

Diagnosis

Females of *Z. minuta* sp. nov., with their very short and small receptacles, resemble females of *Z. zonsteini*, but differ by having a relatively larger eye group (cf. the eye measurements in both measured representatives of these species are almost identical, although the former species is considerably smaller than the latter), as well as by the longer and narrower calamistral setae (cf. Figs 39H and 41E, H), relatively smaller cribellum (cf. Figs 39G, 41F) and somewhat different lateral receptacles, which have triangular heads (vs rounded in *Z. zonsteini*, cf. Figs 40, 41I–M).

Etymology

The specific epithet is derived from the Latin *minutus* ("little, small, minute").

Material examined

Holotype

UZBEKISTAN: ♀, Namangan Province, Pap District, southeastern foothills of Kurama Mts, about 5.5 km NW of Khanabad, 40°54.1' N, 70°45.7' E, 850 m, 16 May 2002, A.V. Gromov (ZMMU).

Paratype

UZBEKISTAN: 1 ♀, same area, Rizaksai River valley, 14 km NW of Khanabad, 1274 m, 13 Jun. 2003, L. Prendini & A.V. Gromov (AMNH).

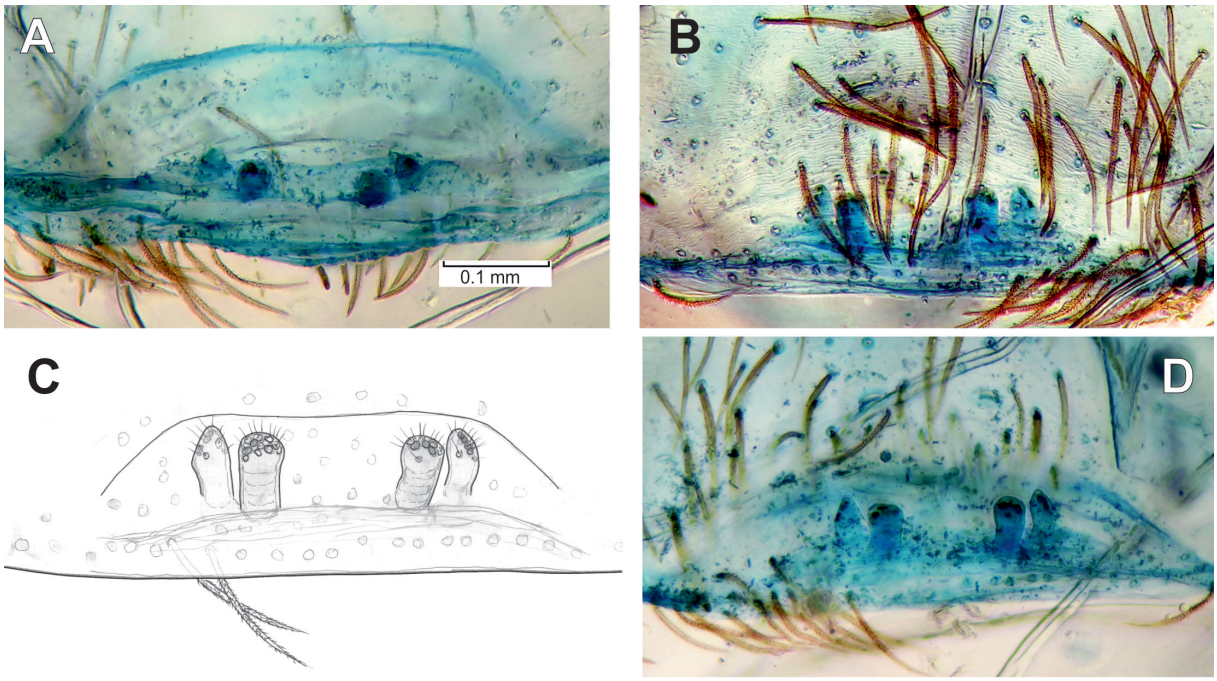

Fig. 40. Endogyne of *Zaitunia minuta* sp. nov., holotype, ♀. **A**. Anterior. **B**. Ventral. **C– D**. Dorsal.

Description

Female (holotype)

Habitus. See Fig. 39A-C.

Body length. 3.23.

Colour. Body and legs pale sandy-brown, carapace with slightly darker median spot and noticeably darker narrow margins; eye tubercle blackish-brown; abdomen uniformly colored, without dorsal pattern.

Carapace (Fig. 39E). 1.27 long, 0.82 wide.

Eyes (Fig. 39D, F). AME 0.06, ALE 0.11, PLE 0.09, PME 0.08, AME–AME 0.05.

Endogyne (Fig. 39). Both pairs of receptacles subequal in length and width; median receptacles with head slightly wider than stem, heads separated by about 2.5 diameters; lateral receptacles with triangular heads; only heads covered by pores.

Leg measurements.

	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
Palp	0.52	0.27	0.38	—	0.45	1.62
I	1.33	0.42	1.25	1.07	0.77	4.84
II	0.97	0.35	0.83	0.75	0.57	3.47
III	0.87	0.30	0.63	0.70	0.43	2.93
IV	1.23	0.37	0.95	0.93	0.48	3.96

Male

Unknown.

Distribution

Known only from the type locality (Fig. 49) which appears to be entirely separate from the area occupied by the closest congener, *Z. zonsteini*, by biotopes inhabited by *Z. maracandica*, *Z. ferghanensis* sp. nov., *Z. wunderlichi* sp. nov. and *Z. logunovi* sp. nov. (see Figs 48 and 49).

Zaitunia zonsteini Fomichev & Marusik, 2013

Fig. 41

Zaitunia zonsteini Fomichev & Marusik, 2013: 85, figs 1–9, 12–14 (♀).

Diagnosis

Females of *Z. zonsteini*, with their very short and small receptacles, resemble those of *Z. minuta* sp. nov., but differ by having smaller eyes, broader calamistral setae, a larger cribellum and more globular receptacles (both pairs) (cf. Figs 39D–H, 40, 41D–M).

Type material

Holotype

KAZAKHSTAN: ♀ East Kazakhstan Province, Urdzhar District, Kyzylbel'tau Mountains, near Terekty (Blagodatnoe) Village, 47°14' N, 81°17' E, 1000 m, 3–5 Jul. 2012, A.N. Litvinov (ISEA).

