On the spider genus *Sintula* Simon, 1884 in Israel (Aranei: Linyphiidae)

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ABSTRACT. The Mediterranean genus *Sintula* Simon, 1884 is represented in Israel by at least four species. Two species, *Sintula matta* sp.n. (♂, ♀) and *S. adullam* sp.n. (♂), are described as new. The new species are similar to the West Mediterranean *S. furcifer* (Simon, 1912) and *S. penicilliger* (Simon, 1884) respectively, and are readily distinguishable by genital traits. *Sintula karineae* Lecigne, 2021 and *S. retroversus* (O. Pickard-Cambridge, 1875) are recorded from Israel for the first time.
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KEY WORDS: Araneae, taxonomy, dwarf-spiders, Erigoninae, Levant.

О роде пауков *Sintula* Simon, 1884 в Израиле (Aranei: Linyphiidae)

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РЕЗЮМЕ. Средиземноморский род *Sintula* Simon, 1884 представлен в Израиле не менее чем четырьмя видами. Два вида, *Sintula matta* sp.n. (♂, ♀) and *S. adullam* sp.n. (♂), описаны как новые. Новые виды сходны с западно-средиземноморскими представителями, соответственно, с *S. furcifer* (Simon, 1912) и *S. penicilliger* (Simon, 1884), хорошо отличаясь деталями строения гениталий. *Sintula karineae* Lecigne, 2021 и *S. retroversus* (O. Pickard-Cambridge, 1875) впервые отмечены в фауне Израиля.
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КЛЮЧЕВЫЕ СЛОВА: Araneae, таксономия, пауки-пигмеи, Erigoninae, Левант.

Introduction

Sintula Simon, 1884 is a small erigonine genus, currently containing 17 valid species that are confined to the Mediterranean (Word Spider Catalog, 2025). To date, no *Sintula* species has been reported for the Israeli spider fauna.

In 2011, the author received a rather large collection of linyphiid spiders from the Steinhardt Museum of Natural History, Tel Aviv, Israel. While most of this collection has already been studied (Tanasevitch, 2013, 2016, 2020), there still remain a number of new, undescribed species, including those in the genus *Sintula*.

Thus, this paper aims to describe two new species and provide new records of known *Sintula* species from Israel.

