

**TWO NEW SPECIES OF WATER MITES OF THE GENUS *SPERCHON* KRAMER
(ACARIFORMES, SPERCHONTIDAE) FROM CENTRAL ASIA**

**ДВА НОВЫХ ВИДА ВОДЯНЫХ КЛЕЩЕЙ РОДА *SPERCHON* KRAMER
(ACARIFORMES, SPERCHONTIDAE) ИЗ ЦЕНТРАЛЬНОЙ АЗИИ**

**P.V. Tuzovsky
П.В. Тузовский**

Institute for Biology of Inland Waters of the Russian Academy of Sciences, Borok, Yaroslavl Prov.,
152742 Russia; e-mail: tuz@ibiw.yaroslavl.ru
Институт биологии внутренних вод РАН, пос. Борок, Ярославская обл., 152742 Россия

Key words: Sperchontidae, *Sperchon*, water mite, Kyrgyzstan
Ключевые слова: Sperchontidae, *Sperchon*, водяные клещи, Кыргызстан

ABSTRACT

A description of two new species of water mites, *Sperchon asiaticus* (female) and *Sperchon minor* (male) from the mountain stream in the vicinities of Bishkek city (Kyrgyzstan) is given.

РЕЗЮМЕ

Описание самки нового вида водяного клеща *Sperchon asiaticus* и самца нового вида *Sperchon minor* из горного ручья в окрестностях города Бишкек, Кыргызстан.

INTRODUCTION

Thirty species of the genus *Sperchon* have been recorded for the former USSR [Sokolov, 1940; Wainstein, 1981; Tuzovsky, 1990], including three species from Central Asia (Uzbekistan and Kyrgyzstan): *S. plumifer* Thor 1902 [Thor, 1930; Sokolov, 1940], *S. clupeifer* Piersig 1896 [Sokolov, 1940; Jankovskaya, 1972], and *S. tarnogradskii zachvatkini* Thor, 1930. In an unique sample from the mountain stream in the vicinities of Bishkek city, I found two undescribed species of the genus *Sperchon*. Descriptions of the new species are given below.

In the descriptions, designations of body setae, lyriform organs, and plates follow Tuzovsky [1987]: Fch — setae of the cheliceral segment, Fp — setae of the pedipalpal palpomeres, Vi — verticales interioris, Ve — verticales exteriores, Oi — occipitales interioris, Oe — occipitales exteriores, Hi — humerales interioris, He — humerales exteriores, Hv — humerales ventralia, Sci — scapulares interioris, Sce — scapulares exteriores, Li — lumbales interioris, Le — lumbales exteriores, Si — lumbales interioris, Se — lumbales exteriores, Ci — caudales interioris, Pi — praeanales interioris, Pe — praeanales exteriores; i_1 – i_3 — lyriform organs;

dc.1–5 — dorsocentral plates, dl.1–4 — dorsolateral plates, vc.1–4 — ventrocentral plates.

Type material is deposited in the collection of the Institute for Biology of Inland Waters (Borok, Russia). All measurements are given in micrometers.

***Sperchon (Sperchon) asiaticus* Tuzovskij, sp.n.**

Figs. 1–3.

Description. Female. Body oval and flattened. Color brown. Idiosomal chaetome typical for the family Sperchontidae [Tuzovsky, 1987]. Setae Vi located on small transverse plates (Fig. 1, a). Trichobothria Fp on very small sclerites, trichobothria Oi on large rounded plates. Two anterior pairs of dorsocentral plates (dc.1–dc.2) lateral; other 3 pairs of dorsocentral plates (dc.3–dc.5) occupy central position. Dorsolateral plates (dl.1–dl.4) form almost straight longitudinal lines, 2 anterior pairs of plates, especially dl.2, very small. Setae Fch (Fig. 1, b) short and thick, other dorsal setae thin and long (Fig. 1, c–d). First pair of lyriform organs (i_1) situated behind eye capsules, i_2 at level of setae Oe, i_3 at level of setae He, i_4 at level of Le, and i_5 slightly posterior Li.

