

UDC 595.44(477)

## THE GENUS *SINTULA* (ARANEI, LINYPHIIDAE) IN UKRAINE, WITH THE DESCRIPTION OF A NEW SPECIES

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Received 17 January 2011

Accepted 11 November 2011

**The Genus *Sintula* (Aranei, Linyphiidae) in Ukraine, with the Description of a New Species. Gnelitsa V. A.** — The data on biology of three species of the genus *Sintula* Simon, 1884 with their distribution in Ukraine are presented. *Sintula solitarius* Gnelitsa, sp. n. from the Crimean Peninsula is described. The genitalia of all four species are depicted.

**Key words:** Aranei, Linyphiidae, new species, description, *Sintula*, illustrations, biology, distribution, Ukraine.

**Род *Sintula* (Aranei, Linyphiidae) в Украине, с описанием нового вида. Гнелица В. А.** — Приведены данные о биологии трех видов рода *Sintula* Simon, 1884 и их распространении в Украине. Описан *Sintula solitarius* Gnelitsa, sp. n. с Крымского полуострова. Приведены иллюстрации гениталий всех четырех видов.

**Ключевые слова:** Aranei, Linyphiidae, новый вид, описание, *Sintula*, иллюстрации, биология, распространение, Украина.

### Introduction

The genus *Sintula* Simon, 1884 so far contained 16 species (Platnick, 2010). *Sintula criodes* (Thorell, 1875) was described from the Crimea and its description completely corresponds to *S. retroversus* (O. P.-Cambridge, 1875), which is abundant there. Of the two names appeared in 1875 I consider *S. retroversus* (O. P.-Cambridge, 1875) to be the senior synonym because of its much more frequently use among the arachnologists.

Most of the *Sintula* species are of Mediterranean or Ancient Mediterranean distribution. Moreover three of them (*Sintula corniger* (Blackwall, 1856), *S. affinioides* Kolosvary, 1934, and *S. spiniger* (Balogh, 1935) surpass the limits of the Mediterranean region.

*Sintula* is recognised by the cymbium of the male palp, which has a strong curved process going backwards and often supplied with a group of very thick bristles assembled together at its ending part. The small radix bears a short triangular or claw-shape embolus. The duct in the embolic division forms a “Fickert’s gland”, which is not rounded but elongated. The epigyne with a large plate overstep the epigastric furrow. Tibial spination: 2–2–1–1; metatarsus I–II with a dorsal spine; metatarsus IV without trichobothrium. Millidge (1977) includes *Sintula* into the *Lepthyphantes* group of genera based on the course and shape of the spermduct in the male palp.

Four *Sintula* species are currently known from Ukraine. These are *S. corniger* (Blackwall, 1856), *S. retroversus* (O. P.-Cambridge, 1875), *S. spiniger* (Balogh, 1935) and a new *Sintula* species described below.

As these species are either very rare in Ukraine (*S. corniger* and *S. spiniger*) or common just on the Crimean peninsula (*S. retroversus*), the data on their distribution and biology are added.

### Material and methods

Specimens were collected using a hand-held suction sampler or Barber traps, drawings were made using a camera lucida. The holotype male is deposited in the collection of the Zoological Department of the Biological faculty of Kyiv National Taras Shevchenko University (KNTSU). All other specimens are deposited in the author’s private collection (VGC). Abbreviations of the names of male palp parts are as follows: C — cymbium; CE — cymbium extention; DSA — distal suprategular apophysis; E — embolus; M — membrane; Pc — paracymbium; Pti — palpal tibia; R — radix; RP — radical process; Spt — suprategulum; ST — subtegulum. All measurements are in mm.

## Results and discussion

*Sintula corniger* (Blackwall, 1856) (fig. 1, *a–f*)

**Distribution.** Austria; Belarus; Belgium; Great Britain; Croatia; Czech Republic; Denmark (mainland, incl. Borholm Is.); Estonia; Finland; French mainland; Germany; Ireland; Italian mainland; Latvia; Liechtenstein; Lithuania; Norwegian mainland; Poland; Romania; North and Northwest of Russia; Slovakia; Sweden; Switzerland (Helsdingen, 2009); Azerbaijan (Tanasevitch, 1987), Southwestern Russia (Krasnodar Territory: Kavkaz Reserve; North Ossetia) (Tanasevitch, 1990).

