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New species of *Brachyunguis* B. Das, 1918 (Homoptera: Aphididae) from Kazakhstan

Новые виды тлей рода *Brachyunguis* B. Das, 1918 (Homoptera: Aphididae) из Казахстана

Kadyrbekov Rustem Khasenovich
Кадырбеков Рустем Хасенович

Institute of Zoology MES, Republic of Kazakhstan, Academgorodok, Al-Farabi, 93 str., Almaty, Kazakhstan, 050060. E-mail rustem61@inbox.ru

Институт зоологии Министерства образования и науки Республики Казахстан, проспект Аль-Фараби, 93, Академгородок, Алматы, 050060.

KEY WORDS: Aphididae, *Brachyunguis*, new species, Kazakhstan, key for definition.

КЛЮЧЕВЫЕ СЛОВА: Aphididae, *Brachyunguis*, новые виды, Казахстан, определительный ключ.

ABSTRACT. Five new species of *Brachyunguis* B. Das, 1918 are described from the deserts and steppes of Kazakhstan: *Brachyunguis armelliae* Kadyrbekov **sp.n.** on *Nitraria shoberi* L. of the Chilik valley (South-Eastern Kazakhstan), *B. dendrostellerae* Kadyrbekov **sp.n.** on *Dendrostellera arenaria* Pobed., *D. stachyoides* (Schrenk) Tiegh. from the Moinkum desert and deserts of Ili valley; *B. nurikamalae* Kadyrbekov **sp.n.** on *Ziziphora* sp. from the steppes of northern Kazakhstan (Pavlodar Area), *Brachyunguis transaralensis* Kadyrbekov **sp.n.** on *Chondrilla brevirostris* Fisch. et Mey. and *Brachyunguis tigrahaudus* Kadyrbekov **sp.n.** on *Helichrysum arenarium* (L.) Moench., *Jurinea cyanoides* (L.) Rchb. from the Aral Sea (Aral Karakum, Big Barsuki deserts). Key to the apterous viviparous females of *Brachyunguis* with brown head and dorsal sclerites is composed.

РЕЗЮМЕ. Описаны 5 новых видов рода *Brachyunguis* B. Das, 1918 из степной и пустынной зоны Казахстана:

Brachyunguis armelliae Kadyrbekov **sp.n.** живёт на селитрянке (*Nitraria shoberi* L.) в пойме реки Чилик (Юго-Восточный Казахстан). Новый вид близок к *B. cuscutae* (Nevsky, 1928) и *B. transaralensis* Kadyrbekov **sp.n.** От первого вида он отличается более коренастыми трубочками, не более 1.2 их максимальной ширины, 0.55–0.65 длины хвостика и более коренастым хвостиком, 0.9–1.2 его базальной ширины. *B. armelliae* Kadyrbekov **sp.n.** отличается от *B. transaralensis* Kadyrbekov **sp.n.** отношением длины шпица и основания шестого членика усиков (0.8–1.0 против 0.7–0.8), последнего членика хоботка ко второму члeнику задней лапки (0.70–0.75 в сравнении с 0.75–0.80), трубочек ко второму члeнику задней лапки (0.70–0.75 и 0.55–0.70) и иным растением-хозяином.

B. dendrostellerae Kadyrbekov **sp.n.** живёт на дендростеллере (*Dendrostellera arenaria* Pobed., *D. stachyoides* (Schrenk) Tiegh.) в пустынной зоне Южного Казахстана. Новый вид отличается от всех палеарктических видов *Brachyunguis* очень короткими светло-бурыми трубочками, 0.018–0.020 длины тела, 0.3–0.4 их максимальной ширины и иным растением-хозяином.

B. nurikamalae Kadyrbekov **sp.n.** живёт на зизифоре (*Ziziphora* sp.) в Северном Казахстане (Павлодарская обл.). Это первый вид рода *Brachyunguis* с краевыми бугорками на средне- и заднегруди, 2–5 брюшных тергитах. Новый вид близок к *B. atraphaxidis* (Nevsky, 1928) и *B. monstratus* Kadyrbekov, 1999. Кроме указанного выше признака, отличается от этих видов более короткими лобными волосками, меньшим числом волосков на 8 тергите и другим растением-хозяином.