Anterior coxae close to each other but not fused (Fig. 1, c). Coxae I longer than coxae II, apodemes not distinct. Sclerites bearing setae Hv situated near posterolateral angles of coxae II. Posterior groups of coxae widely separated, medial parts of coxae III narrow; glandularia Pe open at anterior margin of coxae III. Setae Pi without accompanying glandularia, on very small sclerites. Anal opening surrounded by sclerotized ring, situated at level of setae Ci. Setae Si and Se posterolateral. There is 1 pair of ventral plates (vc.4) situated on both sides of anal openings. Pregenital and

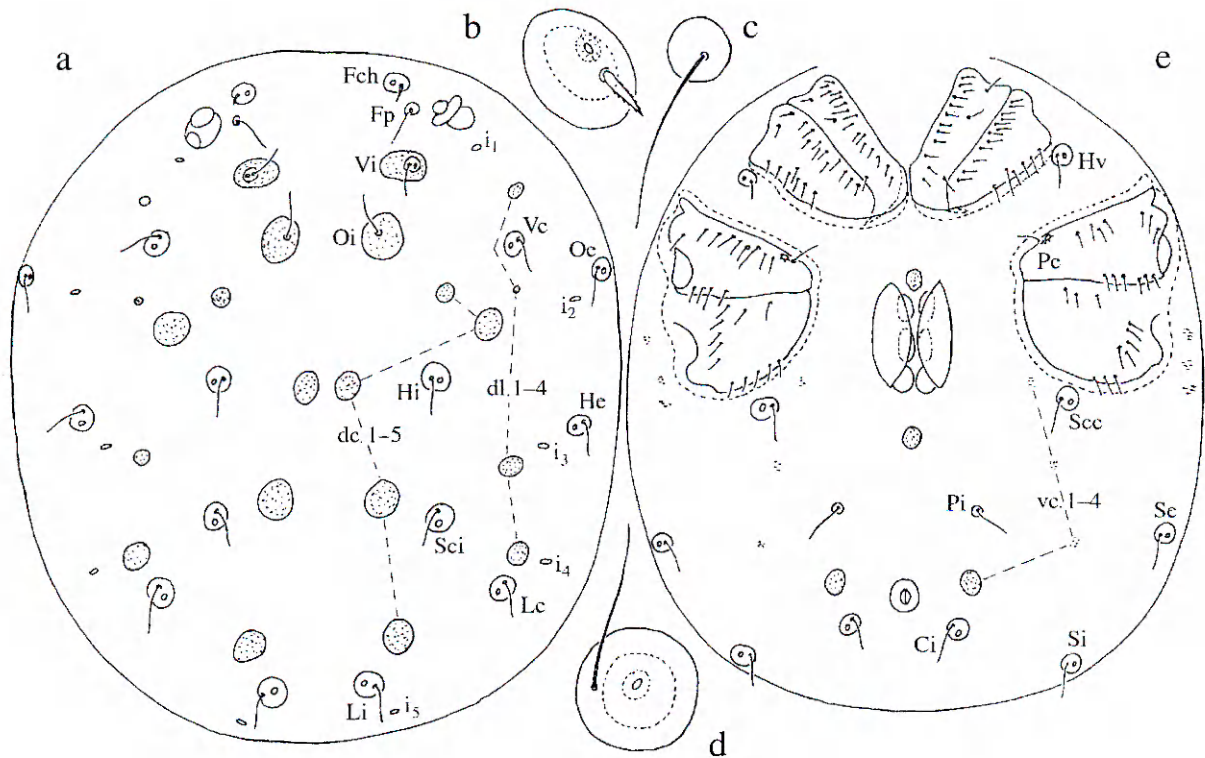


Fig. 1. *Sperchon asiaticus*, female: a — dorsal view, b — seta Fch, c — seta Fp, d — seta Ve, e — ventral view.

Рис. 1. *Sperchon asiaticus*, самка: а — дорсальная сторона, б — щетинка Fch, с — щетинка Fp, d — щетинка Ve, e — вентральная сторона.

postgenital sclerites well-developed; other ventral sclerites absent, although muscles attached to cuticle on their places distinct.

Genital orifice situated between posterior coxae. Pregenital sclerite close to genital organ. Internal margins of genital valves convex and close completely only the second pair of acetabula (Fig. 2, a). Genital acetabula of approximately same length, their length equal to length of genital valves. Each valve with 14–20 median and 4–7 thin lateral setae.

Integument (Fig. 2, b–c) wrinkled, with flat papillae of various form and size.

Hypostomal plate (Fig. 2, d) with short rostrum. Mouth wide. Both pairs of hypostomal setae equal in length.

Chelicerae are of usual form. Stylet of chelicera (Fig. 2, e) crescent, with 2 rows of small teeth.

