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RESEARCH ARTICLE

# *Adropion camtchaticum*, a new species of Tardigrada (Eutardigrada: Itaquasconidae) from the Russian Far East

# *Adropion camtchaticum*, новый вид Tardigrada (Eutardigrada: Itaquasconidae) с Дальнего Востока России

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**Abstract.** *Adropion camtchaticum* **sp. nov.** (Tardigrada: Eutardigrada: Itaquasconidae) is described. The type specimens of the new species were found in a moss sample collected on the Kamchatka Peninsula. The new species is most similar to *A. scoticum* (Murray, 1905), but clearly differs from the latter in the larger body size, thinner bucco-pharyngeal tube, the presence of teeth in the oral cavity, and toothed bases of claws of all legs. It is the first record of semiterrestrial tardigrades from the continental part of the Russian Far East.

**Резюме.** Описан новый вид *Adropion camtchaticum* **sp. nov.** (Tardigrada: Eutardigrada: Itaquasconidae). Типовые экземпляры нового вида обнаружены в пробе мха, собранного на полуострове Камчатка. Новый вид наиболее близок к *A. scoticum* (Murray, 1905), но отчетливо отличается от него бóльшими размерами тела, более тонкой ротоглоточной трубкой, наличием зубов в ротовой полости и зазубренными основаниями коготков всех ног. Данная статья содержит первые опубликованные данные по фауне наземных тихоходок российского Дальнего Востока.

**Key words:** tardigrades, semiterrestrial fauna, Russia, Far East, Kamchatka Peninsula, Hypsibioidea, Itaquasconidae, *Adropion*, new species

**Ключевые слова:** тихоходки, наземная фауна, Россия, Дальний Восток, Камчатский полуостров, Hypsibioidea, Itaquasconidae, *Adropion*, новый вид

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## Introduction

Tardigrades are a group of microscopical metazoans widely distributed all over the World (McInnes & Pugh, 1998, 2007). The tardigrade fauna of the Russian Far East is poorly investigated. Current literature contains only few publications devoted to the tardigrades of this region. Three papers were devoted to the fauna of the Commander Islands (Biserov, 1988, 1998; Biserov et al., 2011), one paper, to the fauna of the Kuril Islands (Dudichev & Biserov, 2000), another one, to the fauna of Sakhalin Island (Abe, 2004), and one more paper is a description of a species from

Popov Island in the Primorskiy Territory (Biserov, 1996). The only paper incorporating the data of molecular barcoding in addition to the morphological identification is that by Maskin et al. (2021) devoted to the genus *Milnesium* Doyère, 1840 from Russkiy Island in the Primorskiy Territory. It is interesting to note that all territories considered in these publications are maritime islands. No data are available for the continental part of the Russian Far East.

A small moss cushion was collected on the Kamchatka Peninsula in 2022. An examination of this sample revealed five specimens belonging to an undescribed species of the genus *Adropion* Pilato, 1987.