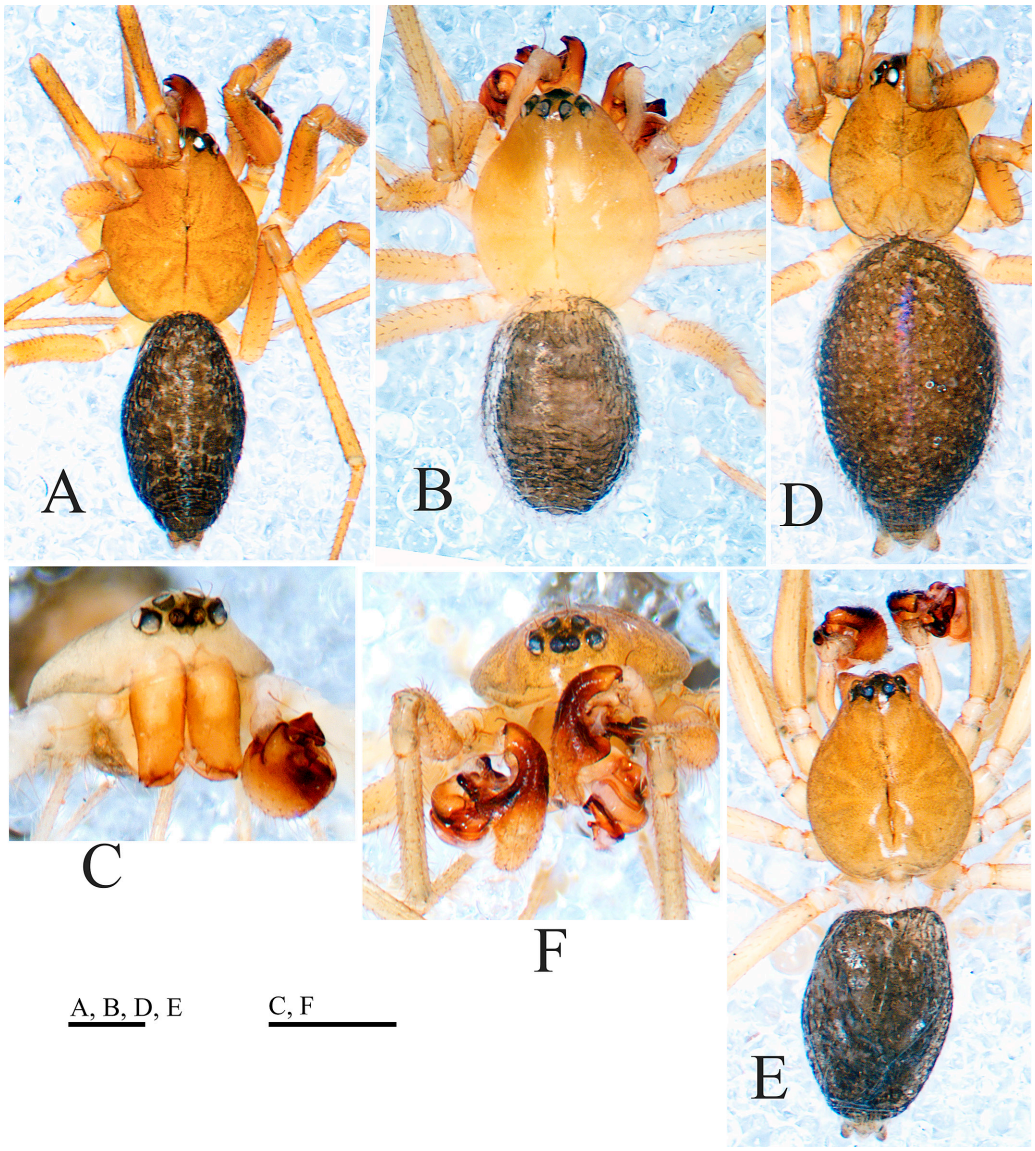

Fig. 1. *Sintula matta* sp.n., ♂ (A–C), ♀ (D), the paratypes from Matta, and *S. adullam* sp.n., holotype ♂ (E, F). A, B, D, E — habitus, dorsal view (A and D — different specimens); C, F — prosoma, frontal view. Scale bars: 0.5 mm.

Рис. 1. *Sintula matta* sp.n., ♂ (A–C), ♀ (D), паратипы из Matta, и *S. adullam* sp.n., ♂ голотип (E, F). A, B, D, E — внешний вид, сверху (A и D — разные экземпляры); C, F — просома, вид спереди. Масштабные линейки: 0,5 мм.

Material and methods

This paper is based on the material shared between the Steinhardt Museum of Natural History, Tel Aviv, Israel (SMNH), the Zoological Museum of the Moscow State University, Moscow, Russia (ZMMU), and the Zoological Institute, Russian Academy of Science, St Petersburg, Russia (ZIN).

Specimens were preserved in 70% ethanol and studied using a MBC-9 stereo microscope. Line drawings were prepared with a drawing apparatus; a Levenhuk C-800 PLUS digital camera was used for

taking photographs. Chaetotaxy is given as a formula, e.g., 2.2.1.1., which means the number of dorsal spines on tibiae I–IV. The sequence of leg segment measurements is as follows: femur + patella + tibia + metatarsus + tarsus. All measurements are given in mm.

The following abbreviations are used in the text and figures: a.s.l. — above sea level; DSA — distal suprategular apophysis, *sensu* Hormiga (2000); E — embolus; EP — embolus proper, *sensu* Saaristo (1971); MM — median membrane, *sensu* van Helsdingen (1965), = embolic membrane, *sensu* van Helsdingen (1986), and Hormiga (2000); Mt — metatarsi; N.P. — Nature Park; nr — near; R — radix; RA — radical apophysis; Ti — tibia; TAU — Tel Aviv University; TmI — position of trichobothrium on metatarsus I.

Results

Class Arachnida Cuvier, 1812
Order Aranei Clerck, 1758
Family Linyphiidae Blackwall, 1859
Subfamily Erigoninae Emerton, 1882

Gen. *Sintula* Simon, 1884

TYPE SPECIES: *Neriene cornigera* Blackwall, 1856; gender masculine.