**Biology.** According to the literature, this species is widespread, but generally uncommon or even rare in the United Kingdom (Roberts, 1987) as well as in France (Denis, 1967; Le Peru, 2007), Germany (Arachnologische Gesellschaft e. V.) and possibly in Poland. Then towards the North East: Finland (Palmgren, 1972); North-western Russia: South Karelia (Uzenbayev, 1984, 1986, 1987), and to the South East: Czech

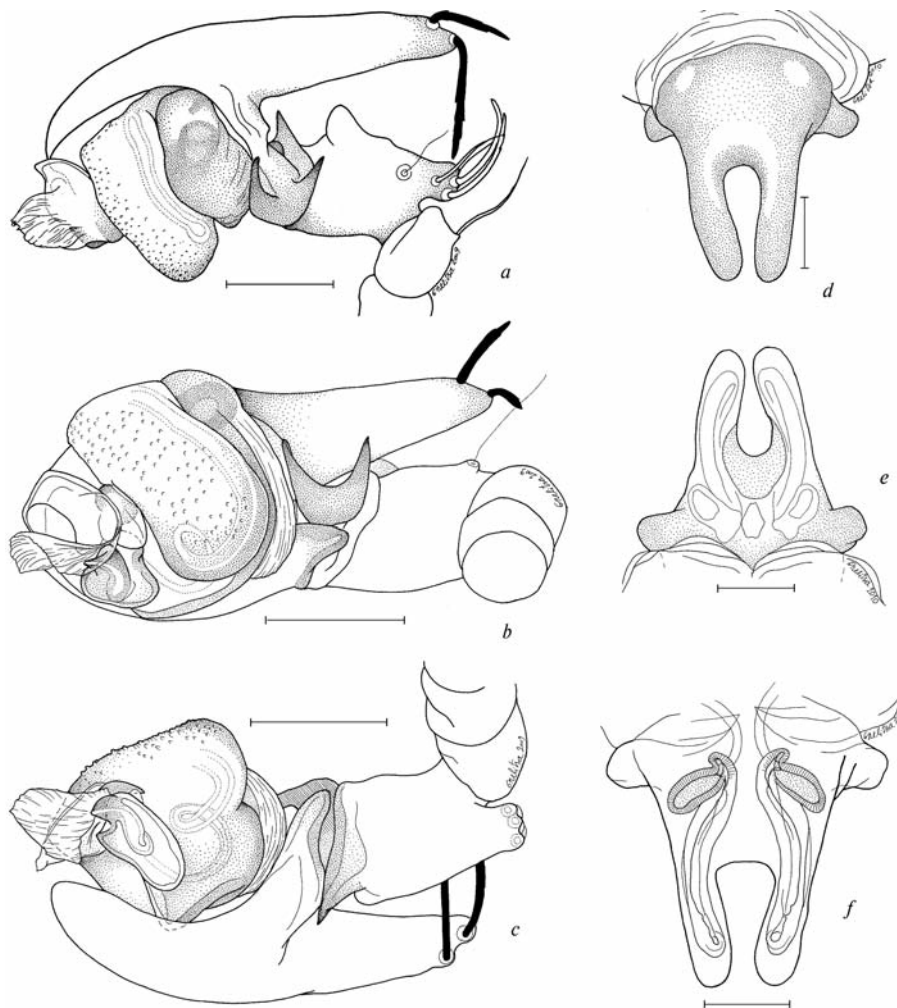


Fig. 1. *Sintula corniger*: male palp: *a* – laterally, *b* – ventrally, *c* – mesially; epigyne: *d* – ventrally, *e* – dorsally; *f* – vulva. Scale bar 0.1 mm.

Рис. 1. *Sintula corniger*: пальпа самца: *a* – сбоку, *b* – снизу, *c* – от середины; эпигина: *d* – снизу, *e* – сверху; *f* – вульва. Масштабная линейка 0,1 мм.

Republic (Buchar, Růžička, 2002), Ukraine, Southwestern Russia (Tanasevitch, 1990), Azerbaijan (Tanasevitch, 1987, 1990) it becomes very scarce.

In Western and Central Europe this spider species occurs on the plains and in the mountains. On the south-eastern border of its natural range (Carpathians, Caucasus) it occurs only in mountainous places.