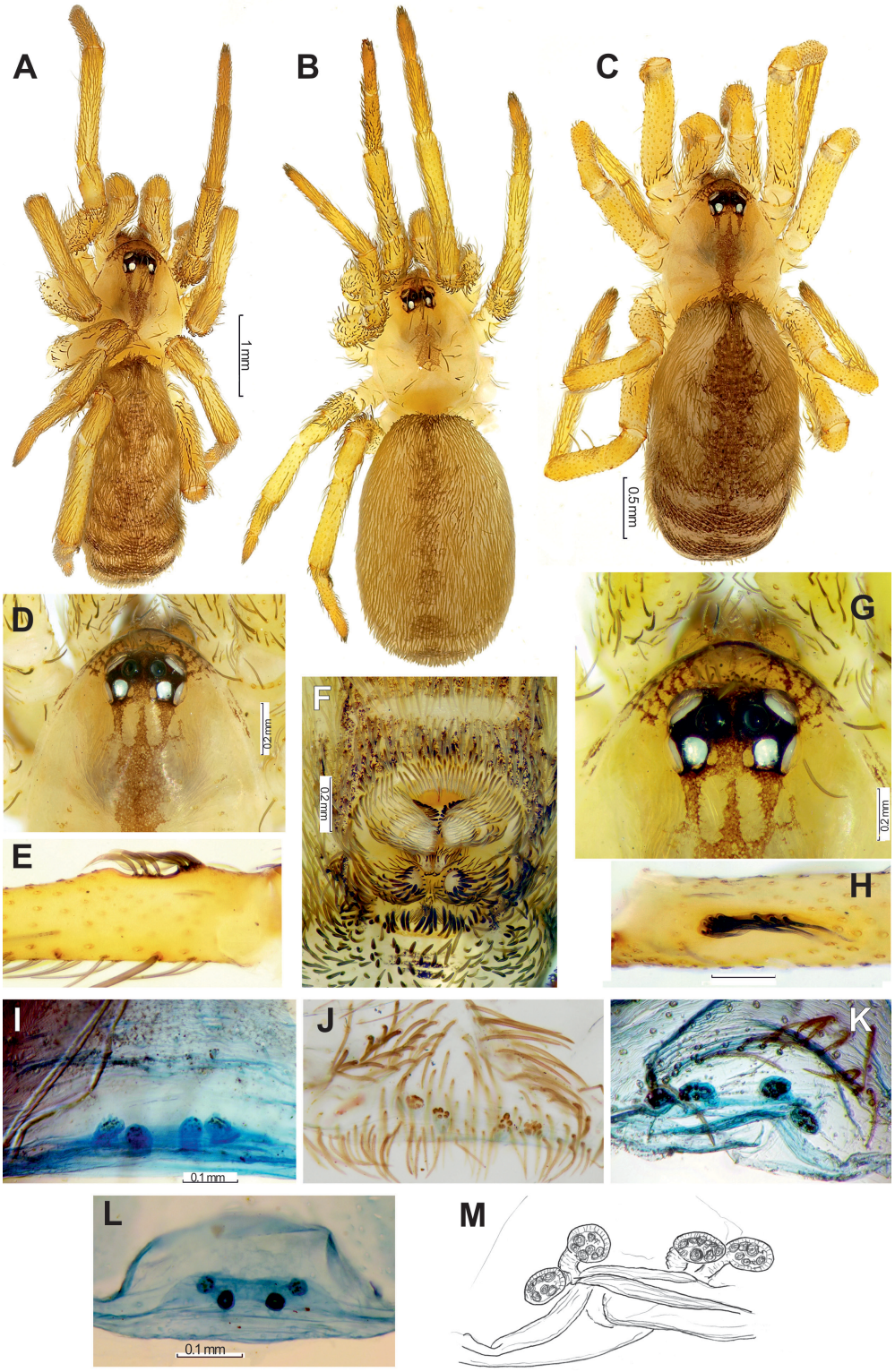

Fig. 41. Somatic characters and endogyne of *Zaitunia zonsteini* Fomichev & Marusik, 2012 (**A–H**, **J–K**, **M**), and ♀♀ from Taldykorgon (**I**, **L**). — **A–C**. Habitus, dorsal, showing variations of pattern. **D**, **G**. Cephalic part of prosoma, dorsal. **E**, **H**. Calamistrum, lateral and dorsal. **F**. Posterior part of abdomen, ventral. **I–J**. Endogyne, dorsal. **K**, **M**. Same, anterior. **L**. Same, subcaudal (receptacles visible from below). Scale bars: A = 1.0 mm; B–C = 0.5 mm; D, F–H = 0.2 mm; I, L = 0.1 mm.

Paratypes (12 ♀♀, all in ISEA)
KAZAKHSTAN: 1 ♀, same data as holotype; 8 ♀♀, same locality, 3–5 Jul. 2011, A.A. Fomichev & A.N. Litvinov; 1 ♀, same locality, 47°14' N, 81°18' E, 1000 m, 2 Jul. 2011, A.A. Fomichev; 1 ♀, same locality, 900 m, 15 Jul. 2011, A.A. Fomichev; 1 ♀, SW part of West Tarbagatai Mountains, 47°18' N, 81°19' E, near Terekty (Blagodatnoe) Village, 1200 m, 3 Jul. 2011, A.A. Fomichev & A.N. Litvinov.

Other material examined (6 ♀♀)
KAZAKHSTAN: 2 ♀♀, surroundings of Taldykorgon, 45°00' N, 78°22' E, 25 Jul. 1988, C.K. Tarabaev, A.A. Zyuzin & M. Zharko (TAU); 2 ♀♀, Syugaty Valley, 5 km W of Charyn canyon, 43°22' N, 79°01' E, 1200 m, 2 Jun. 1989, C.K. Tarabaev, A.A. Zyuzin & M. Zharko (TAU); 2 ♀♀, 1 juv., Ketmen Mts, 11 km NW of Chundzha (= Shonzhy), left bank of Charyn River, 43°37' N, 79°21' E, 700 m, 29 May 2001, A.V. Gromov (ZMMU).

Description

Female (Taldykorgon)
Habitus. See Fig. 41C, refers to the paratype.

Body length. 4.70.

Color. Carapace brownish-yellow, with darkened brown clypeus and triangular median band; eye tubercle blackish-brown; light oval postocular spots well-developed; chelicerae brownish-yellow; labium, sternum and maxillae greyish-yellow; palps and legs light yellow, gradually darkened to apices; abdomen dorsally light yellow with diffuse brownish pattern consisting of narrow dashed median band and few pairs of transverse chevrons, ventrally pale yellow with darker brownish area surrounding spinnerets.

Carapace. 1.75 long, 1.20 wide.

Eyes (Fig. 41D, G). AME 0.06, ALE 0.13, PLE 0.09, PME 0.08, AME–AME 0.04.

Leg measurements.

	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
Palp	1.07	0.65	0.87	—	0.97	3.56
I	2.33	0.87	2.23	1.97	1.30	8.70
II	1.97	0.83	1.65	1.63	1.05	7.13
III	1.75	0.75	1.33	1.38	0.97	6.18
IV	2.37	0.80	1.85	1.83	1.03	7.88

Endogyne (Fig. 41I–M). Both pairs of receptacles subequal in width and length; median receptacles separated by one diameter, with round heads; lateral receptacles with angled heads, slightly converging; pores present on heads only.

Male
Unknown.

Variation

Carapace length in females varies from 1.20 to 1.75. Darker median band on the carapace and lateral chevrons on the abdomen may be less distinct in paler specimens (cf. Fig. 41A–C).

