A description of a new water mite species of the genus *Axonopsis* Piersig, 1893 (Acariformes: Aturidae) from the Northern Caucasus

Описание нового вида водяных клещей рода *Axonopsis* Piersig, 1893 (Acariformes: Aturidae) с Северного Кавказа

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A new water mite, *Axonopsis caucasicus*, based on male and female from running waters of the North Caucasus is described with illustrations.

Иллюстрированное описание нового вида водяного клеща *Axonopsis caucasicus* **sp. nov.** из проточных водоемов Северного Кавказа.

Key words: North Caucasus, water mites, Aturidae, Axonopsinae, *Axonopsis caucasicus*, male, female, new species

Ключевые слова: Северный Кавказ, водяные клещи, Aturidae, Axonopsinae, *Axonopsis caucasicus*, самец, самка, новый вид

INTRODUCTION

In the fauna of the former USSR, the following species of the genus *Axonopsis* Piersig, 1906 were known: *A. complanata* (Müller, 1776), *A. gracilis* (Piersig, 1903) and *Axonopsis elongata* Sokolow, 1934 (Sokolow, 1940). The latter species was transferred to the genus *Woolastokia* Habeeb, 1954 (Cook, 1974; Viets, 1987). In addition, one species of the genus (*A. serrata* Walter, 1928) was reported from the Krasnodarsky Kray and Yaroslavl Province (Tuzovskij, 1990). In the material collected by the author in the Northern Caucasus, one undescribed species of the genus *Axonopsis* was found. The present paper describes the male and female of this species as a new one, *Axonopsis caucasicus* **sp. nov.** (Aturidae).

MATERIALS AND METHODS

The material was collected by the author in rivers of the Krasnodar Kray of Russia. Specimens were not fixed in Koenike liquid, but slides were made from the fresh material. All specimens were not dissected, thus preserving the natural shape of the body. For several females and male the gnathosoma was mounted in a position that allowed investigating pedipalps in a lateral view. All specimens were mounted in the Hoyer's medium. Terminology of anterior idiosomal setae follows Tuzovskij (1987): *Fch* – frontales chelicerarum. Besides, the following abbreviations are used: P-1–5, pedipalp segments (trochanter, femur, genu, tibia and tarsus); I-Leg.1–6, first leg, segments 1–6 (trochanter, basifemur, telofemur, genu, tibia and tarsus) i.e. III-Leg.4 = genu of third leg; ac.1–3, genital acetabula (anterior, median, posterior), n – is the number of specimens measured, L – length, W – width. The length of the appendage segments was measured along their dorsal side. All measurements are given in micrometers (μm).

Family **ATURIDAE** Thor, 1900

Subfamily AXONOPSINAE Viets, 1929

***Axonopsis* (*Brachypodopsis*) *caucasicus* sp. nov.**

(Figs 1–7)

Holotype: male, **Russia**, North Caucasus, Krasnodarsky Kray, Ubin River, depth about 0.4 m; substrates: stones, pebbles, sand, 29 May 1976, leg. P.V. Tuzovskij, slide 1743, deposited in the collection of the Institute for Biology of Inland Waters (Borok, Russia).

Paratypes: (4 females from the some locality as holotype): 1 female from the some collection date as holotype, 1 female 24 May 1976, 1 female 27 May 1976 and 1 female 16 June 1976.

Diagnosis. *Adults*: idiosoma flat, elongate with straight anterior margin; dorsal and ventral shields fused anteriorly; anterior coxal plates relatively broad and tips not hook-like, suture line between ventral shield and genital field distinct; one pair of glandularia present between genital field and insertions of fourth legs; capitulum with long anchoral process; P-4 with two thin subequal ventral setae; surface of P-4 and tibiae of legs I–III with longitudinal strips; male: genital field of with 9–10 pairs of setae, genital flaps and acetabular plates subequal in length; female: genital field of with 4–5 pairs of setae, genital flaps considerably longer than acetabular plates.