Brachyunguis tigrahaudus Kadyrbekov **sp.n.** живёт на бессмертнике и наголовatке (*Helichrysum arenarium* (L.) Moench., *Jurinea cyanoides* (L.) Rchb.) в Северном Приаралье (пески Приаральские Каракумы, Большие Барсуки) и входит в видовую группу с 2 (3) волосками на восьмом брюшном тергите, со светлым хвостиком среди видов с бурой головой и дорсальными склеритами. Он отличается от всех таксонов внутри этой видовой группы более длинным хоботком, продолжающимся за задние тазики, отношением последнего членика хоботка ко второму члeнику задней лапки (0.8–0.9 против 0.7–0.8) и короткими лобными волосками. *B. tigrahaudus* Kadyrbekov **sp.n.** Отличается от близких *B. flexosiphon* Kadyrbekov, 1999 и *B. transaralensis* Kadyrbekov **sp.n.** менее многочисленными волосками хвостика. От *B. rhei* (Nevsky, 1951) новый вид отличается отношением длины трубочек к длине тела (0.050–0.065 против (0.060) 0.070–0.080) и ко второму члeнику задней лапки (0.50–0.75 в сравнении с (0.80) 0.90–1.00).

Brachyunguis transaralensis Kadyrbekov **sp.n.** живёт на хондрилле (*Chondrilla brevirostris* Fisch. et Mey.).

Новый вид входит в видовую группу с 2 (3) волосками на восьмом брюшном тергите и со светлым хвостиком среди видов с бурой головой и дорсальными склеритами [Кадырбеков, 1999]. Он отличается от всех таксонов внутри этой видовой группы коренастыми трубочками (0.8–1.1 их максимальной ширины) и хвостиком (0.9–1.1 его ширины в основании), а также другим растением-хозяином из семейства астровых (Asteraceae). *B. transaralensis* Kadyrbekov **sp.n.** отличается от *B. flexosiphon* Kadyrbekov, 1999*, B. rhei* (Nevsky, 1951) отношением длины трубочек к длине тела (0.041–0.055 против 0.060–0.090) и ко второму членику задней лапки (0.55–0.70 в сравнении с 0.80–1.25).

Составлена таблица для определения видов *Brachyunguis* с бурой головой по бескрылым живородящим самкам.

Introduction

Brachyunguis is the arid genus with 39 species in the world fauna [Blackman & Eastop, 2006; Remaudière G. & Remaudière M., 1997']. It includes nominative (33 species) and *Xerophilaphis* Nevsky, 1928 (6 species) subgenera. Species of this genus are found in old and new world in both hemispheres. However, most species live in Central Asia and are found in the desert and steppe zones. Some species are polyphagous, most of the species are narrow oligophagous or monophagous on plants of Apiaceae, Asclepiadaceae, Asteraceae, Brassicaceae, Capparidaceae, Chenopodiaceae, Convolvulaceae, Cuscutaceae, Equisetaceae, Fabaceae, Peganaceae, Pistaceae, Polygonaceae, Ranunculaceae, Solanaceae, Tamaricaceae, Zygophyllaceae [Kadyrbekov, 2001].

Materials and methods

All new species of *Brachyunguis* are found in the collection of Zoological Institute (Almaty, Kazakhstan). We also studied the types of *Brachyunguis atraphaxidis* (Nevsky, 1928), *B. cuscutae* (Nevsky, 1928), *B. cynanchi* (Nevsky, 1928), *B. rhei* (Nevsky, 1951), *B. tausaghyz* (Nevsky, 1949) from the collection of the Zoological Institute RAN (Saint-Petersburg, Russia).

Original species descriptions [Akhmedov & Tashmatova, 2004, 2005; Ivanovskaja, 1960; Kadyrbekov, 1999; Nevsky, 1929, 1951; Narzikulov & Umarov, 1972; Remaudière, Talhouk, 1999] have been studied also.

All measurements are given in millimeters.

Holotypes and paratypes of described taxa are deposited in the collection of Institute of Zoology (Almaty, Kazakhstan). Part of paratypes is kept in the Zoological Institute of RAN (Saint-Petersburg, Russia).

Results

Brachyunguis (s.str.) ***armelliae*** Kadyrbekov **sp.n.**
Figs 1–4.

TYPE MATERIAL. Holotype: 1 apterous viviparous female, slide № 2205, *Nitraria schoberi,* South-East Kazakhstan, Almaty Area, Chilik town environs, Chilik river, 29.04.2007, A. Coeur; paratypes: 1 apterous viviparous female, 1 alate viviparous female together with holotype.