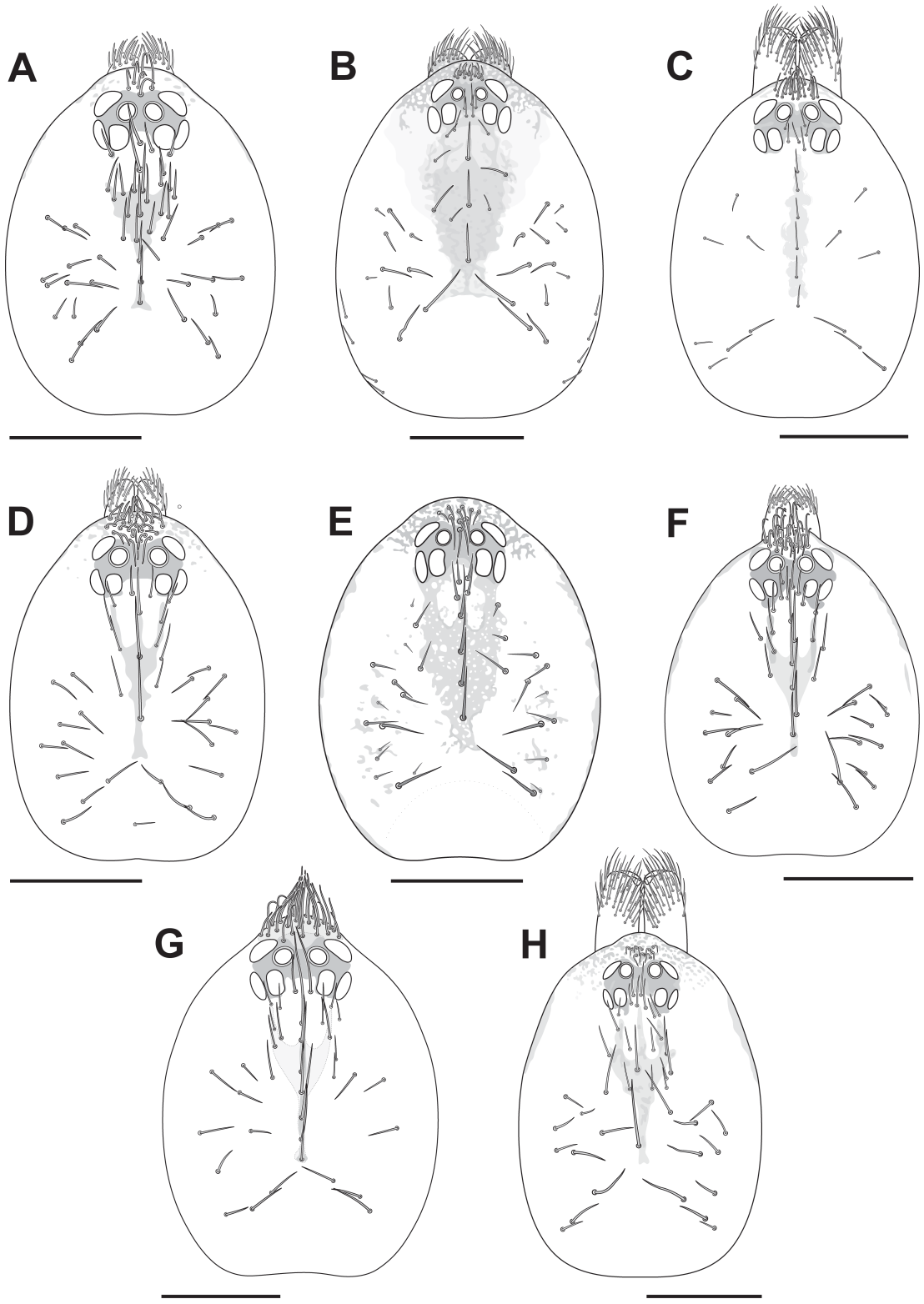

Fig. 42. Variations of coloration and setation of carapace in ♂♂ (**A**, **D**, **F–G**) and ♀♀ (**B–C**, **E**, **H**) of some *Zaitunia* species. — **A–B**. *Z. logunovi* sp. nov. **C**. *Z. inderensis* Ponomarev, 2005. **D–E**. *Z. beshkentica* (Andreeva & Tyshchenko, 1969). **F**. *Zaitunia wunderlichi* sp. nov. **G–H**. *Z. maracandica* (Charitonov, 1946). Scale bars = 0.5 mm.

Ecology

This species has been collected in steppe and semi-desert biotopes.

Distribution

Eastern Kazakhstan (Fig. 49).

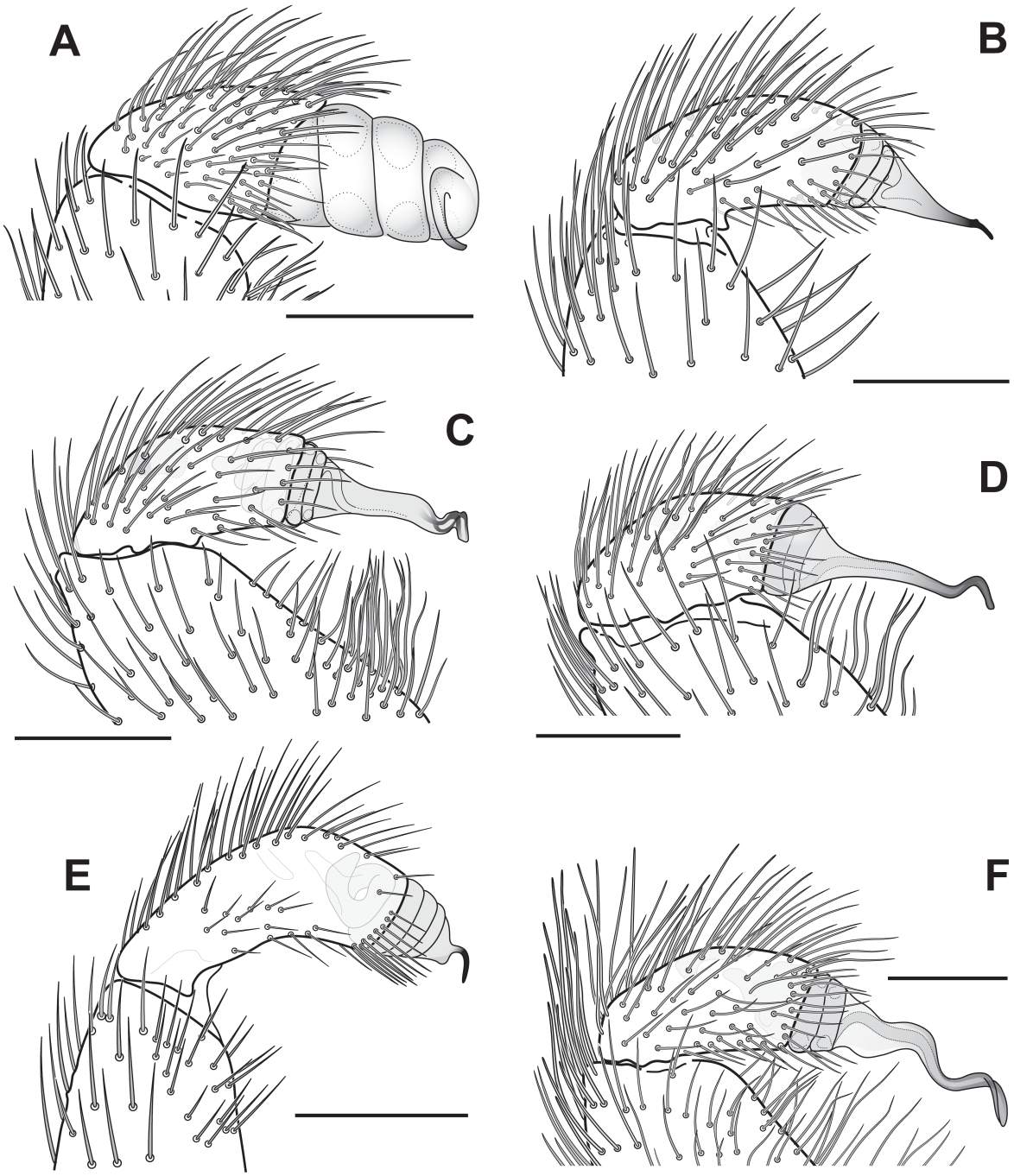

Fig. 43. Male copulatory organs of *Zaitunia* species, retrolateral. **A**. *Z. schmitzi* (Kulczyński, 1911) (Jerusalem area). **B**. *Z. annulipes* (Kulczyński, 1908) (Paramali). **C**. *Z. kunti* sp. nov. (holotype). **D**. *Z. minoica* sp. nov. (paratype). **E**. *Z. logunovi* sp. nov. (paratype). **F**. *Z. martynovae* (Andreeva & Tyshchenko, 1969) (Gandzhina). Scale bars = 0.2 mm.