*Sintula corniger* preferably inhabits peat bogs, but it may be caught in birch and pine woods, on the banks of ponds and rivers, in meadows, lawns and even in dry sandy places (Le Peru, 2007). In southern Finland the most typical habitats are the *Myrica-Molinia* bogs, but also *Ledum* bogs and open bogs (Palmgren, 1972). These spiders live in moss, grass, in dead leaves and in litter (Denis, 1967; Roberts, 1987; Harvey et al., 2002). In Czech Republic *S. corniger* is known to live among grass and moss in mountain corries, on clearings in spruce forests (Buchar, Růžička, 2002). In Poland it was found in moss and in litter of mixed forests (Proszynski, Starega, 1971), in the North Caucasus in *Abies*, *Fagus* with *Rhododendron* forest and in *birch* forests; in Azerbaijan in *Quercus*, *Carpinus* and in *Quercus*, *Acer* with *Taxus* forests (Tanasevitch, 1987, 1990).

In Britain and France, the adult spiders occur over the year and are mainly present in autumn and spring (Denis, 1967; Harvey et al., 2002), in Finland only in autumn and spring (Palmgren, 1972), and in Germany in winter (Heimer, Nentwig, 1991). In the Caucasus mature spiders were caught in April — July.

Data from Ukraine. 1 ♀, Chernovtsy Region: Vyzhnitsa District, Beregomet town, right bank of the Sukhoy river; *Abies*, *Fagus* forest with *Picea* and *Betula*, in moss and litter, 11.07.2003, (Gnelitsa, 2004) (VGC); 1 ♀, Dolyshny Shepot vill., N slope of Chiuchelka Mt., *Picea*, *Abies* forest with *Betula*, *Salix* and *Fagus*, in litter, 05.07.2001 (Gnelitsa) (VGC); Zakarpatska Region: Karpatsky Reserve, Hoverla Mt., *Pinus* forest, couple of specimens (Prokopenko, Chumak, 2006 (2007)); Ivano-Frankivsk Region: Karpatsky Nature park, Tsubulnyk spring valley, *Pinus mugho* forest, 14 specimens (Chumak, Prokopenko, Timochko, 2007). The distribution of *S. corniger* is indicated by stars on the distribution map (fig. 5).

### *Sintula retroversus* (O. P.-Cambridge, 1875) (fig. 2, a–f)

Distribution. Bulgaria; Croatia; France (mainland, Corsica); Greece (mainland, Dodecanese Is.); Hungary; Italy (mainland, Sardinia); Macedonia; Slovakia; Slovenia; Southern Russia (North Ossetia); Ukraine; United Kingdom (Channel Is.); (Helsdingen, 2009; Nentwig et al, 2010); Azerbaijan, Armenia (Tanasevitch, 1987; 1990).

Data from Ukraine. In Ukraine 93% of the samples are from the Crimea. In addition, *S. retroversus* was found in Kherson Region and a single sample in Mykolaiv Region.

Kherson Region: 1 ♂, 1 ♀, Chaplynka District, Askania Nova Reserve, park, (Polchaninova, 1994); 3 ♀, Gola Pristan District, Chernomorsky Reserve, Ivano-Rybalchansky part, *Quercus*, *Betula*, *Populus* forest patch, in grass and litter, 17.04.2007 (Gnelitsa) (VGC); 1 ♀, strip of grass near small fresh water lake, 17.04.2007 (Gnelitsa) (VGC); 2 ♀, meadow with salty places, in grass, 19.04.2007 (Gnelitsa) (VGC); Rybalche vill., reed bog bank; meadow; sandy steppe; saline marshes (Polchaninova, 1997); 1 ♀, Chernomorsky Reserve, Solenoozerny part, forest patch (*Quercus*, *Betula*, *Populus*, *Malus* with scarce *Phragmites* and grass), 20.04.2008 (Gnelitsa) (VGC); 2 ♀, saline lands on the bank of the salt lake (grass with *Salicornia*, *Artemisia*, *Chenopodium*), in detritus and on the ground, 21.04.2008 (Gnelitsa) (VGC); 2 ♀, middle age *Pinus* forest, in thick layer of needle litter, 23.04.2008 (Gnelitsa) (VGC); 1 ♀, strip of the grass vegetation near the lake, in detritus, 26.04.2008 (Gnelitsa) (VGC). 1 ♀, Mykolaiv Region: Mykolaiv District, Limany vill., left bank of the Southern Bug estuary, 22.09.1985 (Gnelitsa) (VGC).