*Adropion* was initially established by Pilato (1987) as a subgenus in the genus *Diphascon* Plate, 1888 on the basis of the absence of a drop-like apodeme on the bucco-pharyngeal tube, which was in contrast to the nominative subgenus. An investigation of the tardigrade phylogeny using molecular methods (Bertolani et al., 2014) revealed the polyphyly of the genus *Diphascon*. Two *Adropion* species studied in that paper, namely *A. scoticum* (Murray, 1905) and *A. belgicae* (Richters, 1911), were proven to be a part of the Itaquasconinae clade, which is distant from the monophyletic clade containing the species belonging to the subgenus *Diphascon* and the genera *Hypsibius* Ehrenberg, 1848 and *Borealibius* Pilato, Guidetti, Rebecchi, Lisi, Hansen et Bertolani, 2006. As a result, *Adropion* was raised to the genus level and moved to the subfamily Itaquasconinae (Bertolani et al., 2014). Gąsiorek & Michalczyk (2020) preformed the morphological and molecular phylogenetic analyses of the subfamily Itaquasconinae and revealed the presence of several evolutionary lineages within the genus *Adropion*. In particular, they established a new genus *Guidettion* Gąsiorek et Michalczyk, 2020 for the *Adropion prorsirostre* species-group. Recently, Zawierucha et al. (2023) described a new genus *Kararehius* Zawierucha, Stec et Shain, 2013 belonging to the subfamily Diphasconinae. It strongly resembles the genus *Adropion* in the absence of the drop-like apodeme in the buccal tube and incorporates three species previously assigned to the genus *Adropion*, namely *A. behanae* (Dastych, 1987), *A. tricuspidatum* (Binda et Pilato, 2000), and *A. triodon* (Maucci, 1996). Tumanov & Tsvetkova (2023), based on a molecular phylogenetic analysis, moved two other *Adropion* species, *A. greveni* (Dastych, 1984) and *A. mauccii* (Dastych et McInnes, 1996), to the genus *Diphascon*. In the most recent paper, Gąsiorek et al. (2023) performed a formal redescription of *A. scoticum*, amended the description of *A. belgicae* based on the materials from the type localities, and revised the composition of the genus. In particular, *A. ommatophorum* (Thulin, 1911) was raised to the species rank, *Fujiscon diphasconiellum* Ito, 1991 was removed from synonymy with *A. belgicae*, and the taxonomical status of *A. gani* (X.-Z. Sun, X. Li et Feng, 2014) and *A. marcusi* (Rudescu, 1964) was recognised as questionable. Currently, the genus *Adropion* contains ten species: *A. afroglacialis* Zawierucha, Gąsiorek et Buda, 2018, *A. belgicae*, *A. diphasconiellum*, *A. gani*, *A. gordonense* (Pilato, Claxton et Horning, 1991), *A. linzhiensis* (X. Li, 2007), *A. marcusi*, *A. ommatophorum*, *A. onorei* (Pilato, Binda, Napolitano et Moncada, 2002), and *A. scoticum*. Morphological differences between these species suggest the possible polyphyly of the genus (see Gąsiorek & Michalczyk, 2020; Gąsiorek et al., 2023).

## Materials and methods

**Sample processing.** The moss sample containing the new species was collected from the Kamchatka Peninsula by P.V. Grebenkin (Far Eastern Federal University, Vladivostok) in 2022. The tardigrades were extracted from fresh samples by washing them through two sieves (Tumanov, 2018). The content of the fine sieve was examined under a MBS-10 stereomicroscope.

**Microscopy and imaging.** Tardigrade specimens were fixed with acetic acid (Morek et al., 2016) and mounted on slides in Hoyer's medium. Permanent slides were examined under a Leica DM2500 microscope equipped with phase contrast (PhC) and differential interference contrast (DIC), supplied with a Nikon DS-Fi3 digital camera and NIS software.

All figures were assembled in Adobe InDesign CS4. For structures that could not be satisfactorily focused in a single LM photograph, a stack of 2–6 images was taken and assembled into a single deep-focus image, using Helicon Focus 6.

**Morphometrics and morphological nomenclature.** All measurements are given in micro-

metres (μm). Structures were measured only if their orientation was suitable. Body length was measured from the anterior end of the body to the posterior end, excluding the hind legs. The bucco-pharyngeal tube was measured from the anterior margin of the stylet sheaths to the caudal end of the buccal tube. Length of the buccal tube was measured excluding the drop-like structure. Terminology for the structures within the bucco-pharyngeal apparatus and for the claws follows Pilato & Binda (2010) and Gąsiorek et al. (2023). Nomenclature of cuticular bars on legs is given according to Gąsiorek et al. (2023). Elements of the buccal apparatus were measured according to Kaczmarek & Michalczyk (2017). Claws were measured following Beasley et al. (2008), but the total length of the claws was also measured according to Pilato et al. (2002) to ensure compatibility with older publications. Two morphometric indexes were calculated for the claw measurements: "*cbt*" (claw basal tract) is the base/primary branch ratio when the primary branch length is measured according to Beasley et al. (2008) (Vecchi et al., 2023), and "*br*" ratio, i.e. the ratio of the length of the secondary claw branch to the length of the primary claw branch (Gąsiorek et al., 2019), given as a percentage. The *pt* index is a percentage ratio between the length of a structure and the length of the buccal tube (Pilato, 1981) and is presented here in italics. Morphometric data were handled using ver. 1.6 of the "Parachela" template, which is available from the Tardigrada Register (Michalczyk & Kaczmarek, 2013), with addition of the total length of the claws and "*cbt*" index.