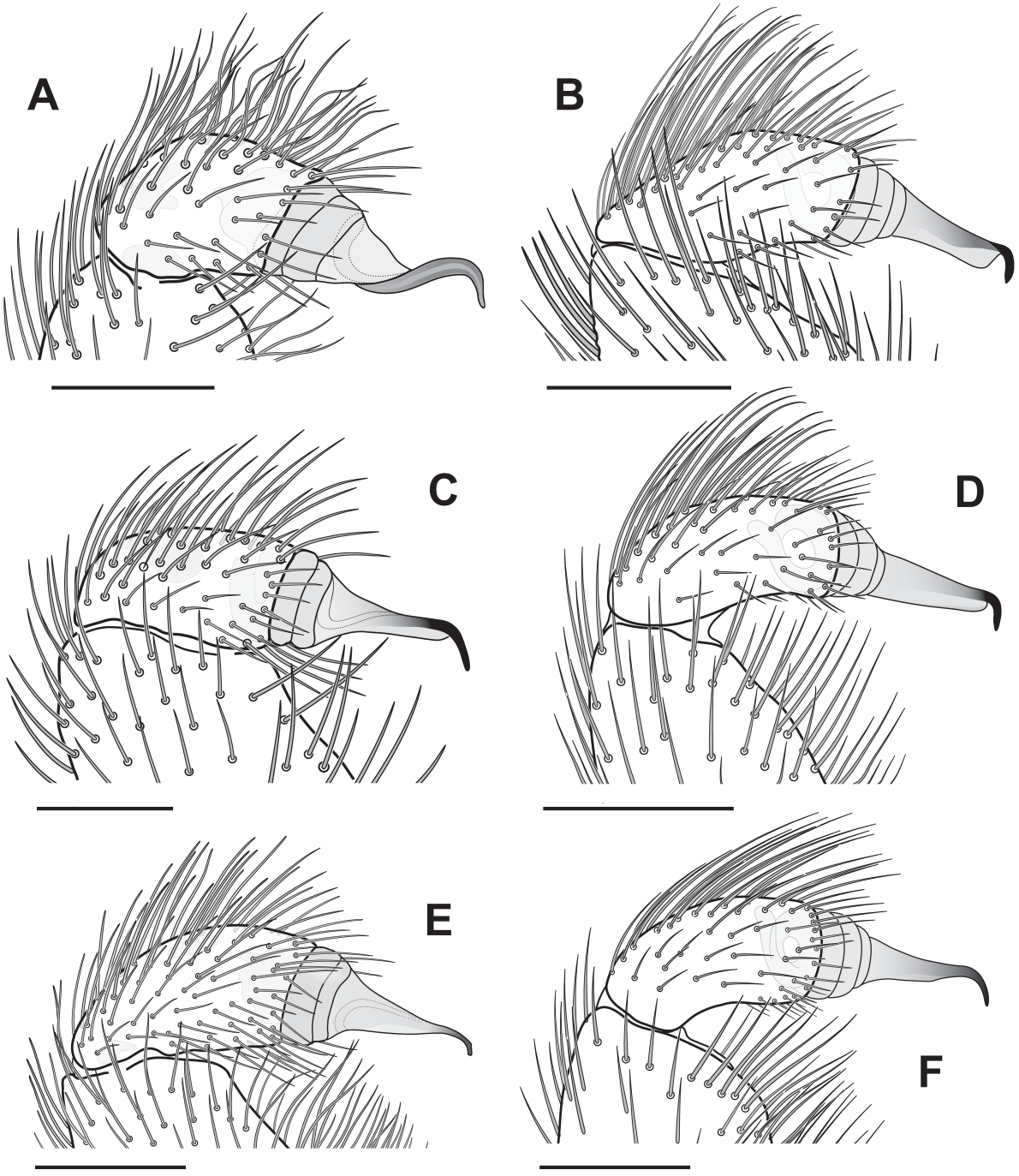

Fig. 44. Male copulatory organs of *Zaitunia* species, retrolateral. **A**. *Z. spinimana* sp. nov. (holotype). **B**. *Z. beshkentica* (Andreeva & Tyshchenko, 1969) (Babatagh). **C**. *Z. psammodroma* sp. nov. (holotype). **D**. *Z. wunderlichi* sp. nov. (holotype). **E**. *Z. ferghanensis* sp. nov. (paratype). **F**. *Z. maracandica* (Charitonov, 1946) (Ulus). Scale bars = 0.2 mm.

Misplaced species

Genus ***Pholcoides*** Roewer, 1962

Pholcoides Roewer, 1962: 40 (type species by monotypy: *P. afghana* Roewer, 1960).

Pholcoides – Huber 2009: 68. — Zonstein *et al*. 2013: 65.

Note

Originally described by Roewer (1962) in the Pholcidae, this monotypic genus was later transferred to the Filistatidae (Huber 2009). Zonstein *et al.* (2013) assigned *Pholcoides* to the Prithinae Gray, 1995.

Pholcoides monticola (Spassky, 1941) comb. nov.
Fig. 45

Filistata monticola Spassky, 1941: 12 (♀).

Filistata monticola – Spassky 1952: 194.
Zaitunia monticola – Zonstein 1990: 50 (transfer from *Filistata*).

Material examined

Lectotype (designated here)
TAJIKISTAN: ♀, Western Pamir, "Kalaj-Chumb", Kalaikhum: 38°28' N, 70°47' E, 1340 m, 30 Jul. 1935, S. Nenjukov (ZISP).

Paralectotypes
TAJIKISTAN: 1 juv., "Kalaj-Vamar", Rushan: 37°57' N, 71°34' E, 2000 m, 2 Sept. 1937, E. Luppova (ZISP); 1 juv., "Pamir occidentalis", 11 Aug. 1937, E. Luppova (ZISP). All specimens are in a poor condition, dried and damaged.

Additional material examined
TAJIKISTAN: 2 ♀♀, Western Pamir, Yazgulem Canyon near Andarbag, 38°13' N, 71°33' E, 2100 m, 18 Jul. 1988, S. Zonstein (TAU).

