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The first description of the male *Synaphosus femininis* (Aranei: Gnaphosidae) from Hainan Island, China

Первоописание самца *Synaphosus femininis* (Aranei: Gnaphosidae) с острова Хайнань, Китай

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КЛЮЧЕВЫЕ СЛОВА: Araneae, пауки-гнафозиды, таксономия, Юго-восточная Азия, переописание.

ABSTRACT: The male of *Synaphosus femininis* Deeleman-Reinhold, 2001 from Hainan Province, China, is described and illustrated for the first time and its female is redescribed as well.

РЕЗЮМЕ: Впервые описан самец и переописана самцка *Synaphosus femininis* Deeleman-Reinhold, 2001 по материалам с острова Хайнань.

Introduction

The genus *Synaphosus* was established by Platnick and Shadab [1980] with the type species *Synaphosus syntheticus* (Chamberlin, 1924). At present it contains 25 known species, including six from females only, i.e.: *S. femininis* Deeleman-Reinhold, 2001; *S. khashm* Ovtsharenko et al., 1994; *S. makhambetensis* Ponomarev, 2008; *S. nanus* (O. Pickard-Cambridge, 1872); *S. shirin* Ovtsharenko et al., 1994 and *S. taukum* Ovtsharenko et al., 1994 and five from males only, i.e.: *S. karakumensis* Ovtsharenko et al., 1994; *S. kris* Deeleman-Reinhold, 2001; *S. raveni* Deeleman-Reinhold, 2001; *S. soyunovi* Ovtsharenko et al., 1994 and *S. yatenga* Ovtsharenko et al., 1994 [World Spider Catalog, 2015]. Native to the Old World, this genus occurs from France south to the Ivory Coast and Kenya, and east to Kazakhstan, Pakistan and China. But *S. syntheticus* has apparently been introduced into the United States and Mexico [Ovtsharenko et al., 1994].

Synaphosus femininis was originally described by Deeleman-Reinhold [2001] from two females collected in Java. While studying the gnaphosids collected from Hainan Island, China, we found pairs of *Synaphosus* specimens from several different localities and identified them as *S. femininis*. In addition to the similar habitus and pattern with the female, and the male palp has a long filiform-shaped embolus, a large and flat conductor expanded into a horizontally translucent flange, and a tibia with a long and strong retrolateral apophysis.

Materials and Methods

Terminology follows that of Ovtsharenko et al. [1994] and Deeleman-Reinhold [2001]. All measurements in the text are given in millimeters. Carapace length was measured from the anterior margin to the posterior margin of the carapace medially. Eye sizes were measured as the maximum diameter of the lens in dorsal or frontal view. The measurements of legs are shown as total length (femur, patella, tibia, metatarsus, tarsus). The epigyne was cleared in a solution of potassium hydroxide (KOH) and transferred to ethanol for drawing. All specimens are kept in 75% ethanol and were examined, drawn, and measured under a Leica M205A stereomicroscope equipped with an Abbe drawing device. Photographs were taken using the Leica M205A stereomicroscope equipped with a DFC550 CCD.

The following abbreviations are used: ALE — anterior lateral eyes; AME — anterior median eyes; AME–ALE — distance between AME and ALE; CD — copulatory duct; CO — copulatory opening; E — embolus; EB — embolic base; FD — fertilization ducts; H — hood; MOA — median ocular area; PLE — posterior lateral eyes; PME — posterior median eyes; T — tegulum; TEB — teeth of embolic base; RTA — retrolateral tibial apophysis.

All specimens studied in this paper are deposited in the Museum of Hebei University (MHBU), Baoding, China.

Taxonomy

Synaphosus femininis Deeleman-Reinhold, 2001
Figs 1–19.

Synaphosus femininis Deeleman-Reinhold, 2001: 538, f. 929–930 (♀).

TYPE MATERAIL. Holotype female and 1 paratype female, from secondary forest, leaf litter, E of Malang, Pujon Pass, E Java, 800 m, P.R. and C.L. Deeleman leg., not examined.

MATERIAL EXAMINED. CHINA: Hainan Province: Qiongzhong County, Limu Mountains (N 19°21′, E 109°77′), main peak, 3 ♂♂ 6 ♀♀, 21 January 2015, Chi Jin leg.; Wuzhishan City, Shuiman Town, Wuzhi Mountains (N 18°87′, E 109°68′), 3 ♂♂ 2 ♀♀, 25 January 2015, Chi Jin leg.; 2 ♂♂ 1 ♀, Ledong County, Jianfeng Valley (N 18°73′, E 108°91′), 1 February 2015, Lina Fu leg.