## Taxonomic account

Phylum **Tardigrada** Doyère, 1840

Class **Eutardigrada** Richters, 1926

Superfamily **Hypsibioidea** Pilato, 1969

Family **Itaquasconidae** Rudescu, 1964

Genus ***Adropion*** Pilato, 1987

***Adropion camtchaticum* sp. nov.**
(Figs 1, 2)

*Holotype*. Sex not determined; **Russia**, *Kamchatka Terr.*, Kamchatka Peninsula, Elizovo distr., foothill of Mutnovskaya Sopka Volcano, 52°31′54.7″N 158°11′46.5″E, ca. 750 m, moss on soil, 16 Oct. 2022, P.V. Grebenkin leg., SPbU 327(5).

*Paratypes*. Sex not determined; 4 adults, same data as for holotype, SPbU 327(1–4).

The holotype and three paratypes are kept at the Department of Invertebrate Zoology, St Petersburg University, Russia and one paratype, at the Zoological museum of Far Eastern Federal University.

**Morphological description.** Body large (up to 596 μm), elongate, body width equal along most part of its length, with head region slightly narrowed (Fig. 1A; for morphometrics, see Table 1). Body whitish in small specimens, with brown pigment in larger specimens; no eyespots visible in mounted specimens. Body surface without granulation but with strong cuticular wrinkles dorsally, between well-developed cribrose areas (Fig. 1B: white arrowheads), sometimes forming reticular pattern on lateral body surfaces (Fig. 1C). No cephalic sensory structures visible. Mouth opening anteroventrally, on well-developed mouth cone (Fig. 1D, G).

Bucco-pharyngeal apparatus of *Diphascon*-type sensu Pilato & Binda (2010), with thin and long bucco-pharyngeal tube (Fig. 1D). Oral cavity armature (OCA sensu Michalczyk & Kaczmarek, 2003) consisting of dorsal and ventral rows of round dots (teeth) and two pairs of thin laterodorsal and lateroventral crests in caudal part of oral cavity (Fig. 2A, B: black arrows). Dorsal and ventral apophyses for insertion of stylet muscles (AISM) in shape of "semilunar hooks" (following Pilato & Binda, 2010), symmetrical with respect to frontal plane; caudal processes of both apophyses pointing backwards and sideways (Fig. 2A, B). Stylet furcae typically developed, with swollen apices (Fig. 1F). Stylet supports well-developed (Fig. 1D–F). Pharyngeal tube with well-developed annulation of *Adropion/Guidettion*-type (see Gąsiorek & Michalczyk, 2020, for the description of annulation type) (Fig. 1H). Most caudal part of pharyngeal tube inside pharynx with evidently thickened walls and less developed annulation, often not visible (Fig. 1I). Pharyngeal apophyses and drop-like dorsoposterior apodeme of buccal tube (DABT sensu Gąsiorek et al., 2023) absent (Fig. 1E); one paratype with a vestigial appendage on dorsal surface of bucco-pharyngeal tube in its part where DABT present in *Diphascon* species (Fig. 1F: black arrowhead). Pharyngeal