Remarks

Unlike *Zaitunia*, females of *Pholcoides monticola* lack the metatarsal crest on leg IV (Fig. 45C), typical for the Filistatinae. However, this species shares relatively long legs, a rounded carapace and sternum (cf. Fig. 45A and Zonstein *et al*. 2013: figs 1–2, respectively), spinnerets located closer to the posterior tip of the abdomen (Fig. 45B and Zonstein *et al*. 2013: fig. 3) and a characteristic calamistrum with two posteriorly convergent rows of setae with *P. afghana* (Fig. 45C and Zonstein *et al*. 2013: fig. 6). The structure of the endogyne in these two species is also similar, although not identical (cf. Figs 45D–E and Zonstein *et al*. 2013: figs 11–12), and differs drastically from that in *Zaitunia*. Based on these reasons, the aforementioned species is transferred from *Zaitunia* to *Pholcoides*. Its relationship to *P. afghana* and other congeners (some of which are still undescribed) will be considered in detail in a taxonomic revision of *Pholcoides* (Zonstein & Marusik, in prep.).

Discussion

Taxonomic placement of *Zaitunia*

When Lehtinen (1967) described *Zaitunia*, he allocated it to a group of three genera along with *Filistata* Latreille, 1810 and *Kukulcania* Lehtinen, 1967. He stated that, unlike other family members, all three genera share the presence of spines on leg femora, tarsi and metatarsi, and the ejaculatory duct (spermophore) is tightly coiled. Concurrently, he considered *Zaitunia* as lacking tarsal spines and possessing the calamistrum composed of "2 rows of 2 strong bristles" (Lehtinen 1967: 300, table 3). Contrary to that statement, during the present revision, we found that all *Zaitunia* species have few to numerous short tarsal spines on the legs. The calamistrum in *Zaitunia* was found to be uniseriate,

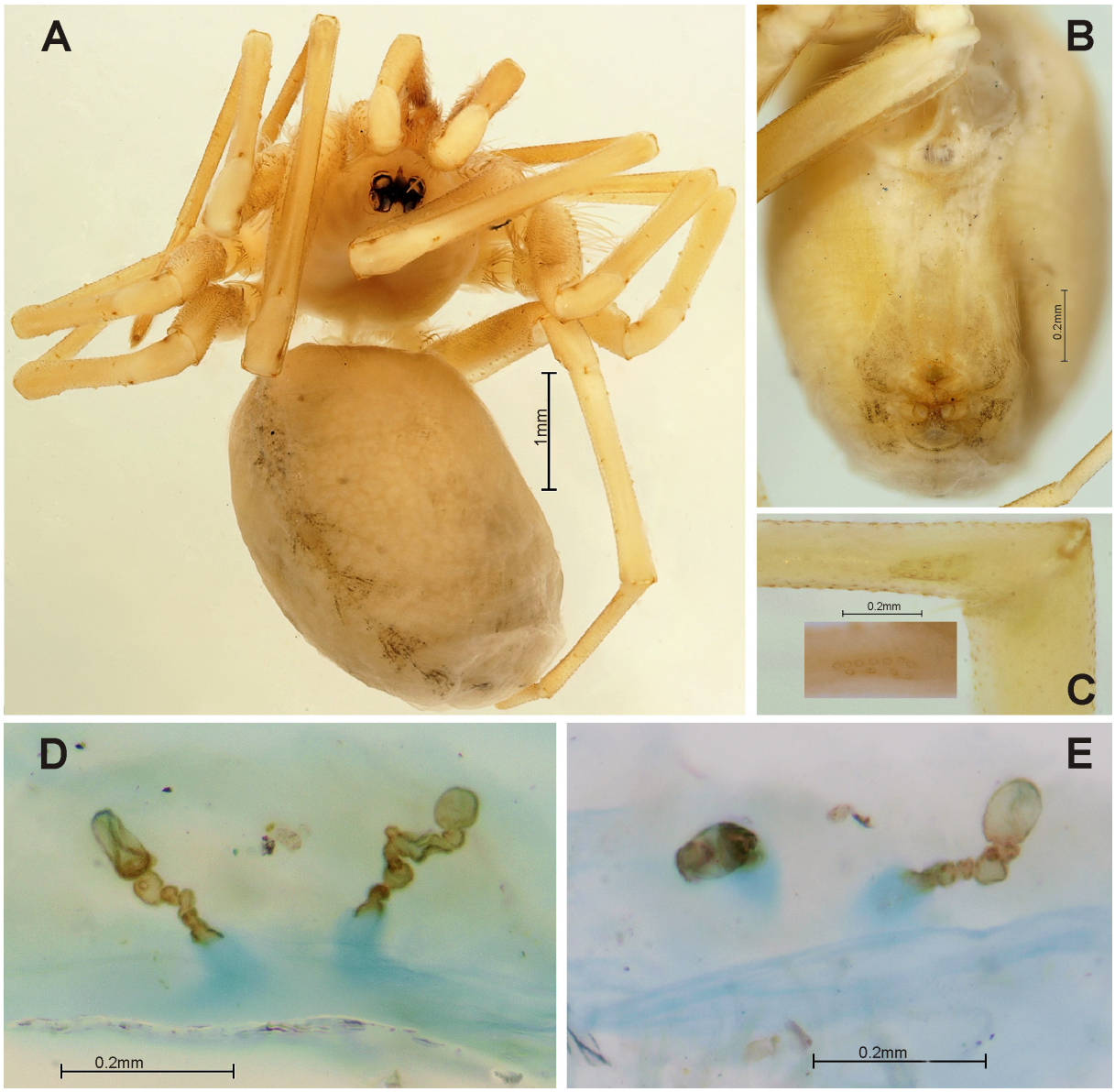

Fig. 45. Somatic characters and endogyne of *Pholcoides monticola* comb. nov., ♀ from Andarbag. **A**. Habitus, dorsal. **B**. Abdomen, ventral. **C**. Calamistrum of both metatarsi IV, all setae lost. **D**. Endogyne, dorsal. **E**. Same, anterior. Scale bars: A = 1.0 mm; B–E = 0.2 mm.