DIAGNOSIS. New species is related to *B. cuscutae* (Nevsky, 1928) and *B. transaralensis* Kadyrbekov **sp.n.** It differs from the first species by stumpy siphunculi, not more 1.2 of their maximal width, 0.55–0.65 of cauda and by more stampy cauda 0.9–1.2 of its basal width. *B. armelliae* Kadyrbekov **sp.n.** differs from *B. transaralensis* Kadyrbekov **sp.n.** by ratios of processus terminalis to base of 6th antennal segment (0.8–1.0 vs 0.7–0.8), ultimate rostral segment to second segment of hind tarsus (0.70–0.75 in comparison 0.75–0.80); siphunculi to second segment of hind tarsus (0.70–0.75 against 0.55–0.70), lesser quantity of hairs on cauda and other host plant.

DESCRIPTION. *Apterous viviparous female* (by 2 specimens). Body oval, 1.52–1.66 (Fig. 1). Cuticle easily reticulated. Frons slightly convex without antennal tubercles. Frontal setae (0.020–0.028) 1.0–1.3 of basal diameter of 3rd antennal segment. Antennae six-segmented, 0.51–0.54 of body length. Third segment 1.46–1.66 of 4th, 2.9–3.2 of processus terminalis and 1.40–1.55 of 6th segment length. Processus terminalis 0.8–1.0 of base of 6th segment with 3–4 apical setae. Fourth segment approximately equal to 5th. Secondary rhinariae are on 3rd (0–1), 4th (0–2), 5th (0–1) antennal segments. Hairs on 3rd segment (0.008) 0.35–0.40 of its basal diameter. Clypeus normal, rostrum reaches behind to middle coxae. Ultimate rostral segment (Fig. 2) about 0.70–0.75 of second segment of hind tarsus with 2 accessory hairs. Siphunculi very short, conic with faintly visible flange, 0.050–0.060 of body length, 0.55–0.65 of cauda, 1.16–1.20 of its maximal width, 0.70–0.75 of second segment of hind tarsus (Fig. 3). Cauda triangular-conic with acute apex and faintly concave margins, 1.0–1.2 of its basal width, 1.17–1.23 of second segment of hind tarsus with 6–8 hairs (Fig. 4). Marginal tubercles nippleformed with sclerotic boards, developed on prothorax, 1st and 7th tergites. Diameter of tubercle on 7th tergite approximately equal to that on 1st one and 1.70–1.75 of basal diameter of 3rd antennal segment. Hairs on 3–5 tergites (0.017) 0.75–0.85 of basal diameter of 3rd antennal segment. Number of hairs: 8–10 on 3rd tergite; 4 between siphunculi on 6th tergite and 2 on 8th tergite. Genital plate oval with 2 hairs on disc and 6–8 ones along its posterior margin. Legs normally developed. Trochanter hair of middle legs (0.034–0.039) 0.70–0.75 of trochantro-femoral suture. Longest hair on external side of middle femora (0.022–0.028) 0.45–0.60 of trochantro-femoral suture. First tarsal segments with 3:3:2 hairs.

Coloration on slide: head, 1st, 2nd antennal segments, clypeus, 3rd –4th segments of rostrum, coxae, trochanters, distal parts of femora, apices of tibiae, tarsi, genital plate, dorsal spots and stripes light-brownish; siphunculi and cauda pale.

Natural coloration: body greenish without grey film, head brown, eyes dark-reddish, siphunculi and cauda pale.