DIAGNOSIS. The female of this species is similar to *S. cangshanus* (cf. figs 15–16 in Yang et al. [2013]) by having a small anterior epigynal hood, two small, medially located copulatory openings, and the twisted copulatory ducts, but can be distinguished by more twisted copulatory ducts. The male can be recognized from all Southeast Asian *Synaphosus* by having a long and distally bifurcate RTA, a long and circular-shaped embolus, the presence of seven teeth in proximal embolus, and the base of conductor expanded into translucent flange.

DESCRIPTION. Male: Total length 3.75–4.25 (n=7). One specimen measured (from Limu Mountains) (Fig. 1): body length 4.19; cephalothorax 2.01 long, 1.59 wide; abdomen 2.18 long, 1.57 wide. Carapace oval in dorsal view, slightly invaginated posteriorly, narrowed at level of palps, widest behind coxae II, usually pale brown, cephalic area flattened, median furrow short, longitudinal. Anterior eye row recurved, posterior row straight or slightly procurved (Fig. 7); AME circular, dark; PME irregularly rectangular, light; other eyes oval, light. Clypeus 0.08 high. Eye sizes and interdistances: AME 0.12, ALE 0.10, PME 0.12, PLE 0.09; AME–AME 0.06, AME–ALE 0.02, PME–PME 0.05, PME–PLE 0.04, ALE–PLE 0.03. MOA 0.23 long, front 0.22 wide, back 0.26 wide. Chelicerae yellowish brown, with 4 promarginal and 5 retromarginal teeth (Figs 5–6). Endites and labium yellow brown, sternum margins yellow. Endites convergent, obliquely depressed, with weak distal scopula. Labium slightly elongate. Sternum broad anteriorly, with long setae at margins. Legs light brow. Tarsi very lightly scopulate, with two dentate and small claw tufts. Trochanters without notch. Metatarsi III with distal preening brush (Fig. 3). Tarsi IV with elongated superior claws (Fig. 4). Leg measurements: I 5.81 (1.65, 1.03, 1.29, 1.13, 0.71); II 4.84 (1.41, 0.82, 0.99, 0.94, 0.68); III 3.89 (1.10, 0.60, 0.76, 0.88, 0.55); IV 5.94 (1.66, 0.84, 1.39, 1.46, 0.59). Abdomen oval, dark brown, covered by thick and plumose setae; anterior part with yellowish dorsal scutum, middle part with 3 pairs of muscle impressions symmetrically; venter light. Spinneret cylindrical, anterior lateral spinnerets longest and with four spinning tube (Fig. 8). Palp (Figs 11–14, 17–19). RTA long, with a bifurcate tip; embolus long and circular, situated in conductor groove; proximal embolus with seven teeth; base of conductor expanded into translucent flange; tegulum covered with a membrane structure, with tegular apophysis at base.

Female: Total length 4.07–5.78 (n=10). One specimen measured (from Limu Mountains) (Fig. 2): body length 4.08, cephalothorax 1.83 long, 1.47 wide; abdomen 2.25 long, 1.54 wide (Fig 6). Eye sizes and interdistances: AME 0.11, ALE 0.12, PME 0.11, PLE 0.09; AME–AME 0.05, AME–ALE 0.01, PME–PME 0.05, PME–PLE 0.04. MOA 0.18 long, front 0.24 wide, back 0.26 wide. Clypeus 0.08 high. Leg measurements: I 4.44 (1.00, 0.85, 1.10, 0.89, 0.60); II 3.77 (1.16, 0.71, 0.82, 0.71, 0.37); III 3.48 (0.98, 0.51, 0.71, 0.74, 0.54); IV 5.58 (1.57, 0.81, 1.24, 1.32, 0.64). Abdomen (Fig. 6) nearly oval without dorsal scutum, the front edge yellowish. Other characters as in male. Epigyne (Figs 9–10, 15–16) with a small anterior hood, separated from rest by several transverse folds which can be extended as concertina; copulatory openings situated between the spiral arches from which ducts run anteriorly, then bent over 180° and run through 13 coils to posterior elongate spermathecae.

DISTRIBUTION. China (Hainan), Java.