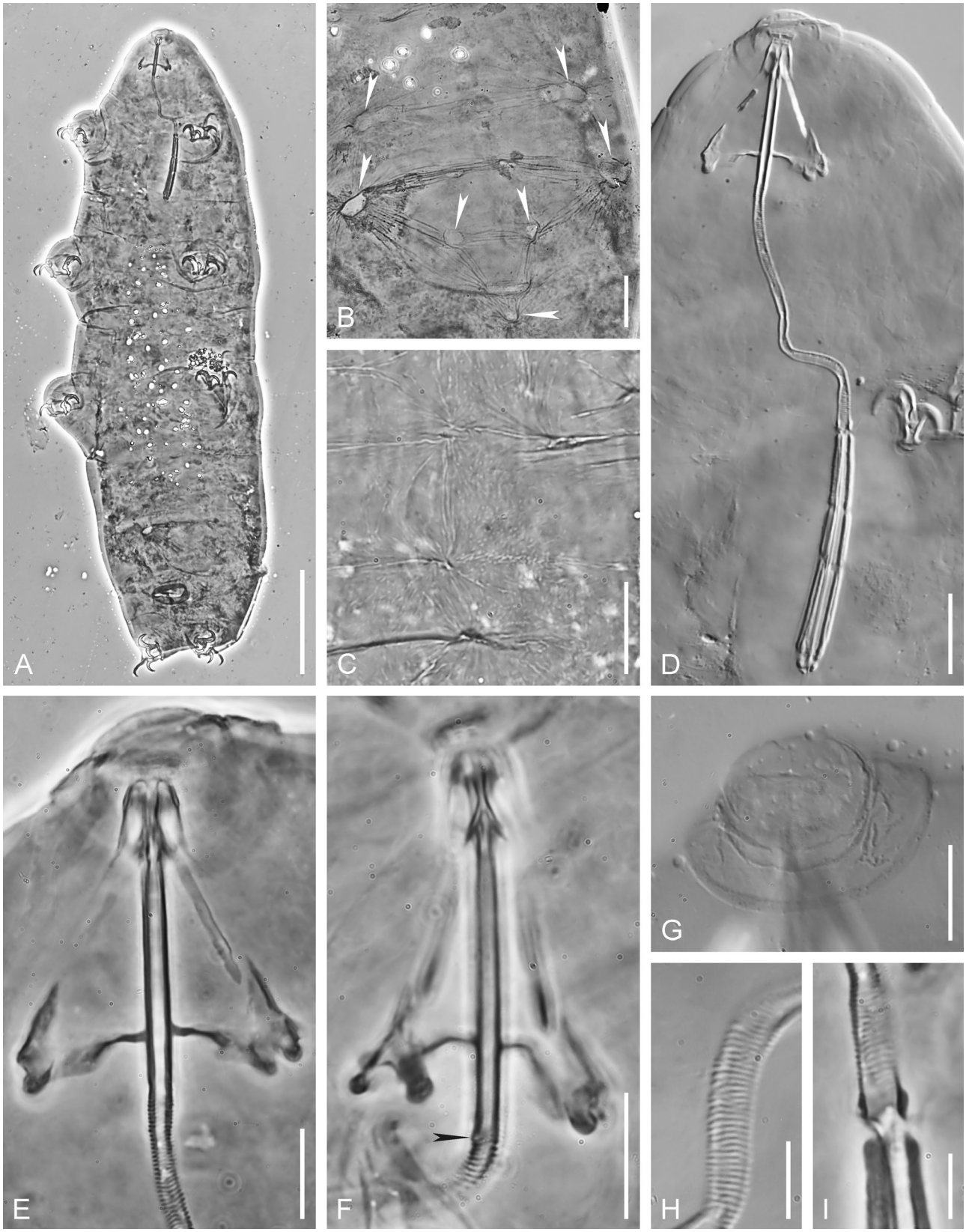


**Fig. 1.** *Adropion camtchaticum* **sp. nov.**, total view and details of bucco-pharyngeal apparatus [A, B, D, E, G–I, holotype; C, F, paratype SPbU 327(2)]. **A**, total view (PhC); **B**, dorsal view of body surface (PhC; white arrowheads indicate cribrose areas); **C**, lateral view of body surface with reticulate sculpture (PhC); **D**, total view of