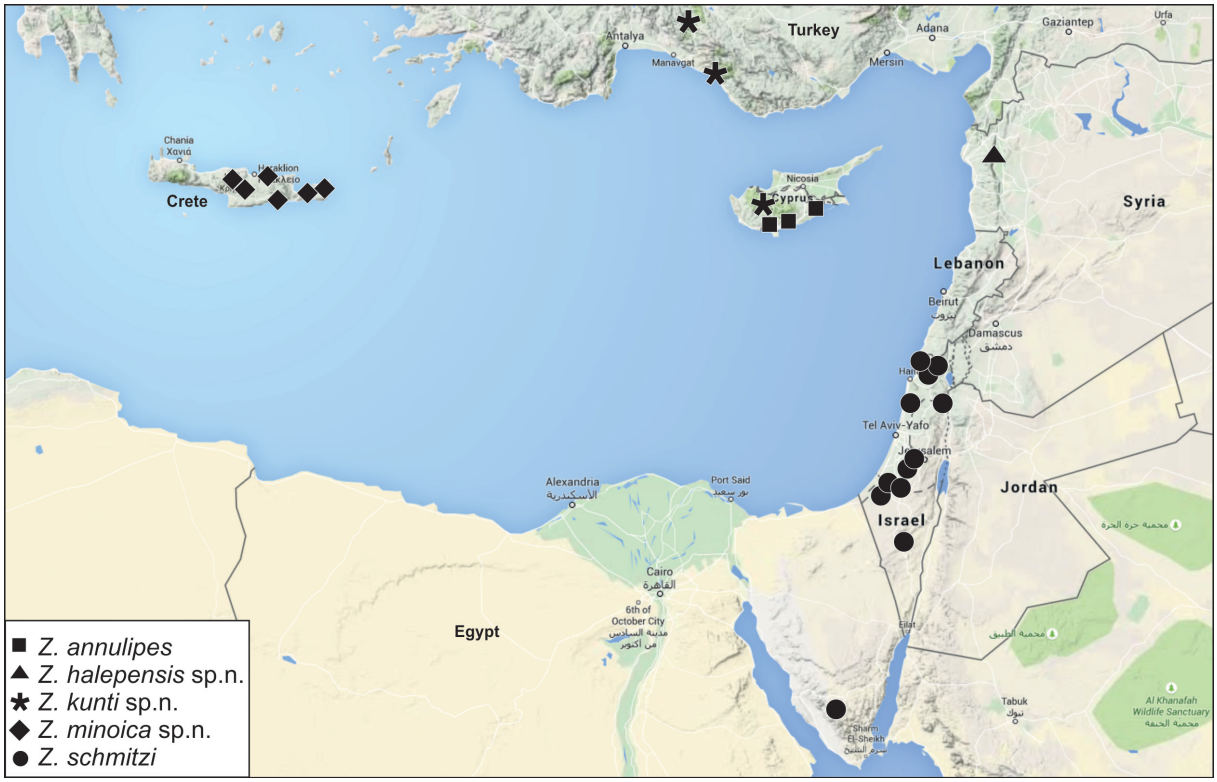

Fig. 46. Distribution of *Zaitunia schmitzi* and *Zaitunia annulipes* species groups.

Fig. 47. Distribution of *Zaitunia persica* species group.

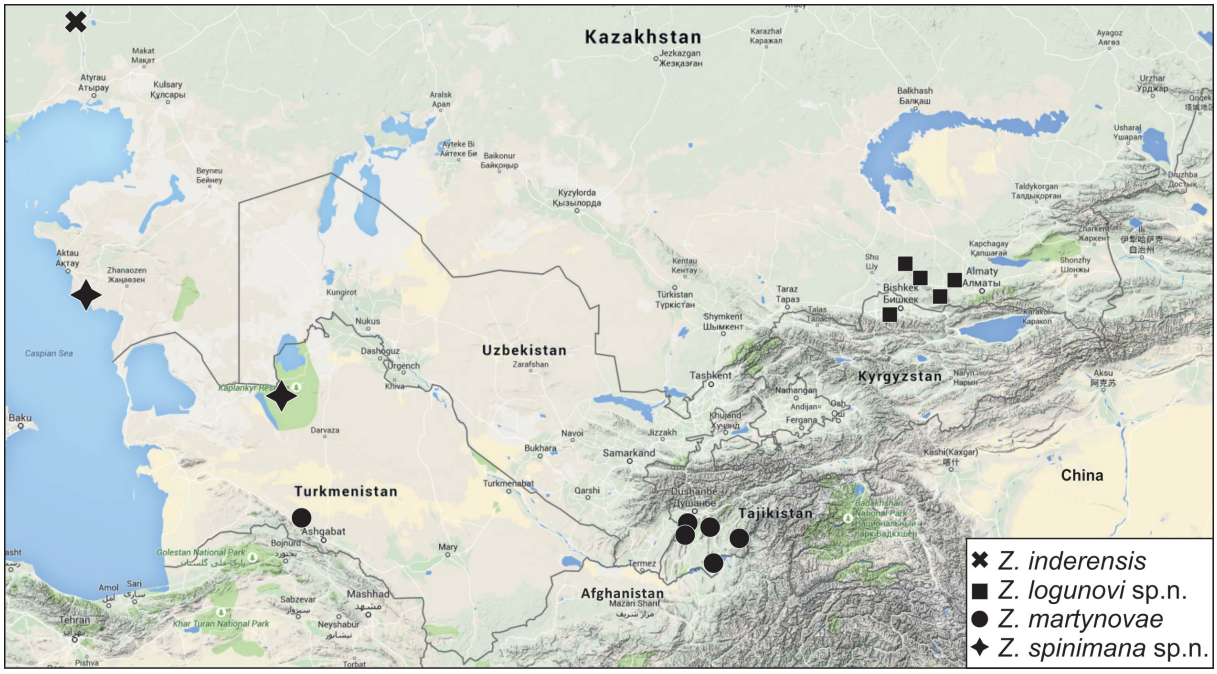

Fig. 48. Distribution of *Zaitunia logunovi* and *Zaitunia martynovae* species groups.

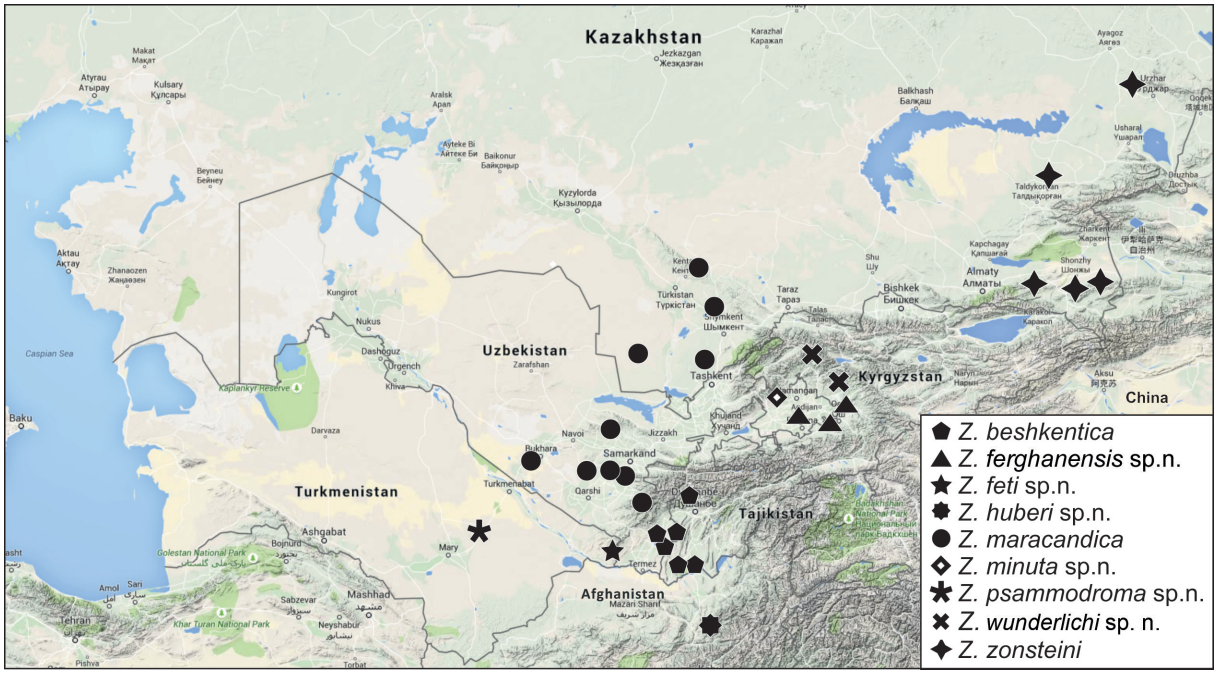

Fig. 49. Distribution of *Zaitunia beshkentica* and *Zaitunia maracandica* species groups.