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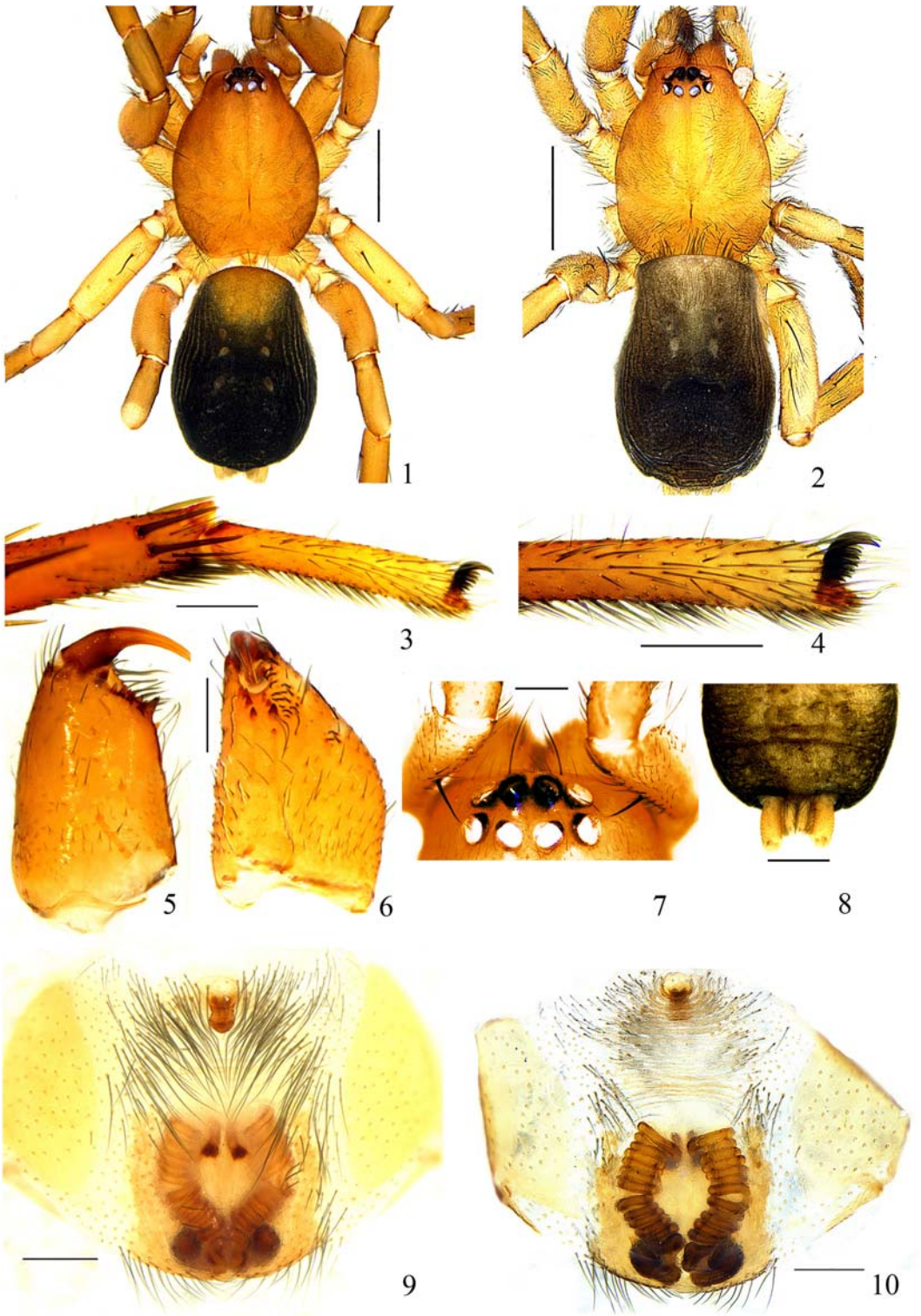
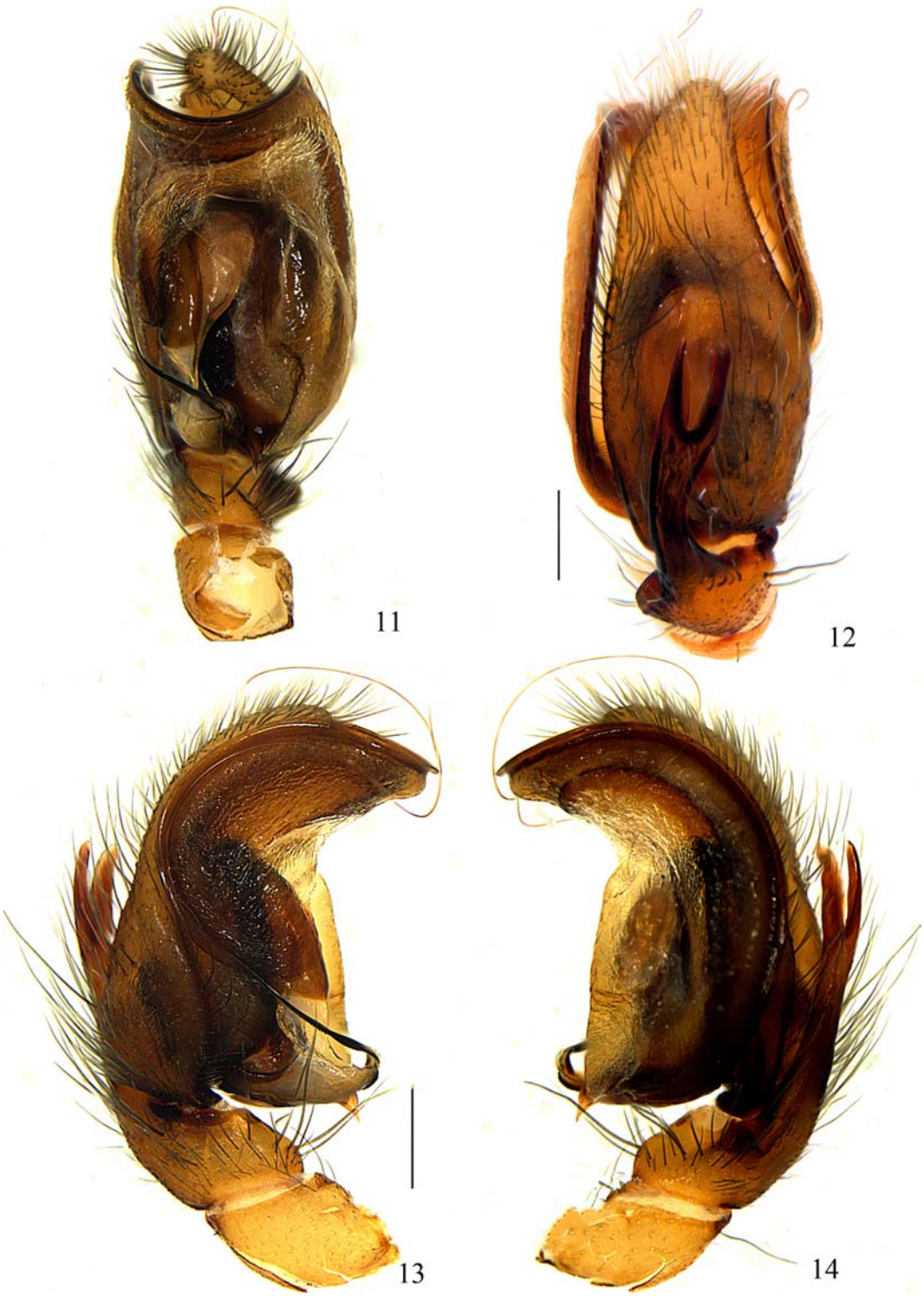