Biology. *S. retroversus* is xerophilous, occurs on sand dunes, banks of canals, at the edge of the fields, kitchen-gardens, in the lawns, vineyards, pine woods, deciduous forests (*Quercus petraea* or *Populus alba*). It lives in dry plant debris, in the grass, on the ground but mostly in the litter of the pine woods (Denis, 1967; Le Peru, 2007).

The quantity of specimens per sample shows an estimate of the different habitat conditions for *S. retroversus* in Ukraine. Here, this spider prefers open places such as: salty meadows (13.5 specimens per sample), saline lands (10.37), meadows (8.22) and sparse woods (8.37). The samples with the most numerous *S. retroversus* confirm this: 20 ♂, 25 ♀, Crimea, Pheodosia District, Caradag Reserve, 30° NW slope, the edge of deciduous forest (*Fraxinus*, scarce *Quercus*, *Jasminum*, *Cotoneaster* with *Dactylis* and *Limonium*) in moss, grass and on the ground 15.10.2003 (Gnelitsa) (VGC); 16 ♂, 16 ♀, Svyataya Mt., 40° WNW slope, mead-

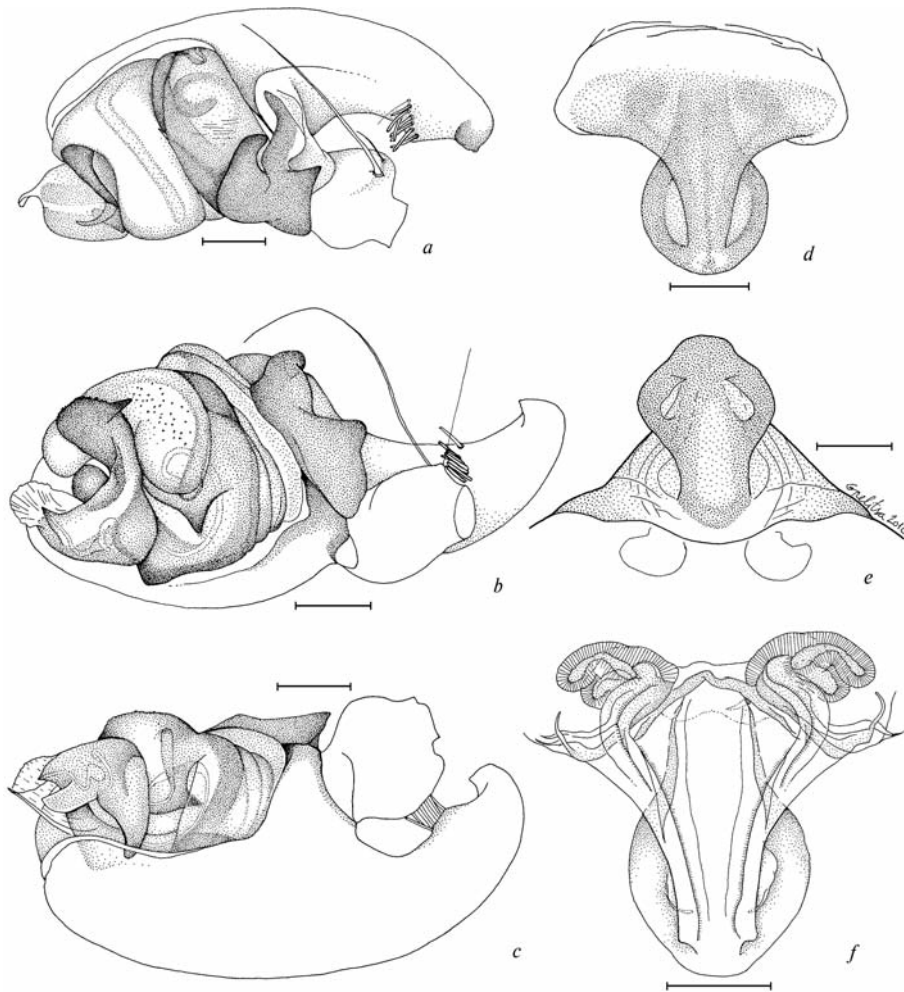


Fig. 2. *Sintula retroversus*: male palp: *a* — laterally, *b* — ventrally, *c* — mesially; epigyne: *d* — ventrally, *e* — dorsally; *f* — vulva. Scale bar 0,1 mm.