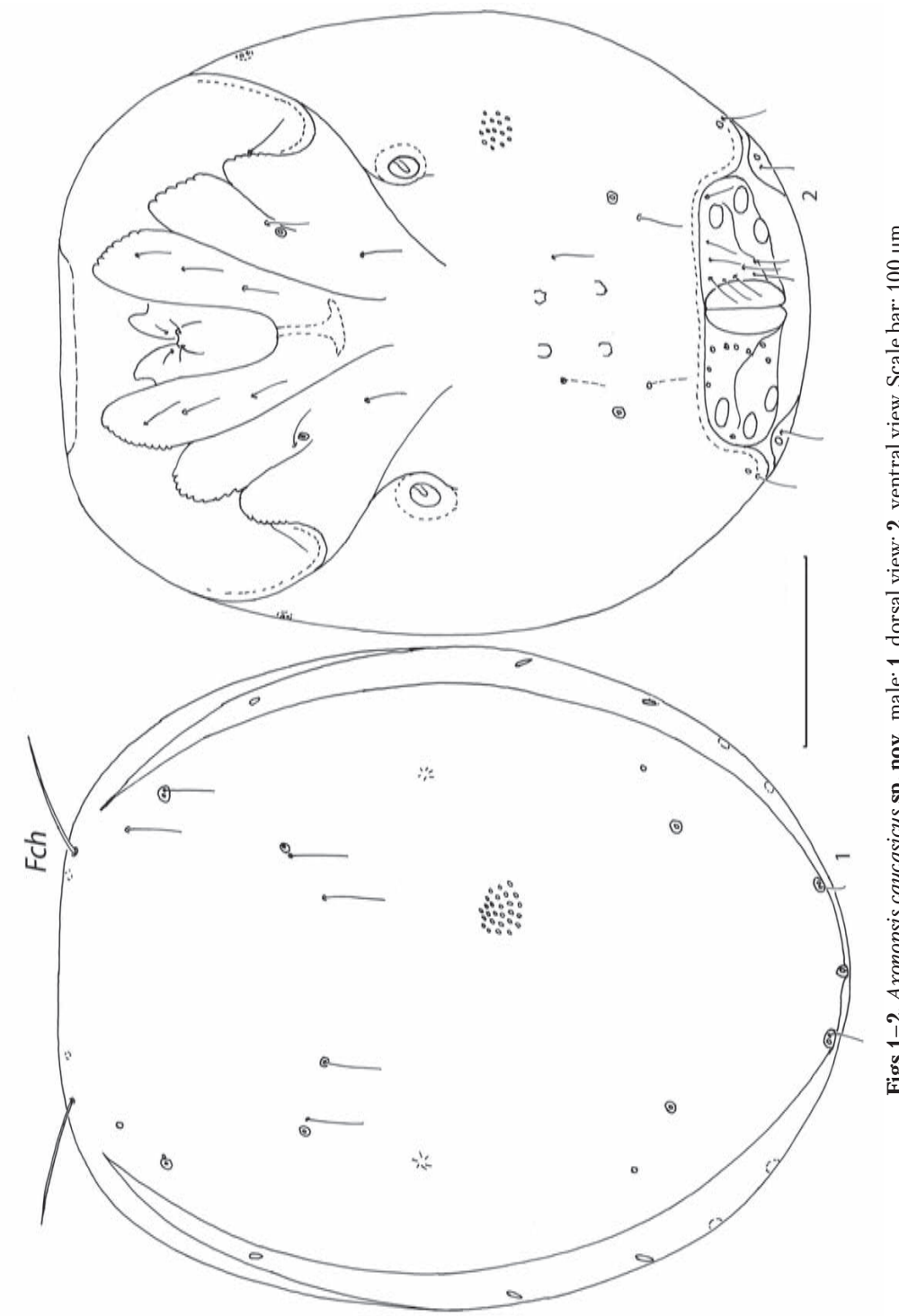
Description. Both sexes. Idiosoma oval, compressed dorso-ventrally, with straight frontal margin; dorsal and ventral shields fused anteriorly. Dorsal shield elongate, covering nearly all dorsal surface (Fig. 1). Setae *Fch* longer and thicker than other idiosomal setae. Excretory pore located on dorsal shield terminally. Ventral shield broader than dorsal shield, anterior coxal plates relatively broad and tips not hook-like, and not reaching anterior margin of ventral shield (Figs 2, 3). Suture line between coxal plates II–III distinct developed only in their lateral parts. A prominent curved ridge present on each side and extending anterolaterally from insertion of leg IV. One pair of glandularia present between insertions of fourth legs and genital field, these glandularia has shifted much near genital field. Dorsal and ventral shields porouse. Capitulum elongate with long anchoral process, both pairs of hypostomal setae short, thin and approximately equal in length; rostrum short, its base located near middle of ventral surface of capitulum.