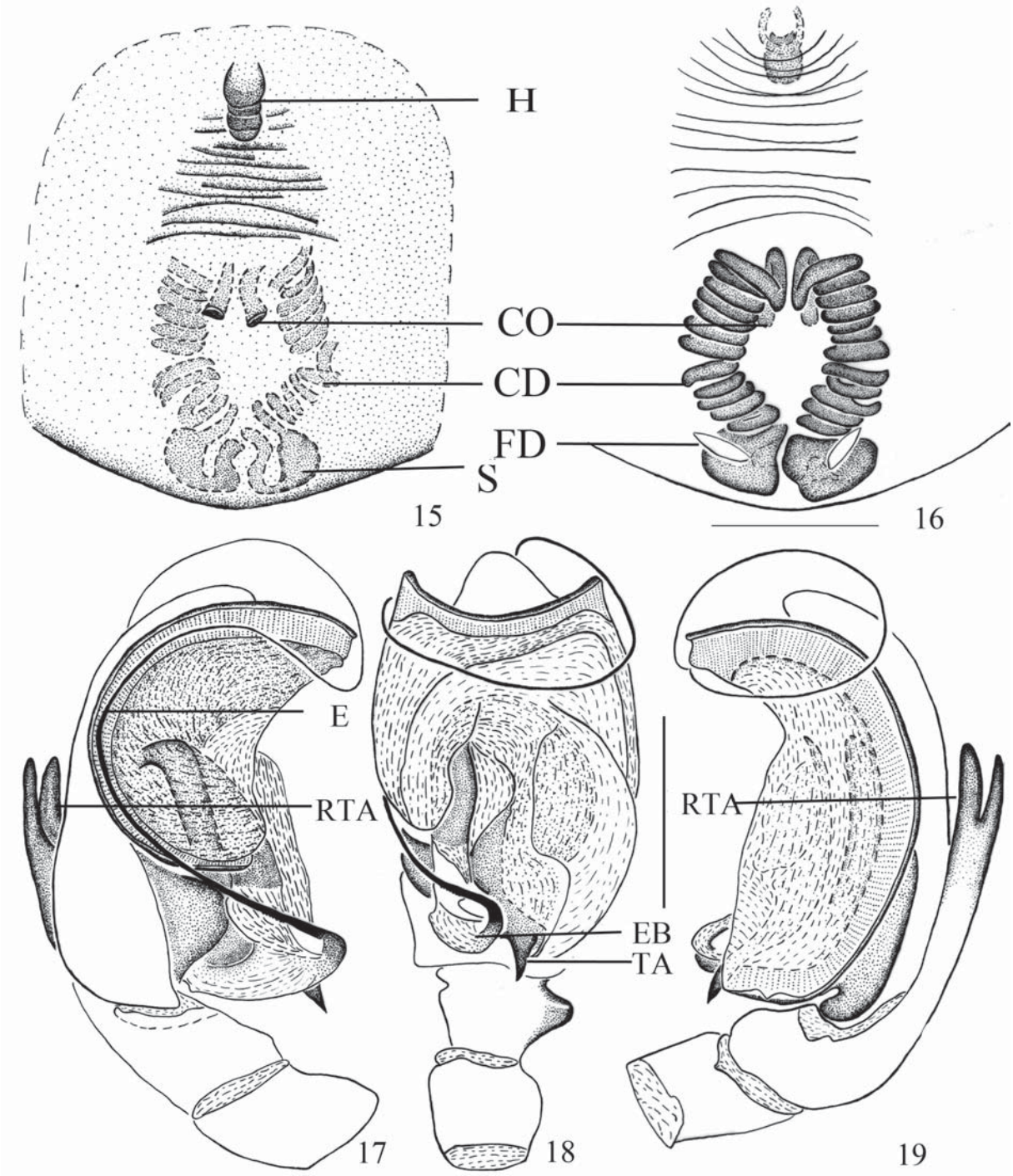
Figs 1–10. Somatic characters and epigyne of *Synaphosus femininis*: 1 — male habitus, dorsal; 2 — female habitus, dorsal; 3 — male metatarsus III, prolateral, showing preening brush; 4 — male tarsus IV, prolateral, showing elongate superior claw; 5 — male right chelicera, posterior; 6 — same, mesal; 7 — male eye region, dorsal; 8 — male spinnerets, ventral; 9 — epigyne, ventral; 10 — vulva, dorsal. Scale bars: 0.2 mm (1–9); 0.5 mm (10).