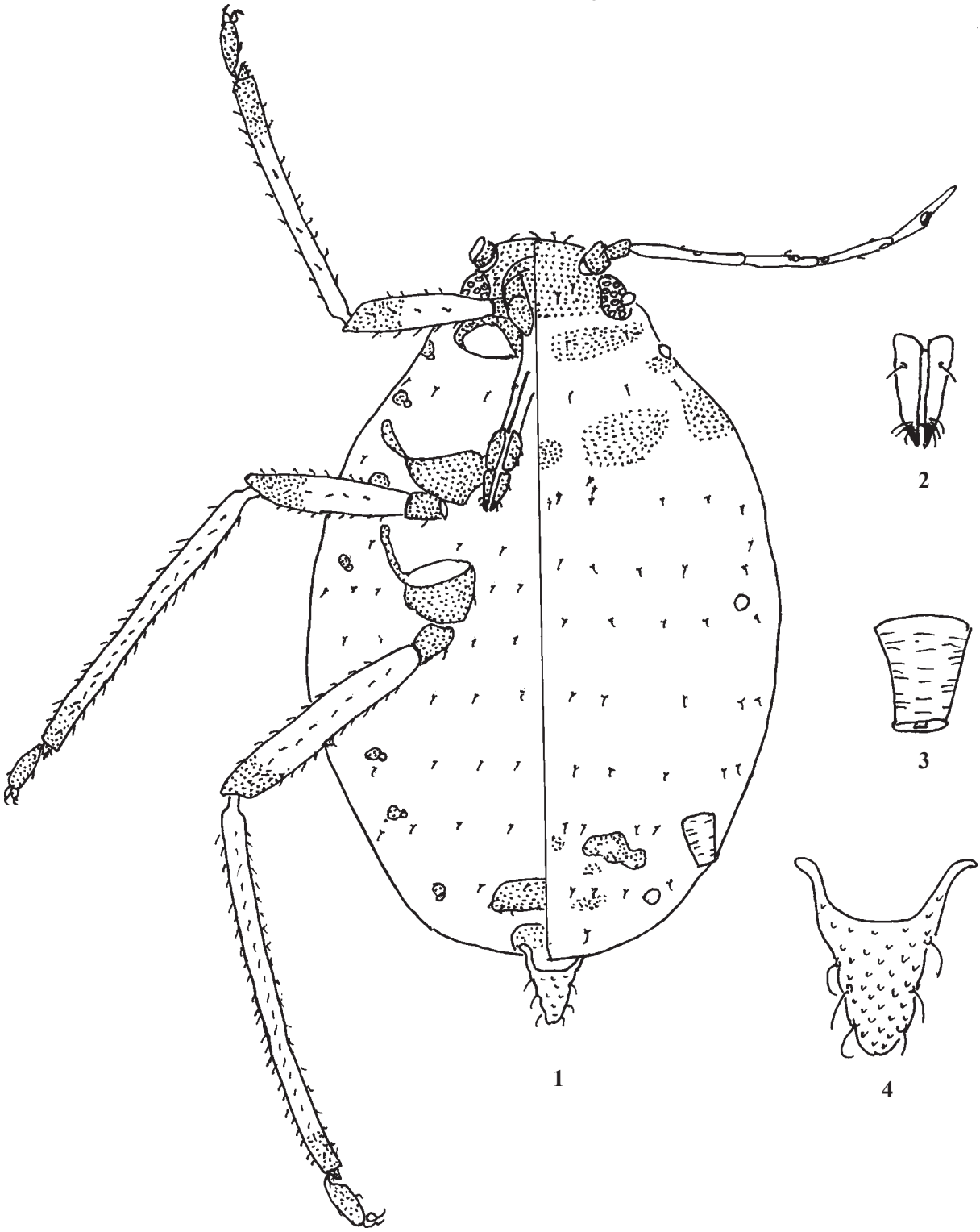
Measurement of holotype. Body 1.52; antennae 0.81–0.82: III 0.25, IV 0.15–0.17, V 0.14, VI 0.16–0.17 (0.08–0.09+0.08); siphunculi 0.09; cauda 0.14; ultimate rostral segment 0.09; 2 segment of hind tarsus 0.12.

Alate viviparous female (by 1 specimen). Body elliptical, 1.62. Antennae 0.52–0.53 of body length. Third antennal segment 1.35 of 4th with 7–8 secondary rhinaria. Fourth antennal segment equal to 5th. Siphunculi about 0.049 of body length, 0.62 of cauda, 1.75 of its maximal width. Cauda 1.66 of its basal width with concave margins. Other characters as apterous female.

Coloration on slide: head, thorax, antennae, except of the basal part of 3rd antennal segments, clypeus, 3rd –4th

segments of rostrum, femora, besides of basal one third, coxae, trochanters, apices of tibiae, tarsi, genital plate, dorsal spots light-brownish.

Measurement of paratype. Body 1.62; antennae 0.84–0.85: III 0.23, IV 0.17, V 0.17, VI 0.17–0.18 (0.095+0.075–0.085); siphunculi 0.08; cauda 0.13; ultimate rostral segment 0.09; 2 segment of hind tarsus 0.13.