Fig. 50. Live specimens of *Zaitunia* and habitats of *Z. martynovae* (Andreeva & Tyshchenko, 1969) in Southern Tajikistan. **A**. ♀ of *Z. schmitzi* (Kulczyński, 1911) on the turned stone bottom (Israel, Shoham, image courtesy of Amir Weinstein). **B**. Surroundings of Gandzhina: the spiders occur under the stones. **C**. Pyandzh-Karatau Mts, one of the co-authors (YM) near the clay escarps inhabited by filistatids. **D**. Foothills of the salt dome Khodzha-Mumin: the spiders inhabit crevices and cavities in the rock outcrops. **E**. One of the figured escarps, a close-up photo showing the twin entrance leading to the inhabited cavity**. F**. Captured ♀ of *Z. martynovae* (Andreeva & Tyshchenko, 1969) weaving a web in the cover of a collecting tube.

although it is certainly composed of two or even three formerly separate but now fused and juxtaposed rows of 6–7 large and 2–6 tiny setae each (Fig. 2A–E).

Brignoli (1982) was more interested in emphasizing distinctive features of *Zaitunia* than in finding its affinities. He first provided a figure showing the calamistrum of *Zaitunia* with a characteristic gap between two groups of setae (Op. cit.: fig. 14) like that in *Filistata insidiatrix* (Op. cit.: fig. 1). However, regarding *Z. persica*, he presented setae of the calamistrum as having serrate margins and being dilated apically, which has not been confirmed by our examination. We found that the structure of these setae in *Z. persica* does not differ from that in any other *Zaitunia*: similarly as with *Filistata* and *Kukulcania*, the ribbed and curled lanceolate bristles in *Zaitunia* are gradually widened in the medial part and then are also gradually narrowed to an acute apex (Fig. 2B–C, E). It is notable that none of Brignoli's figures presenting the calamistra of *Filistata*, *Zaitunia* and *Sahastata* Benoit, 1968 showed them in the correct position on the elevated process (Op. cit.: figs 1, 14 and 17, respectively).

Gray (1995) tentatively assigned *Zaitunia* to the nominative subfamily which was considered to certainly include *Filistata*, *Kukulcania* and *Sahastata*. However, because of scarce data, *Zaitunia* was not included in the cladogram. For the same reason, Ramírez & Grismado (1997) confirmed the provisional placement of *Zaitunia* among the Filistatinae, but did not include this genus in their phylogenetic reanalysis of the filistatid genera.

Zonstein (2009b) also noted a close similarity between *Zaitunia*, *Filistata* and *Kukulcania* because they "share a relatively broad cribellum and a very short uniseriate calamistrum in the female, as well as curved pseudosegmented tarsi in the male" (Op. cit.: 126). Having re-examined these characters, we found the two latter ones to be significant, whereas the former appears to be confusing. Although Zonstein *et al*. (2013) and later Marusik & Zamani (2015) in these regional works listed *Zaitunia* in the Filistatinae, they have entirely focused on the characters distinguishing *Zaitunia* from the similar-looking *Filistata*, without considering the taxonomic position of *Zaitunia* in detail.

Thus, the above-listed suggestions concerning the taxonomic position of *Zaitunia* should not be recognized as sufficiently substantiated. An attempt to clarify this question as far as possible has been one of the targets of this study.

During this revision we found that all species assigned to *Zaitunia* share the following characters (listed according to the description format accepted here):

1) body and legs are covered only with ciliate hairs (Fig. 1D–I); plumose hairs (like those showed by Gray 1995: fig. 10, and Lise *et al.* 2010: figs 12, 20) are absent
2) clypeus short, broad-oval, and steeply inclined
3) clypeus with a comb of long, thick and dense reclined setae (see Fig. 42), more developed in males (Fig. 42A, D, F–G)
4) eye tubercle low or moderately high (probably associated with character 2)
5) thoracic fovea is absent
6) labium usually wider than long (maximum as wide as long); this character is also probably associated with character 2
7) male palpal tibia moderately short and more or less swollen
8) cymbium subcylindrical in shape
9) cymbium relatively short (at least shorter than that in most filistatines; probably associated with character 7)
10) spermophore tightly coiled
11) leg femora, tibiae and metatarsi I–IV spinose
12) calamistrum consists of setae located on a metatarsal crest

13) calamistral setae form a single row of clearly composite nature
14) this row consists of two groups of juxtaposed (or staggered, after Ramírez 2014) setae with a characteristic gap between them
15) calamistral setae have a ribbed structure
16) these setae lack marginal combing teeth
17) leg tarsi I–IV with small ventral spines
18) male leg tarsi I–IV long and cracked (pseudosegmented), as shown in Fig. 33G
19) tarsal organ with wide opening
20) posterior respiratory system includes two pairs of tracheal branches
21) inner pair of tracheal branches is long, thin, twisted and bent
22) cribellar plate as wide as long, or only slightly wider than long (as in Fig. 4D)
23) cribellar areas are noticeably distant from each other
24) PMS with at least two paracribellar spigots

Characters 1, 10, 11, 12, 15 and 16 are shared with all genera included in Filistatinae (i.e., *Filistata*, *Kukulcania* and *Sahastata*) and also with *Microfilistata* (Filistatidae *inc. sed.*). Members of the subfamily Prithinae (12 genera) have plumose hairs, a spermophore that is not tightly coiled, a sessile calamistrum with 2–3 rows of setae possessing marginal combing teeth, almost unarmed leg segments, and completely aspinose leg tarsi (Gray 1995; Ramírez & Grismado 1997; see also Ramírez 2014: fig. E).

Characters 2 and 4 are shared with *Microfilistata* and also with *Pholcoides*, Prithinae (see Zonstein 2009a: figs 1–2, 5; Zonstein *et al.* 2013: figs 1, 4). By contrast, most Filistatinae and Prithinae have a higher eye tubercle and a forward produced clypeus (Benoit 1968: figs 1, 6; Gray 1994: figs 32, 37, 38, 41, 46, 54, 56, 69, 77, 85, 89, 94, 111–113, 118; Ramírez & Grismado 1997: figs 30–31, 36, 39, 46, 54, 60, 66, 73, 75, 84, 96; Ubick *et al.* 2005: fig. 28.1; Zhang *et al*. 2009: figs 1, 7; Gómez-Rodríguez & Salazar 2012: fig. 8A; Zonstein *et* al. 2013: figs 16, 19; Marusik & Zonstein 2014: figs 7–10; Siyam *et al*. 2015: figs 7–8).