Palp trochanter (Fig. 2, f) with 1 short dorsal seta. Femur of pedipalp with small conic ventral projection bearing 2 thin setae; near base of projection, there is thick seta which slightly longer than projection. Dorsal side of femur with 6–7 thick and 3 thin setae. Genu of pedipalp with straight ventral margin, and with 3–4 or 5–6 thick and 2–3 thin setae. Tibia of pedipalp thin, bent in distal part dorsoventrally. Ventral side of tibia with 2 small

tubercles, bearing short pins; proximal tubercle slightly larger than distal; area with pins subdivides tibia into 3 unequal parts, median part shorter than proximal or distal parts. Posterolateral spine of tibia short, with rounded tip. Tibia on one pedipalp in one female (paratype) with 3 ventral pins (Fig. 2, g). Tarsus of pedipalp (Fig. 3, a) short. All tactile setae, excluding solenidion, situated in its distal part.

Third–fifth podomeres of legs III–IV (Fig. 3, b) with longitudinal rows of rather long plumose setae (Fig. 3, c). Ambulacra (Fig. 3, d) with distinctly projecting plate and 2 teeth (long external and short internal one). Claw plate with concave ventral margin.

Measurements. Length of body 1250–1440; length of genital valves 210–225, width 78–85; length of anterior acetabula 65–78, length of middle acetabula 72–78, length of posterior acetabula 55–65; length of hypostomal plate 220–240; length of basal segment of chelicera 210–265, length of chelicera stylet 78–85; length of palpomeres 50, 160–175, 205–210, 235–250, 42–48; length of leg podomeres: I — 85–90, 135–150, 135–150, 225–240, 240–250, 225–245; II — 90–105, 120–150, 150–170, 250–265, 280–295, 255–270; III — 90–105, 130–155, 165–185, 285–295, 305–335, 280–