Pedipalp moderately slender (Fig. 4): P-1 thin, relatively long, with single dorsodistal seta; P-2 thick, with straight or slightly convex ventral margin, with 1 dorsoproximal seta and 2 dorsosodistal setae, all dorsal setae of segment approximately subequal; P-3 shorter than P-2, with straight or slightly concave ventral margin, with 1 dorsoproximal seta and 2 dorsodistal approximately subequal setae; P-4 relatively long, with strong convex ventral margin and pointed distal end, bearing 2 thin subequal ventral setae, short distal spine and 2 fine dorsodistal setae; lateral surface of P-4 with longitudinal strips.

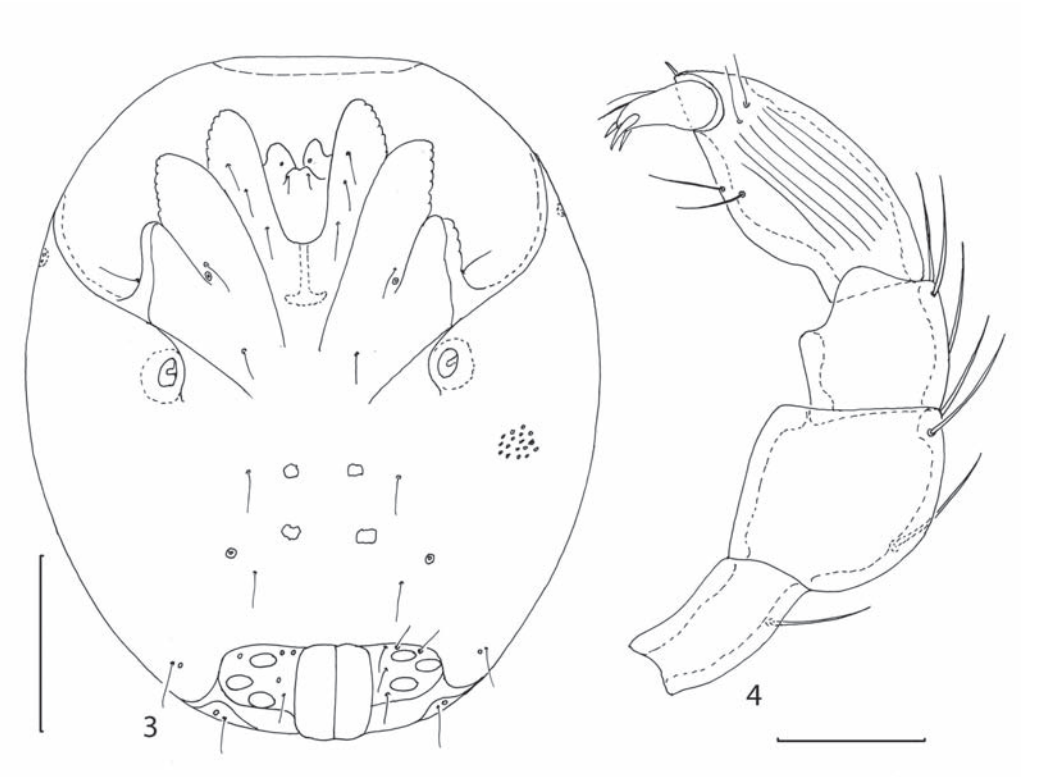
Legs I–III relatively short, with a few setae, surface of tibiae of these legs with longitudinal strips (Fig. 5). Legs IV (Fig. 6) slender, first three segments with 2–3 setae, terminal segments with a few setae. Leg claws with long external denticle and short internal denticle, claw lamella elongate with slightly concave ventral margin (Fig. 7).