Sintula matta, **sp.n.**
Figs 1A–D; 2A–D; 3.

HOLOTYPE ♂ (SMNH), ISRAEL, *c*. 8 km SE of Beit-Shemesh, nr Matta, 31º42′47.8″N, 35º03′56.0″E, pitfall trap 3B, 13–18.I.2007, I. Shtirberg leg.

PARATYPES: 1 ♂, 1 ♀ (SMNH), together with the holotype; 1 ♂, 1 ♀ (SMNH), same locality, pitfall trap, 25–30.XI.2011, I. Shtirberg leg.; 1 ♂ (SMNH), 10 km SSW of Beit-Shemesh, Adullam N.P., 300–400 m a.s.l., pitfall traps, 20.V.2007, O. Skutetsky leg.; 1 ♂ (ZIN), same locality, 10.III.2008, O. Skutetsky leg.; 3 ♂♂, 4 ♀♀ (ZMMU), 1 ♂, 3 ♀♀ (ZIN), nr En Ya'aqov, 33º0′27.5″N, 35º14′20.0″E, pitfall traps, 14–19.I.2007, I. Shtirberg leg.; 5 ♂♂ (SMNH), nr En Ya'aqov, pitfall traps, 26.XI.–1.XII.2007, I. Shtirberg leg.; 1 ♀ (SMNH), Mount Meron, Meron Field Station, 32º59′53.86″N, 35º25′37.23″E, 2.IV.2011, T. Levanony leg.; 2 ♀♀ (SMNH), *c*. 10 km SW of Bait She'an, Gilboa, pitfall trap-5, 23.IV.2010, C. Drees & L. Friedman leg.

NAME. The specific epithet is a noun in apposition taken from the "terra typica", Matta, Israel.

DIAGNOSIS. The new species is especially similar to the West Mediterranean *Sintula furcifer* (Simon, 1912), but reliably differs in the poorly developed outgrowths on the proximal cymbial part, the paracymbium shape, and some structural details of the the radix. The female can be distinguished by the shape of the distal part of the epigyne: Fig. 2C cf. Fig. 2E.

DESCRIPTION. Male (paratype from Matta). Habitus as in Fig. 1A, B. Total length 2.25. Carapace unmodified, 1.00 long, 0.88 wide, yellow. Chelicerae 0.35, a mastidion absent (Fig. 1C). Legs yellow. Leg I, 3.98 long (1.20 + 0.28 + 1.10 + 0.90 + 0.50), IV, 4.23 long (1.30 + 0.25 + 1.15 + 1.00 + 0.53). Chaetotaxy: 2.2.1.1, in addition, Ti I–II with 1 retrolateral spine; Mt I–II with a dorsal spine. Length of spines about 1.5–2.5 diameter of segment. Metatarsi I–III each with a trichobothrium. TmI, 0.27. Palp (Fig. 3): patella rounded, with a short spine dorsally. Tibia short, bearing a strong spine dorsally; its retrolateral side with one trichobothrium. Cymbium possess a broad, slightly curved proximal process, with two short outgrowths distally. Paracymbium U-shaped, notably sclerotized, with a small teeth in the middle. Tegulum large, pale. Distal suprategular apophysis relatively short, rounded distally. Median membrane covers distal part of embolus. Embolic division small, radix possesses a large outgrowth with numerous teeth. Embolus short and broad, embolus proper as a small tubercle. Abdomen 1.18 long, 0.80 wide, grey, dorsal pattern absent (Fig. 1A, B).

Female (paratype from Matta). Habitus as in Fig. 1D. Total length 2.60. Carapace unmodified, 0.90 long, 0.78 wide, yellow. Chelicerae 0.38 long, a mastidion absent. Legs yellow. Leg I, 3.48 long (1.00 + 0.28 + 0.95 + 0.75 + 0.50), IV, 3.57 long (1.03 + 0.23 + 1.03 + 0.83 + 0.45). Chaetotaxy as in the male. TmI, 0.28. Abdomen 1.78 long, 1.20 wide, grey, dorsal pattern absent. Epigyne (Fig. 2A–D) strongly sclerotized, well-protruded, broadened and bilobate distally. Receptacles sausage-like.