Рис. 2. *Sintula retroversus*: пальпа самца: *a* — сбоку, *b* — снизу, *c* — от середины; эпигина: *d* — снизу, *e* — сверху; *f* — вульва. Масштабная линейка 0,1 мм.

ow at the edge of deciduous forest, in grass and in dry leaves and debris, 12.10.2003 (Gnelitsa) (VGC); 13 ♂, 15 ♀, Syuryu-Kaya rocks, 15° S slope, light deciduous forest (*Q. pubescens*, *Fraxinus* with *Cornus* and grass), in grass, 11.10.2003 (Gnelitsa) (VGC). The adult spiders occur from October to the end of May. The distribution of *S. retroversus* is indicated by round dots on the distribution map (fig. 5).

***Sintula spiniger* (Balogh, 1935) (fig. 3, a–f)**

**Distribution.** Austria; Bulgaria; Hungary; Romania; Slovakia (Helsdingen, 2009); Southern Russia (Rostov region) (A. Ponomarev, personal communication); Slovenia (Gregorič, Kuntner, 2009); Ukraine (Polchaninova, Prokopenko, 2005; Prokopenko, 2001; 2002).

**Biology.** The biology of this species remains obscure. In Bulgaria, this species is very rare and occurs at plains in the sub-Mediterranean (Quercetum) and submontane (Quercetum, Carpinetum) belts up to 1000 m (Deltshev, 2003). In Slovakia (Domica drainage area — Slovak Karst Mts.) the spiders are not rare in dry calcareous grassland with shrubs in the karren area near Domica cave as well as in dry calcareous pasture at



the bottom of a lime sink and in mown old extensively used orchard. Solitary records came from a willow (*Salix cinerea*) stand at the top of a hill surrounded by arable land (Gajdoš, 2005). Also a single male was sifted at the edge of the *Quercus* forest in South Slovakia (Miller, 1968). In Hungary species is scarce and known from the sand steppes (*Festucetum vaginatae*) (Szinetar et al., 2009; Galle et al., 2010). In Slovenia, a few specimens were found in forest (484 m altitude) and in overgrowth (359 m) (Gregorič, Kuntner, 2009).

Data from Ukraine. In Ukraine *S. spiniger* was found in two quite remote areas: Kyiv Region and Lugansk Region. 1 ♂, 1 ♀, Kyiv Region: Kyiv, Pushcha Voditsa, mixed forest, 18.10.2008 (N. Zinchenko); (same place and conditions) 2 ♂, 1 ♀, 19.10.2009 (E. Singaevsky); 1 ♂, 2 ♀, 19.10–02.11.2009 (E. Singaevsky) (VGC); 1 ♂, 02–10.11.2009 (E. Singaevsky); 2 ♀, 22.11–07.12.2009 (E. Singaevsky); ♂, Obukhov District, Kopachiv vill. env., Pine forest, 29.09–10.10.2009 (E. Singaevsky); (same place and conditions) 7 ♂, 10–25.10.2009 (E.