**Table 1.** Summary of morphometric data for *Adropion camtchaticum* **sp. nov.**

| Character | n | Range | | Mean | | SD | | Holotype | |
|---|---|---|---|---|---|---|---|---|---|
| | | µm | *pt* | µm | *pt* | µm | *pt* | µm | *pt* |
| **Body length** | 4 | 319–596 | *1114–1688* | 458 | *1406* | 135 | *264* | 596 | *1688* |
| **Buccopharyngeal tube** | | | | | | | | | |
| Buccal tube length | 5 | 28.7–35.3 | – | 31.8 | – | 3.2 | – | 35.3 | – |
| Pharyngeal tube length | 5 | 58.3–74.1 | *188.3–246.0* | 67.4 | *213.1* | 6.1 | *21.3* | 74.1 | *209.9* |
| Bucco-pharyngeal tube length | 5 | 87.0–109.5 | *288.3–346.0* | 99.1 | *313.1* | 8.1 | *21.3* | 109.5 | *309.9* |
| Buccal/pharyngeal tube length ratio | 5 | 40.7–53.1 | – | 47.3 | – | 4.6 | – | 47.6 | – |
| Stylet support insertion point | 5 | 23.2–28.5 | *78.8–81.0* | 25.5 | *80.3* | 2.6 | *1.0* | 28.2 | *79.8* |
| Buccal tube external width | 5 | 2.0–2.9 | *6.5–8.3* | 2.4 | *7.6* | 0.4 | *0.7* | 2.9 | *8.1* |
| Buccal tube internal width | 5 | 0.9–1.5 | *3.0–4.3* | 1.1 | *3.6* | 0.3 | *0.5* | 1.3 | *3.8* |
| **Placoid lengths** | | | | | | | | | |
| Macroplacoid 1 | 5 | 10.6–18.8 | *37.0–53.3* | 13.8 | *42.9* | 3.8 | *7.5* | 18.8 | *53.3* |
| Macroplacoid 2 | 5 | 7.6–13.4 | *25.0–37.9* | 9.9 | *30.8* | 2.4 | *4.8* | 13.4 | *37.9* |
| Macroplacoid 3 | 5 | 14.4–22.8 | *50.2–64.6* | 18.2 | *56.9* | 3.9 | *6.5* | 22.8 | *64.6* |
| Microplacoid | 5 | 1.4–2.2 | *4.6–6.1* | 1.7 | *5.4* | 0.3 | *0.6* | 2.0 | *5.7* |
| Macroplacoid row | 5 | 35.1–56.6 | *118.0–160.3* | 43.7 | *136.0* | 10.4 | *18.8* | 56.6 | *160.3* |
| Placoid row | 5 | 37.5–60.0 | *126.8–169.8* | 46.8 | *145.8* | 10.9 | *19.4* | 60.0 | *169.8* |
| **Claw 1 lengths** | | | | | | | | | |
| External base | 4 | 6.9–10.1 | *22.5–28.6* | 7.9 | *25.4* | 1.5 | *2.5* | 10.1 | *28.6* |
| External primary branch | 4 | 12.3–15.7 | *40.2–47.6* | 13.8 | *44.8* | 1.4 | *3.4* | 15.7 | *44.5* |
| External secondary branch | 4 | 6.7–11.8 | *21.8–33.3* | 9.0 | *28.8* | 2.1 | *5.0* | 11.8 | *33.3* |
| External *cbt* ratio | 4 | 52.9–64.3 | – | 56.8 | – | 5.2 | – | 64.3 | – |
| External *br* ratio | 4 | 54.3–74.8 | – | 64.1 | – | 8.6 | – | 74.8 | – |
| External total | 4 | 19.7–24.9 | *64.4–73.0* | 21.7 | *70.1* | 2.3 | *4.0* | 24.9 | *70.6* |
| Internal base | 2 | 7.0–10.1 | *24.2–28.7* | 8.6 | *26.4* | 2.2 | *3.2* | 10.1 | *28.7* |
| Internal primary branch | 1 | 11.0–11.0 | *31.1–31.1* | 11.0 | *31.1* | ? | *?* | 11.0 | *31.1* |
| Internal secondary branch | 2 | 8.8–9.8 | *27.7–30.4* | 9.3 | *29.1* | 0.7 | *1.8* | 9.8 | *27.7* |
| Internal *cbt* ratio | 1 | 92.3–92.3 | – | 92.3 | – | ? | – | 92.3 | – |
| Internal *br* ratio | 1 | 89.3–89.3 | – | 89.3 | – | ? | – | 89.3 | – |
| Internal total | 1 | 16.4–16.4 | *46.3–46.3* | 16.4 | *46.3* | ? | *?* | 16.4 | *46.3* |
| **Claw 2 lengths** | | | | | | | | | |
| External base | 1 | 8.6–8.6 | *8.1–29.5* | 8.6 | *18.8* | ? | *15.1* | ? | *?* |
| External primary branch | 1 | 16.1–16.1 | *15.0–55.3* | 16.1 | *35.1* | ? | *28.5* | ? | *?* |
| External secondary branch | 1 | 9.9–9.9 | *8.9–34.0* | 9.9 | *21.5* | ? | *17.8* | ? | *?* |
| External *cbt* ratio | 1 | 53.3–53.3 | – | 53.3 | – | ? | – | ? | – |
| External *br* ratio | 1 | 61.6–61.6 | – | 61.6 | – | ? | – | ? | – |
| External total | 1 | 24.5–24.5 | *22.8–84.0* | 24.5 | *53.4* | ? | *43.3* | ? | *?* |
| Internal base | 1 | 7.8–7.8 | *26.8–26.8* | 7.8 | *26.8* | ? | *?* | ? | *?* |
| Internal primary branch | 0 | ? | *?* | ? | *?* | ? | *?* | ? | *?* |
| Internal secondary branch | 1 | 7.8–7.8 | *26.9–26.9* | 7.8 | *26.9* | ? | *?* | ? | *?* |
| Internal *cbt* ratio | 0 | ? | – | ? | – | ? | – | ? | – |
| Internal *br* ratio | 0 | ? | – | ? | – | ? | – | ? | – |
| Internal total | 0 | ? | *?* | ? | *?* | ? | *?* | ? | *?* |

bucco-pharyngeal apparatus (DIC); **E**, anterior part of bucco-pharyngeal apparatus (PhC); **F**, anterior part of bucco-pharyngeal apparatus (PhC; black arrowhead indicates vestigial appendage on the caudal end of buccal tube); **G**, mouth cone (DIC); **H**, annulation of pharyngeal tube (DIC); **I**, caudal end of pharyngeal tube (PhC). Scale bars: A – 100 µm; B–D – 20 µm; E–G – 10 µm; H, I – 5 µm.