DISTRIBUTION. The new species is known only from Israel.

Sintula adullam, **sp.n.**
Figs 1E, F; 4.

HOLOTYPE ♂ (SMNH), ISRAEL, 10 km SSW of Beit-Shemesh, Adullam N.P., 300–400 m a.s.l., pitfall traps, 10.III.2008, O. Skutetsky leg.

PARATYPES: 1 ♂ (ZMMU), together with the holotype; 1 ♂ (SMNH), 1 ♂ (ZIN), ISRAEL, Mount Tabor, 21.II.2011, C. Drees leg.

NAME. The specific epithet is a noun in apposition taken from the "terra typica", Adullam Nature Park, Israel.

DIAGNOSIS. Based on the male palp conformation, the new species is most similar to *S. penicilliger* (Simon, 1884) from Algeria. *Sintula adullam* sp.n. differs in the shorter setae on the terminal part of the proximal cymbial process, the paracymbium shape, and by the tapering embolus.

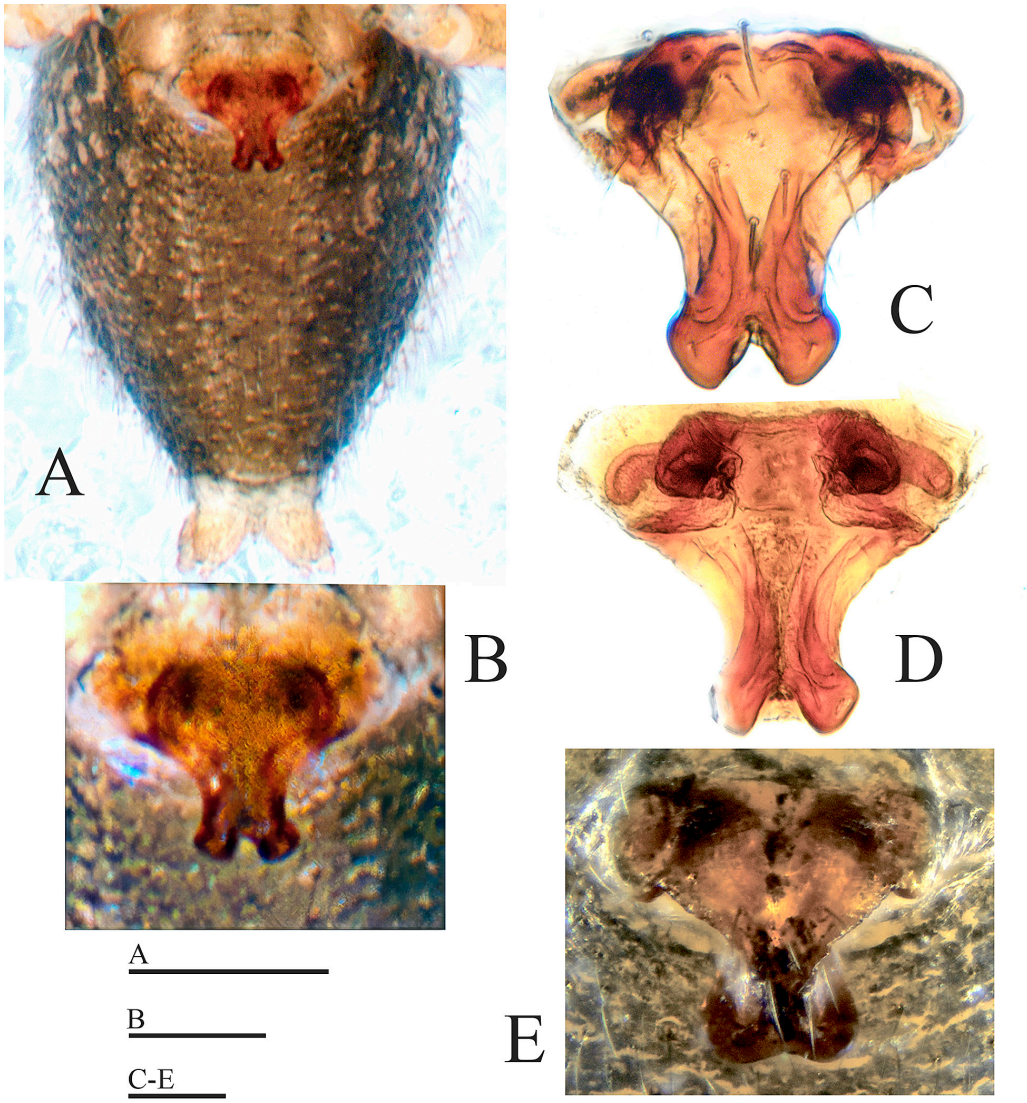

Fig. 2. *Sintula matta* sp.n., ♀ (A–D), the paratype from Matta, and *S. furcifer* (Simon, 1912), ♀ (E), after Guerbaa (2023). A — abdomen, ventral view; B, E — epigyne, ventral view; C, D — cleared epigyne, ventral and dorsal view, respectively. Scale bars: 0.5 mm (A); 0.1 mm (B–E).