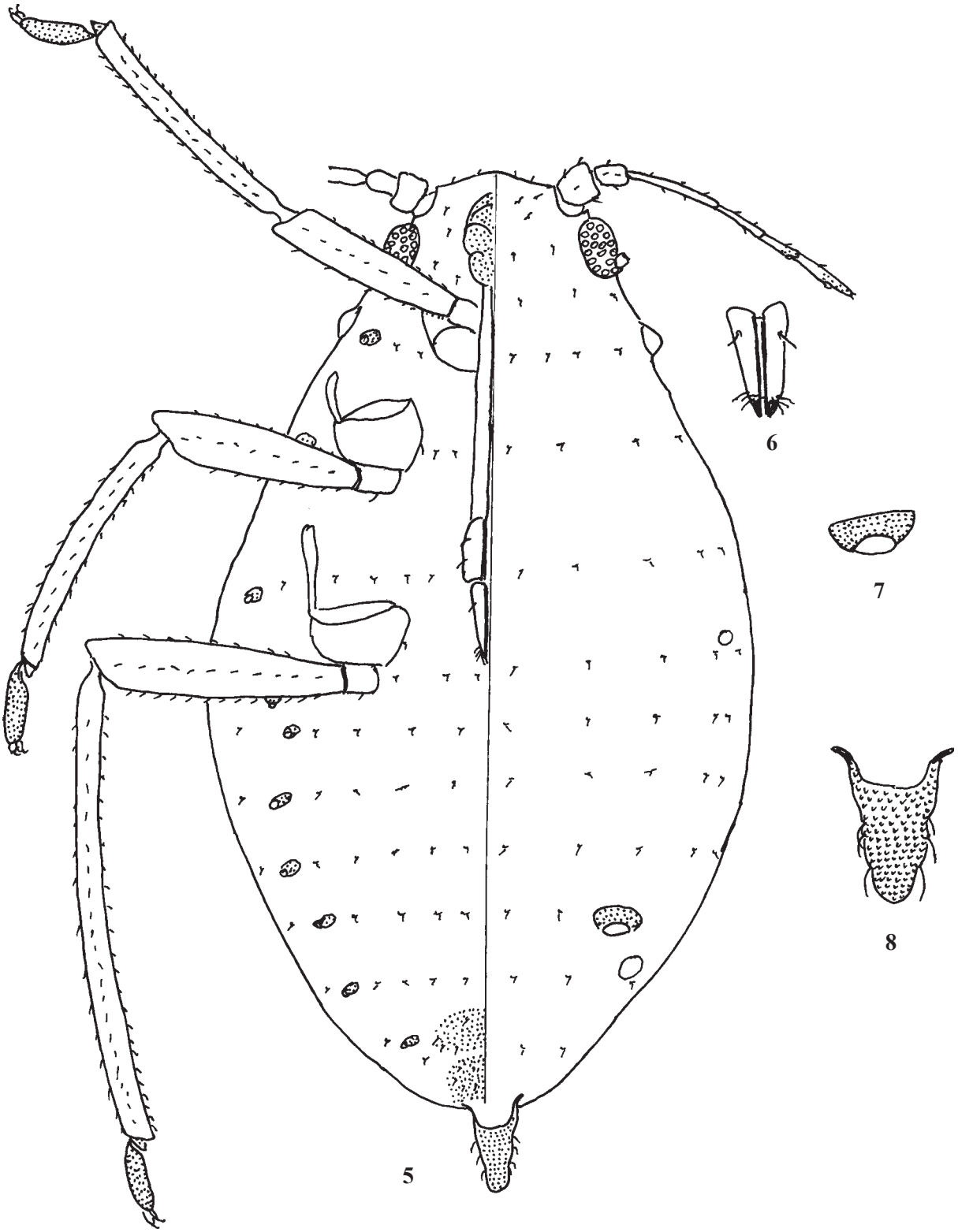


Figs 1–4. Apterous viviparous female of *Brachyunguis armelliae* Kadyrbekov **sp.n.**: 1 — habitus; 2 — ultimate rostral segment; 3 — siphunculus; 4 — cauda.

Рис. 1–4. Бескрылая живородящая самка *Brachyunguis armelliae* Kadyrbekov **sp.n.**: 1 — габитус; 2 — последний членик хоботка; 3 — трубочка; 4 — хвостик.

BIOLOGY. Aphids suck on the flowers of *Nitraria schoberi* L. (Nitrariaceae), visited by ants.

ETYMOLOGY. The new species is named in honor of the French aphidologist Armelle Coeur d'Acier who for the first time has collected it.