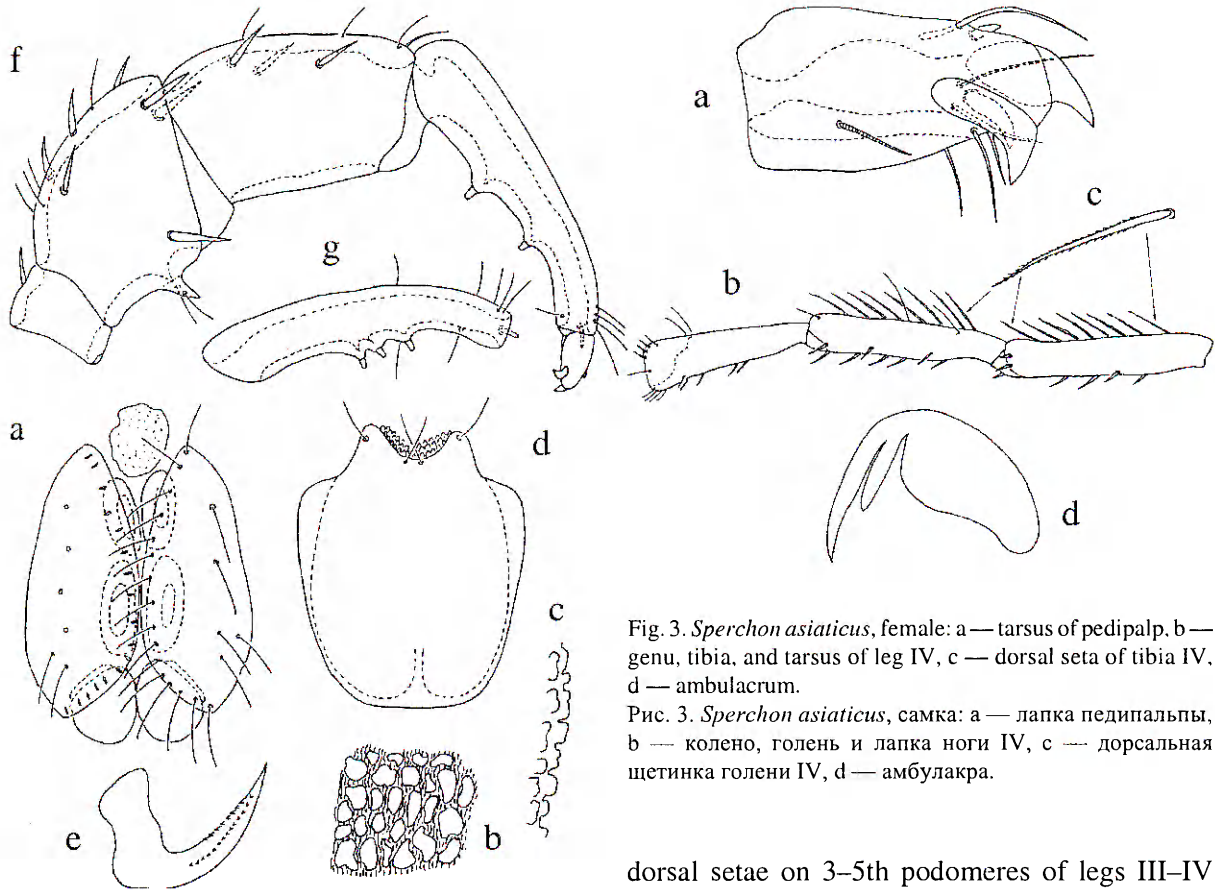


Fig. 2. *Sperchon asiaticus*, female: a — genital organ, b — fragment of integument, dorsal view, c — fragment of integument, lateral view, d — hypostomal plate, ventral view, e — stylet of chelicera, f — pedipalp.

Рис. 2. *Sperchon asiaticus*, самка: а — генитальный орган, б — фрагмент покровов, дорсальный вид, с — фрагмент покровов, вид сбоку, д — гипостомальная пластинка, вентральная сторона, е — стилет хелицеры, ф — педипальпа.

300; IV — 160–170, 185–200, 165–195, 355–370, 340–360, 320–370.

Type material. Holotype: female, slide 8437, stream in vicinities of Bishkek city, Kyrgyzstan, 28. 05.1985. Paratypes (2 females), same data.

Differential diagnosis. The new species is similar to *Sperchon fundamentalis* Bader et Sepasgosarian, 1980 described from Iran, but differs by smaller size of the body (length up to 1440), pedipalps (length 712–732), genital valves (length 210–225); by the absence of anterior apodemes, by the presence of the postgenital sclerite and rather long dorsal setae on the 3–5th podomeres of the legs III–IV. The female of *S. fundamentalis* is characterized by larger size of the body (length up to 1550), pedipalp (length 812–815), genital valves (length 250); by the absence of the postgenital sclerite, by the well-developed anterior apodemes and by short

Fig. 3. *Sperchon asiaticus*, female: a — tarsus of pedipalp, b — genu, tibia, and tarsus of leg IV, c — dorsal seta of tibia IV, d — ambulacrum.

Рис. 3. *Sperchon asiaticus*, самка: а — лапка педипальпы, б — колено, голень и лапка ноги IV, с — дорсальная щетинка голени IV, д — амбулакра.

dorsal setae on 3–5th podomeres of legs III–IV [Bader, Sepasgosarian, 1980].

***Sperchon (Sperchon) minor* Tuzovskij, sp.n.**

Figs. 4–5.

Description. Male. Color brown. Body flat and wide (Fig. 4). Setae Fch (Fig. 4, b) thick, plumose, almost twice as long as length of sclerites to which they attached. Setae Vi and Oi located on small plates (Fig. 4, a). Only 3 pairs of dorsal plates are well-developed on posterior part of body, others dorsal plates absent. Plates dc. 4 are largest plates, merged with sclerites, bearing setae Sci. Plates dc. 5 and dl. 4 of moderate size, also occupy terminal position on dorsum. First 3 pairs of lyriform organs occupy same position on body as in *S. asiaticus*, but i_4 ventral.

Anterior coxae approximate, but not fused (Fig. 4, c). Anterior margins of coxae I concave, apodemes weakly developed. Sclerites bearing setae Hv not close to posterolateral parts of coxae II. Posterior coxae widely separated. The area of coxae III only is little bit less than area of coxae IV. Glandularia Pe open at anteromedial margin of coxae III. Anal aperture surrounded by sclerotized ring. Ventral plates not projecting. Sclerites, bearing setae Ci, Si, and Se are large; and sclerites, bearing Sce are small. Bases of setae Pi nearly on same distance from genital organ and anal aperture. Fourth pair of lyriform organs at level of setae Se.