| Character | n | Range | | Mean | | SD | | Holotype | |
|---|---|---|---|---|---|---|---|---|---|
| | | µm | *pt* | µm | *pt* | µm | *pt* | µm | *pt* |
| **Claw 3 lengths** | | | | | | | | | |
| External base | 2 | 9.0–11.6 | *30.9–32.8* | 10.3 | *31.9* | 1.8 | *1.3* | 11.6 | *32.8* |
| External primary branch | 2 | 16.8–21.4 | *57.5–60.5* | 19.1 | *59.0* | 3.3 | *2.1* | 21.4 | *60.5* |
| External secondary branch | 2 | 9.8–13.5 | *33.6–38.1* | 11.6 | *35.8* | 2.6 | *3.2* | 13.5 | *38.1* |
| External *cbt* ratio | 2 | 53.8–54.3 | – | 54.0 | – | 0.4 | – | 54.3 | – |
| External *br* ratio | 2 | 58.4–63.0 | – | 60.7 | – | 3.3 | – | 63.0 | – |
| External total | 2 | 25.7–33.4 | *88.4–94.5* | 29.6 | *91.5* | 5.4 | *4.3* | 33.4 | *94.5* |
| Internal base | 2 | 7.8–13.1 | *26.8–37.2* | 10.5 | *32.0* | 3.8 | *7.3* | 13.1 | *37.2* |
| Internal primary branch | 2 | 10.1–13.4 | *34.5–37.9* | 11.7 | *36.2* | 2.4 | *2.4* | 13.4 | *37.9* |
| Internal secondary branch | 2 | 7.9–12.9 | *27.3–36.4* | 10.4 | *31.9* | 3.5 | *6.5* | 12.9 | *36.4* |
| Internal *cbt* ratio | 2 | 77.7–98.0 | – | 87.8 | – | 14.3 | – | 98.0 | – |
| Internal *br* ratio | 2 | 79.0–96.0 | – | 87.5 | – | 12.0 | – | 96.0 | – |
| Internal total | 2 | 15.5–19.9 | *53.2–56.4* | 17.7 | *54.8* | 3.1 | *2.3* | 19.9 | *56.4* |
| **Claw 4 lengths** | | | | | | | | | |
| Anterior base | 4 | 7.3–11.6 | *25.5–32.8* | 9.2 | *28.5* | 1.9 | *3.1* | 11.6 | *32.8* |
| Anterior primary branch | 4 | 9.1–13.5 | *31.7–38.1* | 11.2 | *34.7* | 2.2 | *2.9* | 13.5 | *38.1* |
| Anterior secondary branch | 4 | 7.0–12.2 | *24.6–34.5* | 9.8 | *30.2* | 2.3 | *4.1* | 12.2 | *34.5* |
| Anterior *cbt* ratio | 4 | 78.4–86.2 | – | 82.1 | – | 3.5 | – | 86.2 | – |
| Anterior *br* ratio | 4 | 77.4–93.4 | – | 87.0 | – | 7.0 | – | 90.6 | – |
| Anterior total | 4 | 14.0–19.5 | *48.9–55.3* | 17.1 | *53.1* | 2.5 | *2.9* | 19.5 | *55.3* |
| Posterior base | 3 | 8.0–12.1 | *28.0–34.1* | 9.9 | *31.8* | 2.0 | *3.3* | 12.1 | *34.1* |
| Posterior primary branch | 3 | 14.6–20.1 | *51.0–56.8* | 16.8 | *53.9* | 2.9 | *2.9* | 20.1 | *56.8* |
| Posterior secondary branch | 3 | 7.9–12.1 | *27.2–34.2* | 9.6 | *30.6* | 2.2 | *3.5* | 12.1 | *34.2* |
| Posterior *cbt* ratio | 3 | 54.9–61.5 | – | 58.9 | – | 3.5 | – | 60.1 | – |
| Posterior *br* ratio | 3 | 50.4–60.3 | – | 56.8 | – | 5.6 | – | 60.3 | – |
| Posterior total | 3 | 22.4–30.6 | *78.1–87.5* | 26.2 | *84.1* | 4.1 | *5.2* | 30.6 | *86.6* |