Figs 5–8. Apterous viviparous female of *Brachyunguis dendrostellerae* Kadyrbekov **sp.n.**: 5 — habitus; 6 — ultimate rostral segment; 7 — siphunculus; 8 — cauda.

Рис. 5–8. Бескрылая живородящая самка *Brachyunguis dendrostellerae* Kadyrbekov **sp.n.**: 5 — габитус; 6 — последний членик хоботка; 7 — трубочка; 8 — хвостик.

Brachyunguis (s.str.) ***dendrostellerae*** Kadyrbekov **sp.n.** Figs 5–8.

TYPE MATERIAL. Holotype: 1 apterous viviparous female, slide № 3247a, *Dendrostellera arenaria*, South Kazakhstan, Dzhambul Area, Mojin-Kum desert, 30 km North-East of Taraz town, Akzhar small town environs, 09.07.1964, S.P. Archangelskaja; paratypes: 5 apterous viviparous females together with holotype; 2 apterous viviparous females, slide № 3131, *Dendrostellera stachyoides*, South-East Kazakhstan, Ili valley, Tashkarasu small town environs, 20.06.1964, S.P. Archangelskaja.

DIAGNOSIS. New species differs from all palaearctic taxa of *Brachyunguis* [Nevsky, 1929, 1951; Ivanovskaja, 1960; Kadyrbekov, 1999] by very short light-brown siphunculi, about 0.018–0.020 of body length, 0.3–0.4 of its maximal width and other host plant.

DESCRIPTION. *Apterous viviparous female* (by 8 specimens). Body oval, 1.27–1.40 (Fig. 5). Cuticle reticulated. Frons convex. Frontal setae (0.014–0.017) 0.70–0.85 of basal diameter of 3rd antennal segment. Antennae six-segmented, 0.39–0.43 of body length. Third segment 1.7–2.1 of 4th, 3.3–5.0 of processus terminalis and 1.2–1.7 of 6th segment. Processus terminalis 0.47–0.53 of base of 6th segment with 3 apical setae. Fourth segment 1.1–1.3 of 5th. Secondary rhinariae absent. Hairs on 3rd segment (0.008–0.010) 0.4 of its basal diameter. Clypeus normal, rostrum reaches to hind coxae. Ultimate rostral segment (Fig. 6) 0.8–0.9 of second segment of hind tarsus with 2 accessory hairs. Siphunculi very short, truncated, stumpformed without flangers, about 0.018–0.020 of body length, 0.20–0.35 of cauda length, 0.33–0.40 of its maximal width, 0.22–0.25 of second segment of the hind tarsus (Fig. 7). Cauda conic, 1.33–1.45 of its basal width, 0.75–1.00 of second segment of hind tarsus with 5–7 hairs (Fig. 8). Marginal tubercles gentle, hemispherical, developed on prothorax, 1st and 7th tergites. Diameter of tubercle on 7th tergite (0.030–0.034) approximately equal to that on 1st one and 1.5 of basal diameter of 3rd antennal segment. Hairs on 3–5 tergites (0.014–0.017) 0.70–0.85 of basal diameter of 3rd antennal segment. Number of hairs: 8–10 on 3rd tergite; 4–5 between siphunculi on 6th tergite and 3–4 on 8th tergite. Genital plate oval with 2 hairs on disc and 6–8 ones along its posterior margin. Legs normally developed. Trochanter hair of the middle legs (0.022–0.028) 0.44–0.47 of trochantro-femoral suture. Longest hair on the external side of middle femora (0.014–0.017) 0.3–0.4 of trochantro-femoral suture. First tarsal segments with 3:3:2 hairs.

Coloration on slide: apices of 5th, 6th antennal segments, clypeus, tarsi, siphunculi, cauda, genital plate light-brown.

Natural coloration: body light-green, eyes dark-reddish, siphunculi, cauda, dorsal patches of body light-brown.

Measurement of holotype. Body 1.27; antennae 0.56: III 0.18, IV 0.09, V 0.08, VI 0.11 (0.075+0.035); siphunculi 0.026/0.065; cauda 0.12/0.09; ultimate rostral segment 0.091; 2 segment of hind tarsus 0.117.

BIOLOGY. Aphids suck on flowers and shoots of *Dendrostellera arenaria* Pobed., *D. stachyoides* (Schrenk) Tiegh. (Thymelaeaceae), visited by ants (*Crematogaster subdentata*).