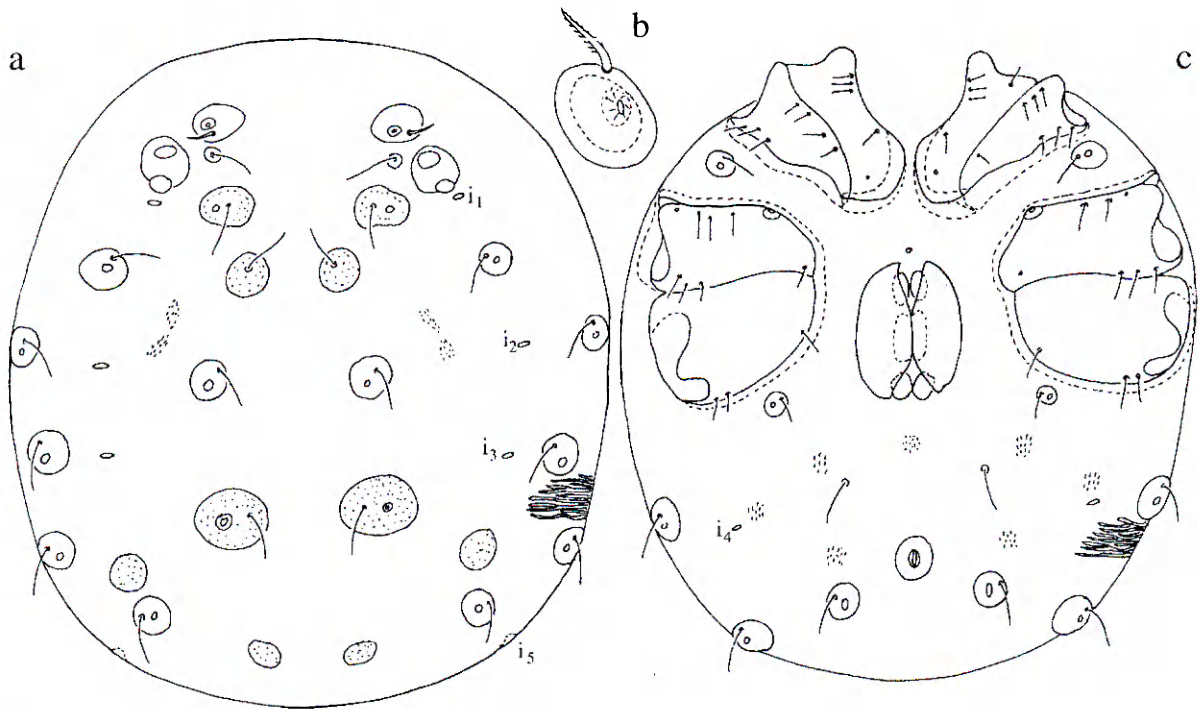


Fig. 4. *Sperchon minor*, male: a — dorsal view, b — seta Fch, c — ventral view.
Рис. 4. *Sperchon minor*, самец: а — дорсальная сторона, б — щетинка Fch, с — вентральная сторона.

External genital organ between posterior coxae. Middle acetabula are largest acetabula, total length of all acetabula slightly shorter than length of genital valves (Fig. 5, a).

Hypostomal plate (Fig. 5, b) wide, with short rostrum. All hypostomal setae subequal.

Basal segment of chelicera (Fig. 5, c) large, with convex dorsal side. Stylet of chelicera with massive base and sharp tip; concave surface of stylet with 2 rows of small teeth.

Trochanter of pedipalp (Fig. 5, d) with 1 short dorsal seta. Femur of pedipalp with small conic ventral projection (without setae). Thick ventrodistal seta of pedipalp femur longer than projection. Genu of pedipalp with convex ventral side. Tibia of pedipalp thin, longer than genu, bent dorsoventrally in distal part. Ventral tubercles situated close to each other in distal part of tibia; pins on tibia have same form and size.

Legs III–IV (Fig. 5, e) have longitudinal rows, with rather long dorsal plumose setae on third – fifth podomeres (Fig. 5, f).

Ambulacra (Fig. 5, g) with 3 subequal teeth. Claw plate weakly protruding.

Measurements. Length of body 560; lengths of genital valves 120, widths 55; lengths of anterior acetabula 35, lengths of middle acetabula 55, length of posterior acetabula 25; length of hypostomal

plate 120; length of basal segment of chelicera 100, length of cheliceral stylet 35; length palpomeres 25, 72, 80, 100, 25; length of leg podomeres: I — 48, 78, 72, 110, 112, 115; II — 48, 85, 78, 120, 120, 115; III — 48, 90, 78, 130, 145, 130; IV — 100, 90, 85, 155, 150, 140.

Type material. Holotype: male, slide 8434, stream in vicinities of Bishkek city, Kyrgyzstan, 28. 05.1985.