*Note*. Measurements are given in µm, *pt* values in % (the *p*t index is the percentage ratio between the length of a structure and the length of the buccal tube). SD – standard deviation.

bulb elongate, with three long thin macroplacoids with jagged (irregularly serrate) edges, second the shortest, third the longest (Figs 1D, 2C–E). Third macroplacoid with thickened caudal end (Fig. 2C–E). Microplacoids clearly visible, slightly elongate (Figs 1D, 2C–E). Oblique cuticular rods usually present in anterior part of pharynx (Fig. 2C: inset, black arrow).

All legs with large robust claws of *Hypsibius*-type sensu Pilato & Binda (2010), slightly increasing in size from legs I to legs IV, with clearly visible internal septae (Fig. 2F) and well-developed accessory points. Free apices of accessory points usually located on both sides of main claw branch (Fig. 2G), sometimes poorly discernible in lateral projection (Fig. 2F). All claws with lunules (pseudolunules), which better developed on internal claws (Fig. 2F, G: white arrowheads). Bases of internal claws convex; bases of external claws widened, usually concave. Bases of all claws with minute teeth; teeth better visible on internal claws, less developed on claws of legs IV (Fig. 2H, I: white arrows). Legs I–III with strong internal and median cuticular bars (Fig. 2F, H, I: black arrowheads); legs IV with posterior bars only (Fig. 2G: black arrowhead).

Eggs unknown.

**Comparison.** In the genus *Adropion*, only *A. scoticum* and *A. ommatophorum* possess three long thin macroplacoids, evident microplacoid without septula, and cuticular bars between the claw bases of legs I–III. The new species differs from *A. scoticum* (its morphometric data are given according to Gąsiorek et al., 2023) in the larger body size (body length up to 404 µm in *A. scoticum vs.* up to 596 µm in *A. camtchaticum* **sp. nov.**), in hav-