Рис. 2. *Sintula matta* sp.n., ♀ (A–D), паратип из Matta, и *S. furcifer* (Simon, 1912), ♀ (E), по Guerbaa (2023). A — брюшко, вид снизу; B, E — эпигина, вид снизу; C, D — просветлённая эпигина, соответственно, вид снизу и сверху. Масштабные линейки: 0,5 мм (A); 0,1 мм (B–E).

DESCRIPTION. Male paratype. Habitus as in Fig. 1E. Total length 2.45. Carapace unmodified, 1.10 long, 0.88 wide, yellow. Chelicerae 0.40 long, a mastidion absent. Legs yellow. Leg I, 3.94 long (1.10 + 0.30 + 1.03 + 0.88 + 0.63), IV, 3.96 long (1.03 + 0.30 + 1.15 + 0.93 + 0.55). Chaetotaxy 2.2.1.1, in addition, Ti I–II with 1 retrolateral spine; Mt I–II with a dorsal spine. Length of spines about 1.5–2.5 diameter of segment. Metatarsi I–III each with a trichobothrium. TmI, 0.26. Palp (Figs 1F; 4): Patella rounded, with a strong spine dorsally. Tibia short, with a sharply tapered base, bearing a strong spine dorsally; its retrolateral side with one trichobothrium. Cymbium possesses a long, broad, slightly curved proximal process, bearing a dense group of very short setae and denticles at its tip. Paracymbium U-shaped, notably sclerotized and