Differential diagnosis. The majority of known species of the genus *Sperchon* have ambulacra with 2 claws, in several species, however, the ambulacra with 3 teeth. The new species is similar to *S. tridentatus* Sokolov, 1940 from which it is easily distinguishable by the sclerotization of the integument and the form of pedipalps. The integument of adults of *S. tridentatus* with papillae and without dorsal and ventral plates; the femur of the pedipalp with large ventrodistal projection, bearing 3 thin setae; the genu of the pedipalp with a straight ventral margin and it is longer than the tibia; ventral tubercles with pins on the tibia are widely separated, anterior tubercle is situated at the middle of the palpomere [Sokolov, 1940]. The integument of *S. minor* has strips and dorsal plates; the femur of the pedipalp with small ventrodistal projection (without setae); the genu of pedipalp with a convex ventral margin, shorter than the tibia; ventral tubercles

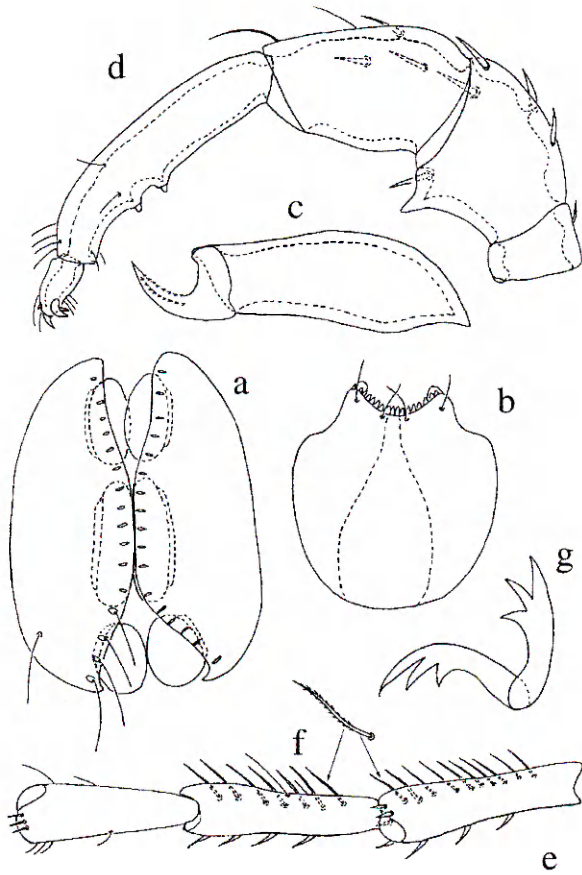


Fig. 5. *Sperchon minor*, male: a — genital organ, b — hypostomal plate, c — chelicera, d — pedipalp, e — genu, tibia, and tarsus of leg IV, f — dorsal seta of tibia IV, g — ambulacra.

Рис. 5. *Sperchon minor*, самец: а — генитальный орган, б — гипостомальная пластинка, с — хелицера, д — педипальпа, е — колено, голень и лапка ноги IV, ф — дорсальная щетинка голени IV, г — амбулакры.

with pins, situated close to each other in the distal part of the tibia.

ACKNOWLEDGEMENTS

The present research is supported by the Russian Fund for Basic Research, grant 03-04-49081.

REFERENCES

- Bader C., Sepasgosarian H. 1980. Wassermilben (Acari, Prostigmata, Hydrachnellae) aus dem Iran. 3. Mitteilung. *Entomologische Mitteilungen aus dem Zoologischen Museum Hamburg*, 6 (110): 381–292.
- Jankovskaya A.I. 1972. [Phreatic and spring fauna of northern Tien Shan and southern Kisilkum]. *Trudy Zoologicheskogo Instituta AN SSSR*. Publisher: Nauka, Leningrad, 51: 5–56. [In Russian]
- Sokolov I.I. 1940. [Hydracarina. Part 1: Hydrachnellae]. *Fauna of the USSR, Paukoobraznye* 5 (2). Publisher: Nauka, Moscow-Leningrad, 511 pp. [in Russian]
- Thor S. 1930. Einige Acarina, besonders Hydracarina aus Turkestan. *Zoologischer Anzeiger*, 88 (7–8): 179–198.
- Tuzovsky P.V. 1987. [*Morphology and postembryonic development of water mites*]. Publisher: Nauka, Moscow, 172 pp. [in Russian]
- Tuzovsky P.V. 1990. [*Key to deutonymphs of water mites*]. Publisher: Nauka, Moscow, 238 pp. [in Russian]
- Wainstein B.A. 1981. [New species and subspecies of water mites of the genus *Sperchon* (Acariformes, Sperchontidae) from the Far East]. *Zoologicheskyy Zhurnal*, 60 (3): 1168–1182. [In Russian]