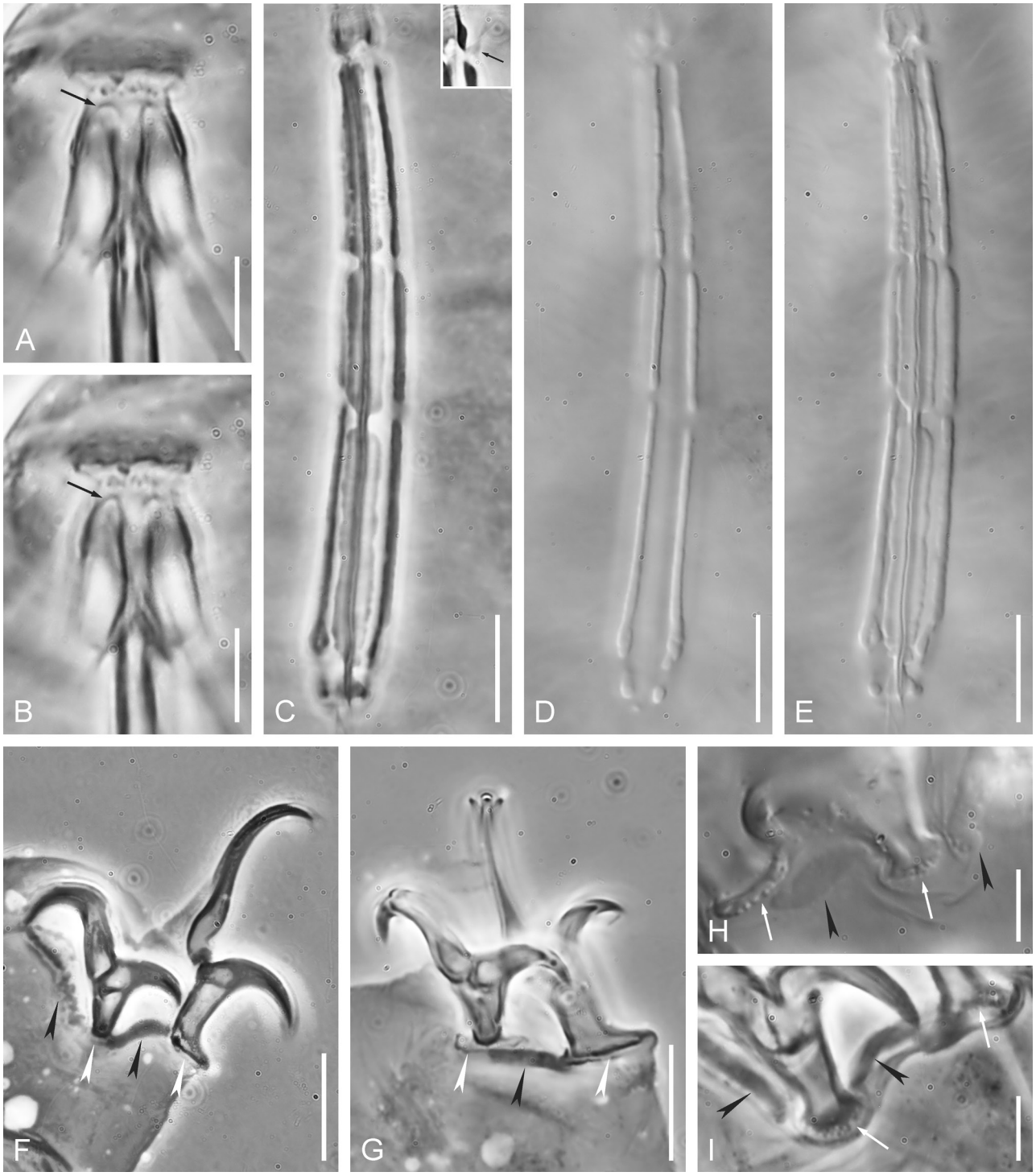


**Fig. 2.** *Adropion camtchaticum* **sp. nov.**, details of bucco-pharyngeal apparatus and claws [A–E, I, holotype; F, G, paratype SPbU 327(2); H, paratype SPbU 327(3)]. **A**, dorsal armature of oral cavity (PhC; black arrow indicates laterodorsal crest); **B**, ventral armature of oral cavity (PhC; black arrow indicates lateroventral crest); **C**, medioventral placoid row (PhC; inset shows oblique cuticular rod, black arrow); **D**, laterodorsal placoid rows (DIC); **E**, medioventral placoid row (DIC); **F**, claws of leg III (PhC; black arrowheads indicate cuticular bars, white arrowheads indicate lunules); **G**, claws of leg IV (PhC; black arrowhead indicates cuticular bar, white arrowheads indicate lunules); **H**, bases of claws of leg III (DIC; black arrowheads indicate cuticular bars, white arrows indicate toothed claw bases); **I**, bases of claws of leg III (PhC; black arrowheads indicate cuticular bars, white arrows indicate toothed claw bases). Scale bars: A, B – 5 μm; C–F – 10 μm; H, I – 5 μm.

ing a thinner buccal tube in relation to the buccal tube length [buccal tube external width *pt* value is *8.1–12.4* (mean *10.8 ± 1.1*) in *A. scoticum* and *6.5–8.3* (mean *7.6 ± 0.7*) in *A. camtchaticum* **sp. nov.**], in the cuticle with evident cribrose areas, a row of teeth in OCA, and well-developed lunules and teeth on the bases of claws (*vs.* only poorly developed lunules, which sometimes can be visible on claws of *A. scoticum*).

The new species differs from *A. ommatophorum* in the larger body size (body length up to 318 μm in *A. ommatophorum vs.* up to 596 μm in *A. camtchaticum* **sp. nov.**), in having lunules and teeth on the bases of claws (see Gąsiorek et al., 2023).

The new species differs from *A. belgicae* and *A. diphasconiellum* in having three macroplacoids and wrinkled cuticle with evident cribrose areas; from all other species of the genus *Adropion* (*A. afroglacialis*, *A. gordonense*, *A. linzhiensis*, and *A. onorei*) in having no septula.

*Adropion marcusi* is considered a nomen dubium (Dastych, 2015; Gąsiorek et al., 2016, Gąsiorek et al., 2023) because of unclear and incomplete description, but it can be differentiated from *A. camtchaticum* **sp. nov.** in the first macroplacoid shorter than or equal to the second one, while in the new species the second macroplacoid is the shortest, and in having no cuticular bars on legs.

**Etymology.** The new species is named after the Kamchatka Peninsula, where the type specimens were collected.

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