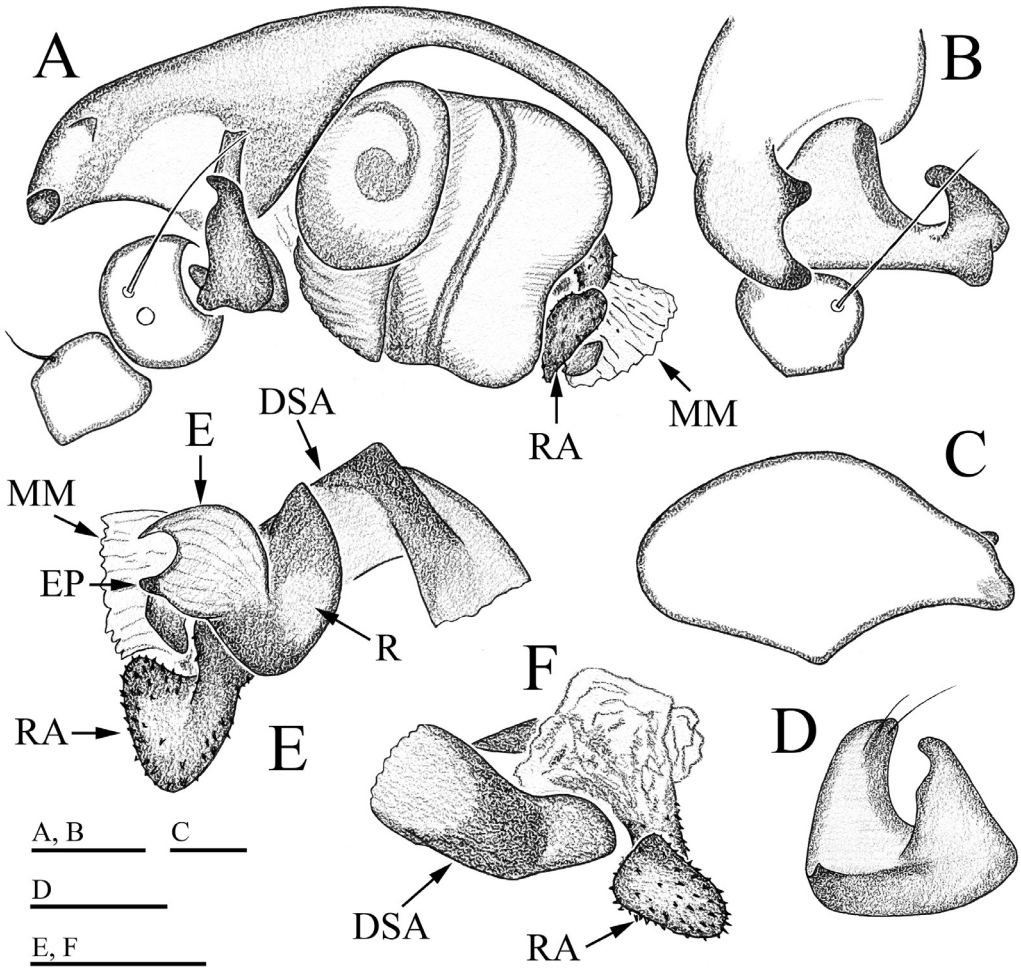

Fig. 3. The male palp of *Sintula matta* sp.n., the paratype from Matta. A — right palp, retrolateral view; B — cymbium and paracymbium, dorsal view; C — cymbium, dorsolateral view; D — paracymbium, lateral view; E, F — distal suprategular apophysis and embolic division, different aspects. Scale bars: 0.1 mm.
Рис. 3. Пальпа самца *Sintula matta* sp.n., паратип из Matta. A — правая пальпа, ретролатерально; B — цимбиум и парацимбиум, вид сверху; C — цимбиум, вид сверху и сбоку; D — парацимбиум, вид сбоку; E, F — дистально-супратегулярная апофиза и эмболюсный отдел, под разными углами. Масштабные линейки: 0,1 мм.

complex. Tegulum large, pale, protegulum bearing numerous denticles. Distal suprategular apophysis relatively short. Median membrane large, covering the distal part of embolus. Embolic division small, radix short and broad, embolus short, thick, with a serrate surface. Abdomen 1.35 long, 0.85 wide, grey, dorsal pattern absent (Fig. 1E).

Female unknown.

DISTRIBUTION. The new species is known only from two localities in Israel.

Sintula karineae Lecigne, 2021

MATERIAL. 2 ♀♀ (ZMMU), ISRAEL, nr En Ya'aqov, 33º0′27.5″N, 35º14′20.0″E, pitfall traps, 14–19.I.2007, I. Shtirberg leg.; 2 ♀♀ (SMNH), Mount Meron, Meron Field Station, 32º59′53.86″N, 35º25′37.23″E, 2.IV.2011, T. Levanony leg.

REMARK. *Sintula karineae* was recently described and remain known from the female holotype collected from southern Turkey (Lecigne, 2021).