Male. Dorsal shield elongate, L/W ratio 1.39. Acetabular plates fused to each other and fused with ventral shield, fusion of genital field distinct indicated, suture line between genital field and ventral shield straight (Fig. 2). Genital field wider than long (L/W ratio 0.29), with 3 acetabula and 9 fine setae on each side, gonopore oval, genital flaps elongate (L/W ratio 3.2) with convex lateral margins; genital flaps and genital plates equal in length.

Measurements (n=1). Length of body 400, width 325; distance between setae *Fch* 130; length of dorsal shield 390, width 280; length of genital field 42, width 145; length/width of genital acetabula (ac. 1–3): 15/12, 15/12, 16/10; length of capitulum 72, length of anchoral process 30; length of



Figs 1–2. *Axonopsis caucasicus* **sp. nov.**, male: **1**, dorsal view; **2**, ventral view. Scale bar: 100 μm.



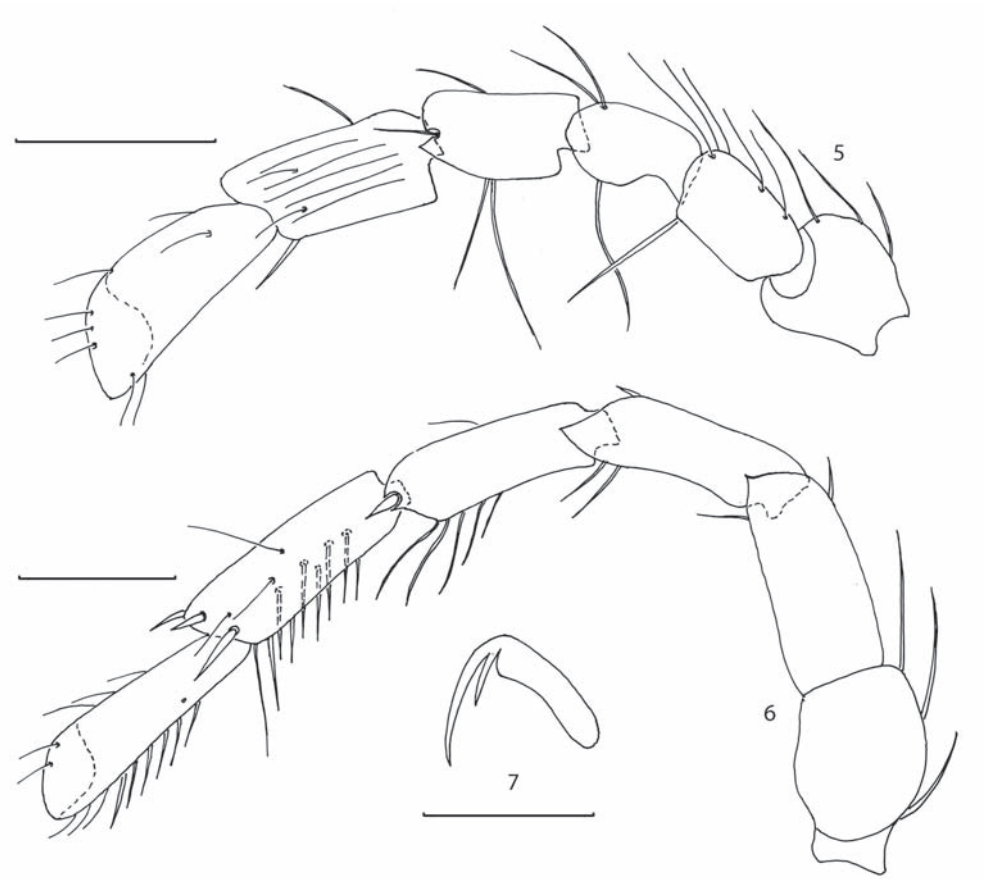
Figs 3–4. *Axonopsis caucasicus* **sp. nov.**, female: **3**, ventral view; **4**, pedipalp, lateral view. Scale bar: 100 μm (3), 25 μm (4).