Рис. 1–10. Соматические признаки и эпигина *Synaphosus femininis*: 1 — габитус самца, сверху; 2 — габитус самки, сверху; 3 — предлапка III самца, пролатерально, показана щётка; 4 — лапка IV самца, пролатерально, показан удлинённый коготок; 5 — правая хелицера самца, сзади; 6 — то же, мезально; 7 — глазное поле самца, сверху; 8 — паутинные бородавки самца, снизу; 9 — эпигина, снизу; 10 — вульва, сверху. Масштаб: 0,2 мм (1–9); 0,5 мм (10).



Figs 11–14. Male palp of *Synaphosus femininis*: 11 — ventral; 12 — dorsal; 13 — prolateral; 14 — retrolateral. Scale bars: 0.2 mm.

Рис. 11–14. Пальпа самца *Synaphosus femininis*: 11 — снизу; 12 — сверху; 13 — пролатерально; 14 — ретролатерально. Масштаб: 0,2 мм.



Figs 15–19. Copulatory organs of *Synaphosus femininis*: 15 — epigyne, ventral; 16 — vulva, dorsal; 17 — left male palp, ventral; 18 — same, prolateral; 19 — same, retrolateral. Scale bars: 0.3 mm (15–16); 0.5 mm (17–19).

Рис. 15–19. Копулятивные органы *Synaphosus femininis*: 15 — эпигина, снизу; 16 — вульва, сверху; 17 — левая пальпа самца, снизу; 18 — то же, пролатерально; 19 — то же, ретролатерально. Масштаб: 0,3 мм (15–16); 0,5 мм (17–19).