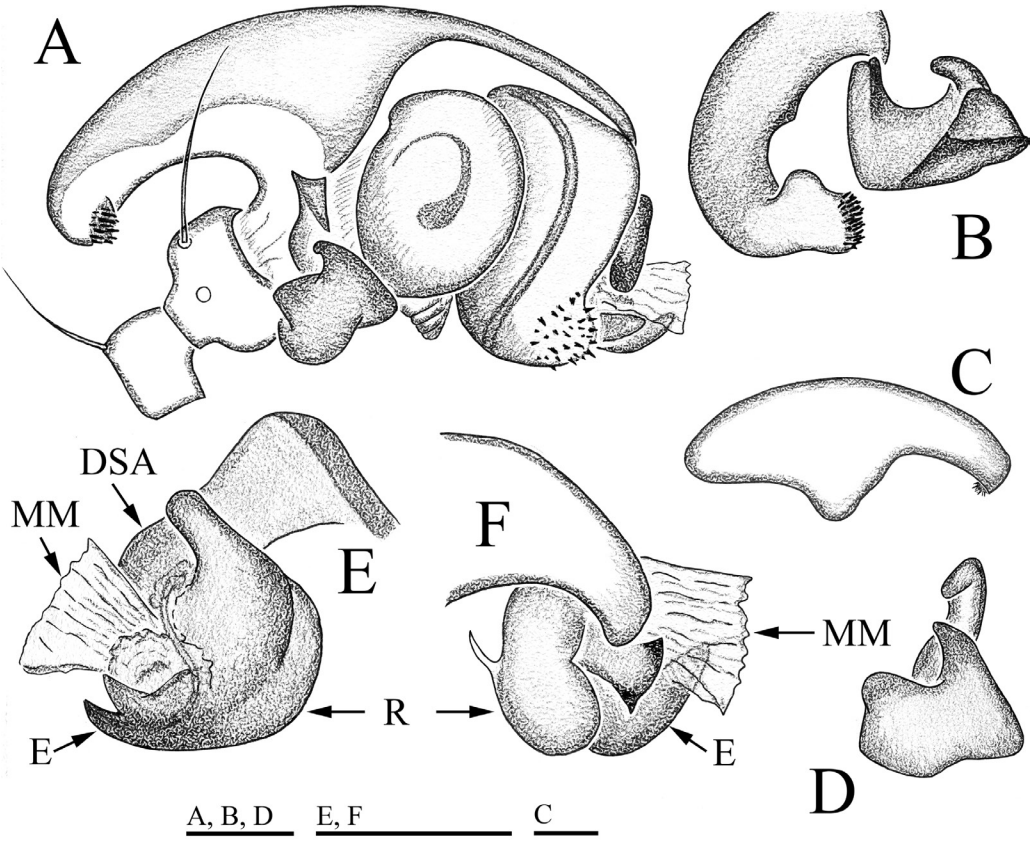

Fig. 4. The male palp of *Sintula adullam* sp.n., the paratype from Adullam N.P. A — right palp, retrolateral view; B — cymbium and paracymbium, dorsal view; C — cymbium, dorsolateral view; D — paracymbium, lateral view; E, F — distal suprategular apophysis and embolic division, different aspects. Scale bars: 0.1 mm.
Рис. 4. Пальпа самца *Sintula adullam* sp.n., паратип из Adullam N.P. A — правая пальпа, ретролатерально; B — цимбиум и парацимбиум, вид сверху; C — цимбиум, вид сверху и сбоку; D — парацимбиум, вид сбоку; E, F — дистально-супратегулярная апофиза и эмболюсный отдел, под разными углами. Масштабные линейки: 0,1 мм.

DISTRIBUTION. The species is known from Antalya, Turkey (Lecigne, 2021) and from two localities in northern Israel (present data), from where it has been is recorded from Israel for the first time.

Sintula retroversus (O. Pickard-Cambridge, 1875)

MATERIAL. 1♀ (ZMMU), ISRAEL, Ramat Hasharon, 15.X.2006, D. Gerling leg.

DISTRIBUTION. The species is widely distributed in the Mediterranean, and has been recorded from Israel for the first time.

Conclusions

Given the new data above, the linyphid spider fauna of Israel now also includes four species of the genus *Sintula*: *S. adullam*, sp.n., *S. matta*, sp.n., *S. karineae*, and *S. retroversus*. To date, the first two species are known only from Israel, *S. karineae* has also been found in southern Turkey, and *S. retroversus* is widespread across the Mediterranean.

Unfortunately, biotopic information on *S. adullam*, sp.n. and *S. matta*, sp.n. was not available in the original data labels. However, it is

worth pointing out that some linyphiid species may co-occur in the same or nearby localities and probably in the same habitats, being sympatric or even syntopic species.

Compliance with ethical standards

Conflict of interests: The author declares that he has no conflict of interest.

Ethical approval: No ethical issues were raised during our research.

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