Characters 3 and 19 appear to be specific for *Zaitunia* (Figs 1C, 2G, 6E, 8C, 12F, 20D, 23D, 24E, 27B, 28C, 32A, 34E, 37C, 39E). No other filistatid, with a single exception, has been found to possess a similarly long and dense tuft of reclined bristles on the clypeus. In *Filistatoides* F. O. Pickard-Cambridge, 1899, the presence of similar tufts is evidently convergent (I. Magalhaes, pers. com.). In *Filistata* and *Kukulcania*, the tarsal organ is domed with a narrow (Griswold *et al.* 2005: fig. 152B) and sometimes shallow (Gray 1995: fig. 28) entrance. In Prithinae, this entrance appears to be even narrower (Gray 1994: figs 11–12; 1995: fig. 27).

Character 5 is widely distributed among the genera of the Prithinae that also lack a thoracic fovea or in which it is a very shallow pit (see Gray 1995; Ramírez & Grismado 1997). This state was also noted for *Microfilistata* (Zonstein 2009a). By contrast, members of Filistatinae usually possess a well-developed fovea (Gray 1995; Ramírez & Grismado 1997). However, it should be noted that in small-sized species of *Filistata* (such as species described from the Canary Islands), the fovea changes from underdeveloped in a moderately small *F. canariensis* Schmidt, 1972 to almost indistinct in a tiny *F. teideensis* Wunderlich, 1992 (Zonstein & Marusik, in prep.). Since it could be connected with spider size (*Zaitunia*, *Microfilistata* and the prithine filistatids are small), the taxonomic significance of this character is unclear.

Character 6 is probably associated with states 2 and 4 and is shared with *Microfilistata* (cf. Zonstein 2009a: figs 3, 6). However, in *Pholcoides*, which has a similarly short and steeply inclined clypeus, the labium is nevertheless long due to the shortened sternum (see Zonstein *et al.* 2013: fig. 2). Most Filistatinae and Prithinae have a longer labium, probably due to their produced clypeus (Benoit 1968:

fig. 2; Gray 1994: figs 34, 40, 45, 71, 86, 91, 110; Zhang *et al*. 2009: fig. 2; Lise *et al.* 2010: fig. 4; Marusik & Zonstein 2014: figs 2, 11, 13; Marusik *et al*. 2014: figs 24, 31).

Character 7 is known also for some species of the prithine genera *Pritha* (Ledoux 1977: fig. 3A–C), *Tricalamus* Wang, 1987 (Song *et al*. 1999: figs 17W, X, 18E–F) and *Wandella* Gray, 1994 (Gray 1994: figs 108–109, 114, 117). However, in most Prithinae, the male palpal tibia appears even shorter and incrassate (Gray 1994: figs 65–68, 74–75, 82–84, 92–93; Ramírez & Grismado 1997: figs 32–34, 41–44, 49–52, 100–102; Song *et al*. 1999: figs 17N–V, 18A–D, G–J). Among the Filistatinae, only *Filistata teideensis* Wunderlich, 1992 has a relatively short male palpal tibia (which is generally much longer in other filistatines); but even in *F. teideensis* this tibia is noticeably longer than in *Zaitunia* (see Wunderlich 1992: fig. 136).

Characters 8, 17, 18, 23 are shared exclusively with genera of the Filistatinae. In *Microfilistata*, the cymbium, although subcylindrical, almost completely covers (coats) the embedded bulb (Zonstein 2009a: figs 2, 4). Within the Prithinae, the cymbium is more or less reduced and forms a small horseshoe-shaped or collar-like segment (Lehtinen 1967: figs 22–24; Benoit 1968: fig. 7; Ledoux 1977: figs 3A–D; Brignoli 1982: figs 6, 9; Gray 1994: figs 30, 39, 42–43, 57–61, 65–68, 74–75, 82–84, 92, 94, 108–109, 111–115, 117, 119–121; Ramírez & Grismado 1997: figs 25, 27, 32–34, 42–44, 49–52, 56–58, 62–64, 68–70, 78, 87–89, 91–92, 99–102, 104–106; Song *et al.* 1999: figs 18O–X, 19A–J). In addition, in *Microfilistata* and the Prithinae, the leg tarsi are completely aspinose (and the tarsi in males are entire, not curved and pseudosegmented), and the PMS have one probably paracribellar gland spigot (Gray 1995; Ramírez & Grismado 1997; Zonstein 2009a).

Character 9 distinguishes *Zaitunia* from *Kukulcania* (see Chamberlin & Ivie 1935: figs 23–24, 27–28; Ramírez & Grismado 1997: fig. 107; Brescovit & Santos 2013: fig. 1A–F) and *Sahastata* (Marusik & Zamani 2015: fig. 3a–d). On the contrary, species of *Filistata* possess a cymbium of the same relative length or only slightly longer than that in *Zaitunia* (cf. Wunderlich 1992: figs 132–137; 1995: figs 2–4; Marusik & Zonstein 2014: figs 15–22).

Character 13 is shared with *Filistata*, *Microfilistata* and *Kukulcania* (cf. Brignoli 1982: fig. 1; Zonstein 2009a: fig. 7; Brescovit & Santos 2013: fig. 6A, respectively). However, *Sahastata* differs from those in having the calamistrum plesiomorphically composed of 3 rows of setae (see Gray 1995: fig. 4; Marusik *et al*. 2014: figs 26–29, 32–33).

Character 14 unites *Zaitunia* and *Filistata* (Figs 1C–E, 6F, 10H, 14E–F, 15D, 17E, 18C, 22H, 30F, 31F, 38H, 40E, H; Ramírez 2014: fig. 51F–G), whereas in *Kukulcania* setae are not grouped, but appear to be spread almost evenly (Griswold *et al*. 2005: fig. 143B; Brescovit & Santos 2013: fig. 6A).

Character 20 is shared at least with *Filistata* and *Kukulcania* (Ramírez & Grismado 1997: figs 7–8). Meanwhile, the unusually long, thin and twisted inner tracheal branches of *Zaitunia* (Character 21) have no known analogs within the subfamily and may represent a possible autapomorphy of this genus (Figs 3B–C and 33E–F). In Prithinae genera, the posterior respiratory system includes only one pair of the tracheal branches (Ramírez & Grismado 1997: figs 9–13). The structure of the posterior respiratory system in *Sahastata* and *Microfilistata* is unknown.

Characters 22 and 23 are probably shared only with *Filistata* (Ramírez 2014: fig. 111E) and *Kukulcania* (Platnick *et al*. 1991: fig. 51; Griswold *et al*. 2005: fig. 14D; Brescovit & Santos 2013: fig. 7A–B). In the prithine genera, the cribellar plate is much shorter and distinctly wider than long, and the cribellar areas are close or even touching each other (Ramírez & Grismado 1997: figs 9–13; Ono 2013: fig. 7). In *Sahastata*, the wide cribellar areas occupy almost the whole width of the cribellar plate and are not

distant from each other (see Marusik *et al.* 2014: fig. 25). The state of these characters in *Microfilistata* is unclear.

In total, 16 of 24 considered states in *Zaitunia* are shared with *Filistata*; 14 with *Kukulcania*; 11 with *Microfilistata*; 10 with *Sahastata*, and only a few, including absence of the thoracic fovea, whose taxonomic significance is not completely evident, with genera of the Prithinae. We thus conclude that *Zaitunia* should be placed in the nominative subfamily Filistatinae *s*. *str*. It will be possible to consider further details concerning its allocation within the subfamily and intergeneric relationships when the filistatine genera *Filistata* and *Sahastata* are revised (both genera are currently under study; Zonstein & Marusik, in prep.).

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