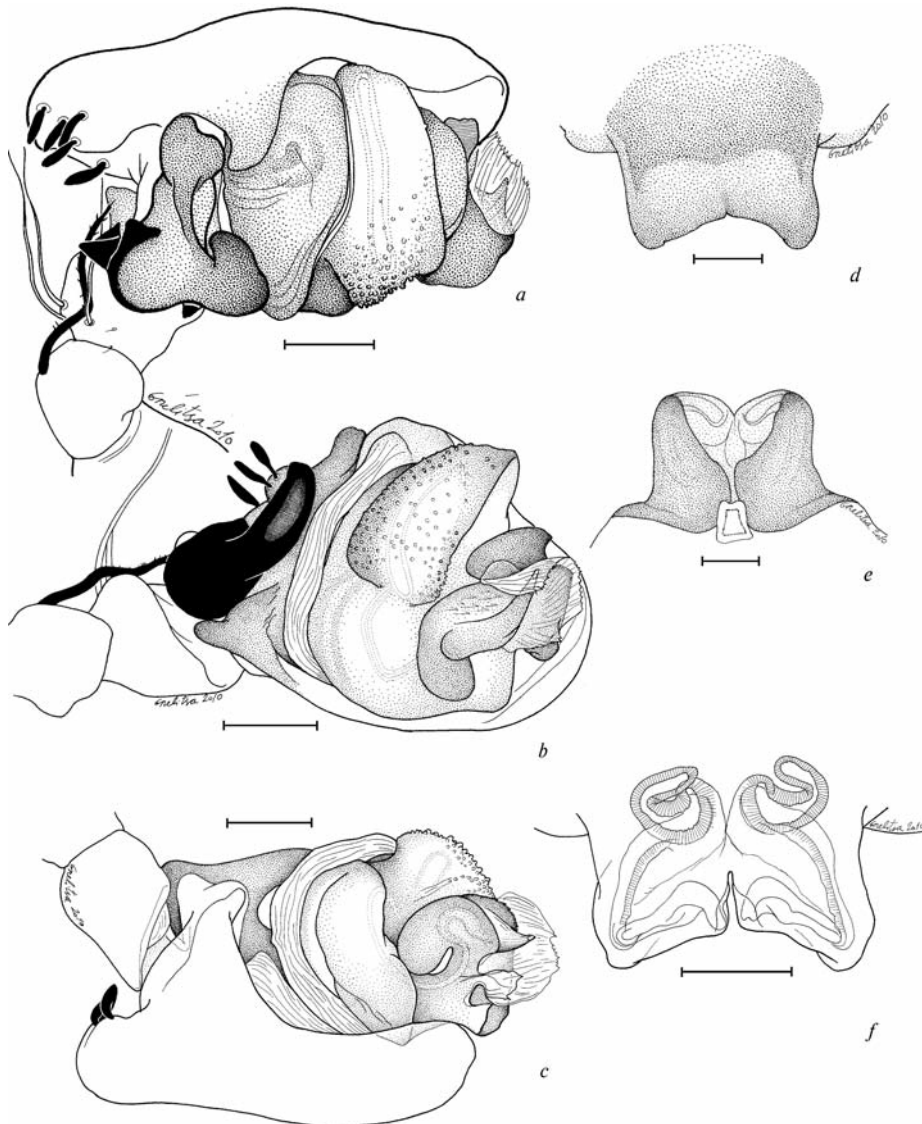


Fig. 3. *Sintula spiniger*: male palp: a – laterally, b – ventrally, c – mesially; epigyne: d – ventrally, e – dorsally; f – vulva. Scale bar 0.1 mm.

Рис. 3. *Sintula spiniger*: палпа самца: a – сбоку, b – снизу, c – от середины; эпигина: d – снизу, e – сверху; f – вульва. Масштабная линейка 0,1 мм.

Singaevsky); 19 ♂, 2 ♀, 25.10–08.11.2009 (E. Singaevsky); 7 ♂, 1 ♀, 08–21.11.2009 (E. Singaevsky); 11 ♂, 1 ♀, 21.11–06.12.2009 (E. Singaevsky); 1 ♂, Lugansk Region: Stanichno-Lugansky District, Stanichno-Lugansky Reserve, flood – land forest, 09.10.04 (V. Martynov); 1 ♂, river bank, flood – land forest edge, 15.09.01; 1 ♂, 1 ♀, 16.09.01 (H. Prokopenko) (Prokopenko, personal communication). *S. spiniger* is pointed with squares on the distribution map (fig. 5).

***Sintula solitarius* Gnelitsa, sp. n.** (fig. 4, a–f)

**Material.** Holotype, ♂, Crimea, Saky District, Priberezhnaya railway station, halopratoptyum, 05–19.11.2000 (N. Kovblyuk) (KNTSU). The collecting site of *Sintula solitarius* sp. n. is indicated by an arrow on the distribution map (fig. 5).

**Diagnosis.** The species is close to *Sintula retroversus* and differs well by the short process of the palpal cymbium (CE).

The species is described based on the single available specimen.