basal segment of chelicera 80, length of cheliceral stylet 35; length of pedipalpal segments (P-1–5): 27, 39, 29, 51, 21; length of leg segments: I-Leg.1–6: 30, 35, 35, 42, 48, 60; II-Leg.1–6: 35, 42, 35, 42, 63, 69; III-Leg.1–6: 40, 55, 35, 45, 70, 72; IV-Leg. 1–6: 50, 60, 65, 72, 78, 95.

Female. Dorsal shield elongate (L/W ratio 1.33–1.38). Acetabular plates separate, fused with ventral shield, fusion of genital field distinct indicated, suture line between acetabular plates and ventral shield straight (Fig. 3). Genital plates wider than long (L/W ratio 0.65–0.75), with 3 acetabula and 5 fine setae each; gonopore large quadrangular, longer than genital plates; genital flaps elongate with straight lateral margins, L/W ratio 2.4–3.0.

Measurements (n=4). Length of body 415–490, width 335–400; distance between setae *Fch* 125–135; length of dorsal shield 405–480, width 300–360; length of genital flaps 54–66, width 20–27; length/width of genital acetabula (ac. 1–3): 18–21/12–15, 18–21/12–15, 15–21/12–15; length of capitulum 72–78, length of anchoral process 35–40; length of basal segment of chelicera 72–85, length of cheliceral stylet 30–35; length of pedipalpal segments (P-1–5): 30–36, 35–42, 24–30, 48–57, 15–20; lengths of leg segments: I-Leg. 1–6: 35–38, 35–45, 30–36, 35–42, 50–57, 57–69; II-Leg. 1–6: 35–38, 42–48, 30–36, 40–48, 60–66, 65–75; III-Leg. 1–6: 35–40, 42–52, 35–38, 42–48, 60–69, 65–81; IV-Leg. 1–6: 48–57, 60–65, 60–70, 65–72, 78–84, 78–85.

Comparison. The new species is very similar to *Axonopsis inferorum* Motas et Tanasachi, 1947, but differs from it by the following characters [character states of *A. in-*



Figs 5–7. *Axonopsis caucasicus* **sp. nov.**, female: **5**, Leg I; **6**, leg IV; **7**, claw of leg IV. Scale bars: 50 μm (5–6), 25 μm (7).

ferorum given in parenthesis are from Motas et al., (1947) and Pešić & Gerecke (2003)]: the suture line between ventral shield and genital field distinct (not distinct), the genital field of male with 9 pairs of setae (with numerous setae, about 30 pairs), P-3 with subequal dorsoproximal setae and dorsodistal setae, all these setae not longer than dorsal length of segment (one dorsodistal seta on P-3 longer than dorsoproximal seta and dorsal length of segment).

Etymology. The species epithet *caucasicus* is derived from the name of the region where it was collected, the Caucasus.

Habitat. Running waters.

Distribution. Europa: Russia, North Caucasus, Krasnodarsky Kray.

A key to species of the genus *Axonopsis* recorded in Russia

1 (4)Genital field with 3 pairs of acetabula.
2 (3) Coxal plates I and II with one large anterolateral process and 1–2 relatively short ventrolateral processes . . . . . ***A. serrata***
3 (2) Coxal plates I and II without anterolateral process and ventrolateral processes . . . . . ***A. caucasicus***
4 (1) Genital field with 4 pairs of acetabula . . . . . ***A. complanata***

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