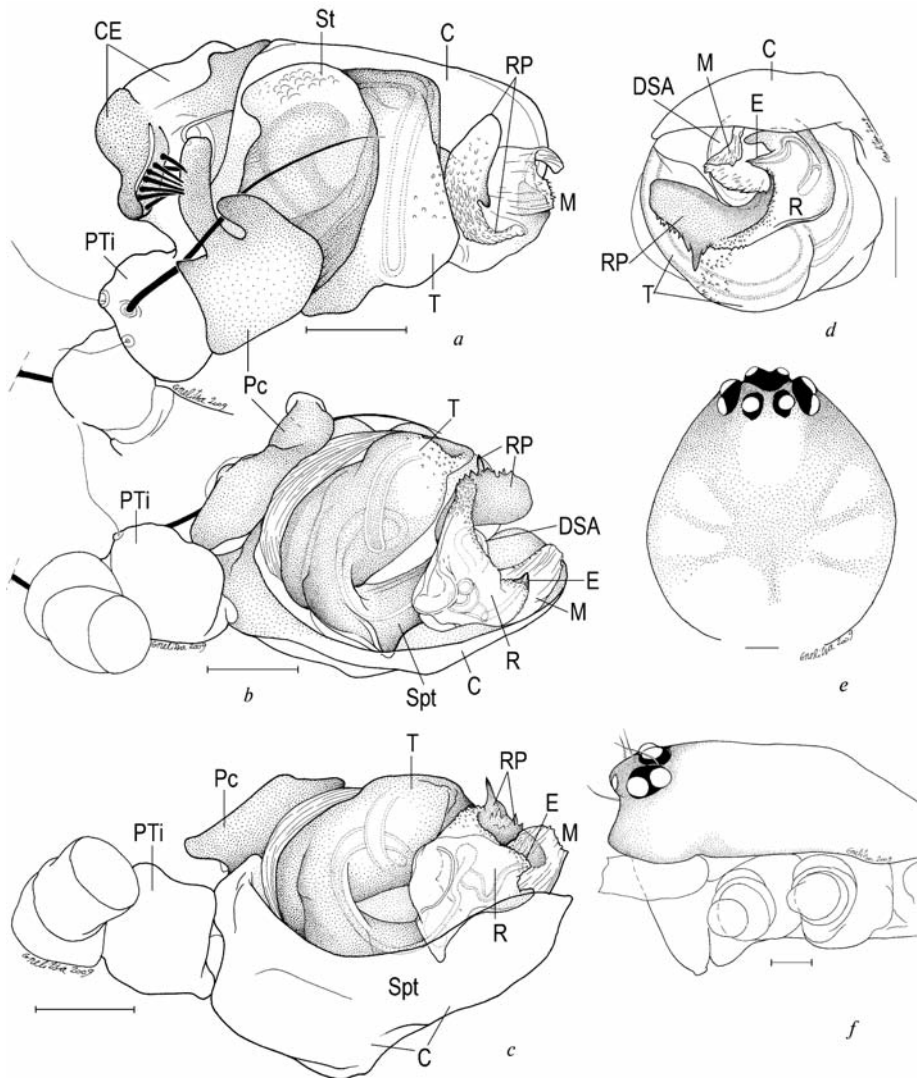


Fig. 4. *Sintula solitarius*: male palp: a – laterally, b – ventrally, c – mesially, d – apically; carapace: e – dorsally, f – laterally. Scale bar 0.1 mm.

Рис. 4. *Sintula solitarius*: палпа самца: a – сбоку, b – снизу, c – от середины; d – спереди; карапакс: e – сверху, f – сбоку. Масштабная линейка 0,1 мм.



Fig. 5. Distribution map: stars — *Sintula corniger*; round dots — *S. retroversus*; squares — *S. spiniger*; arrow — *S. solitarius*.

Рис. 5. Карта распространения видов: звездочки — *Sintula corniger*; кружки — *S. retroversus*; квадратики — *S. spiniger*; стрелка — *S. solitarius*.

**Description.** Male. Total length 1.78. Carapace 0.88 long, 0.77 wide, yellow-grey. Sternum 0.45 long, 0.42 wide, dark-grey. Posterior median eyes separated by their diameter. Promargins of chelicerae with 3 teeth. Legs pale-yellow, tibial spination 2 : 2 : 1 : 1; Mt I–II with a dorsal spine. Position of metatarsal trichobothrium: I — 0.29; II — 0.28; III — 0.30. Length of leg segments:

Leg	Femur	Patella	Tibia	Metatarsus	Tarsus
I	0.86	0.26	0.81	0.68	0.52
II	0.77	0.26	0.68	0.61	0.46
III	0.68	0.22	0.51	0.50	0.39
IV	0.77	0.24	0.84	0.71	0.45

Palp: fig. 1 (a-c). Abdomen uniformly dark grey. Female unknown.

I am very grateful to Dr. M. Kovblyuk (Simferopol) for the Crimean specimens of *S. retroversus* and the single male described as the new species for *Sintula* genus, to Mr. E. Singaevsky (Kyiv) for the specimens and information on *S. spiniger* from the Kyiv area, to Dr. H. Prokopenko (Donetsk) for the necessary information on *S. spiniger* from Lugansk area, to Dr. S. Koponen (Turku, Finland), who kindly provided a male of *S. corniger* for illustration.

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