Brachyunguis (s.str.) ***nurikamalae*** Kadyrbekov **sp.n.** Figs 9–12.

TYPE MATERIAL. Holotype: 1 apterous viviparous female, slide № 1844, *Ziziphora* sp., North Kazakhstan, Pavlodar Area, 20 km to South Shiderty small town, 29.07.1974, N.E. Smajlova; paratypes: 5 apterous viviparous females, 15 alate viviparous females together with holotype.

DIAGNOSIS. *B. nurikamalae* Kadyrbekov sp.n. first species in genus *Brachyunguis* with marginal tubercles on meso- and metothorax, 2–5th abdominal tergites. New species is related to *B. atraphaxidis* (Nevsky, 1928) and *B. monstratus* Kadyrbekov, 1999. It differs from these species by more shorter frontal hairs, lesser quantity hairs on 8 tergite and other host plant.

DESCRIPTION. *Apterous viviparous female* (by 6 specimens). Body oval, 1.47–1.98 (Fig. 9). Cuticle reticulated. Frons slightly convex without antennal tubercles. Frontal setae (0.011–0.014) 0.6–0.7 of basal diameter of 3rd antennal segment. Antennae six-segmented, 0.43–0.51 of body length. Third segment 1.5–1.9 of 4th, 2.0–2.9 of processus terminalis and 0.9–1.2 of 6th segment. Processus terminalis 0.7–1.0 of base of 6th segment with 3–4 apical setae. Fourth segment approximately equal to 5th. Secondary rhinariae absent. Hairs on 3rd segment (0.008) 0.4–0.5 of its basal diameter. Clypeus normal, rostrum reaches to hind coxae. Ultimate rostral segment (Fig. 10) about 0.75–0.85 of second segment of hind tarsus with 2 accessory hairs. Siphunculi short, conic with faintly visible flange, 0.046–0.056 of body length, 0.5–0.6 of cauda, 0.9–1.2 of its maximal width, 0.5–0.7 of second segment of hind tarsus (Fig. 11). Cauda triangular-conic with acute apex and faintly concave margins, 1.0–1.5 of its basal width, 1.0–1.3 of second segment of hind tarsus with 5–8 hairs (Fig. 12). Marginal tubercles nippleformed with sclerotic boards, constantly developed on prothorax, 1st and 7th tergites, frequently — on meso-, metothorax, 2nd–3rd abdominal tergites, rarely — on 4–5th ones. Diameter of tubercle on 7th tergite approximately equal to that on 1st one and 1.5–1.7 of basal diameter of 3rd antennal segment. Hairs on 3–5 tergites (0.011–0.014) 0.6–0.7 of basal diameter of 3rd antennal segment. Number of hairs: 8–10 on 3rd tergite; 4 between siphunculi on 6th tergite and 2 on 8th tergite. Genital plate oval with 2–5 hairs on disc and 5–9 ones along its posterior margin. Legs normally developed. Trochanter hair of middle legs (0.025–0.028) 0.5–0.6 of trochantro-femoral suture. Longest hair on external side of middle femora (0.017–0.020) 0.3–0.4 of trochantro-femoral suture. First tarsal segments with 3:3:2 hairs.

Coloration on slide: head, 1st, 2nd, apices of 5th and 6th antennal segments, clypeus, 3rd–4th segments of rostrum, coxae, trochanters, femora (exept of base), apices of tibiae, tarsi, genital plate, cauda, dorsal spots and stripes brownish; siphunculi pale.

Natural coloration: body greenish without grey film, head brown, eyes dark-reddish, siphunculi pale.

Measurement of holotype. Body 1.81; antennae 0.91–0.92: III 0.26, IV 0.17, V 0.15–0.16, VI 0.22 (0.13+0.09); siphunculi 0.09–0.10; cauda 0.17; ultimate rostral segment 0.12; 2 segment of hind tarsus 0.14.

Alate viviparous female (by 15 specimens). Body elliptical, 1.33–1.94. Antennae 0.51–0.60 of body length. Third antennal segment 1.50–1.75 of 4th with 5–9 secondary rhinariae. Fourth antennal segment equal to 5th. Siphunculi about 0.036–0.058 of body length, 0.50–0.75 of cauda, 1.0–1.5 of its maximal width. Cauda 1.0–1.3 of its basal width, 0.84–1.05 of second segment of hind tarsus, with concave margins. Other characters as apterous female.

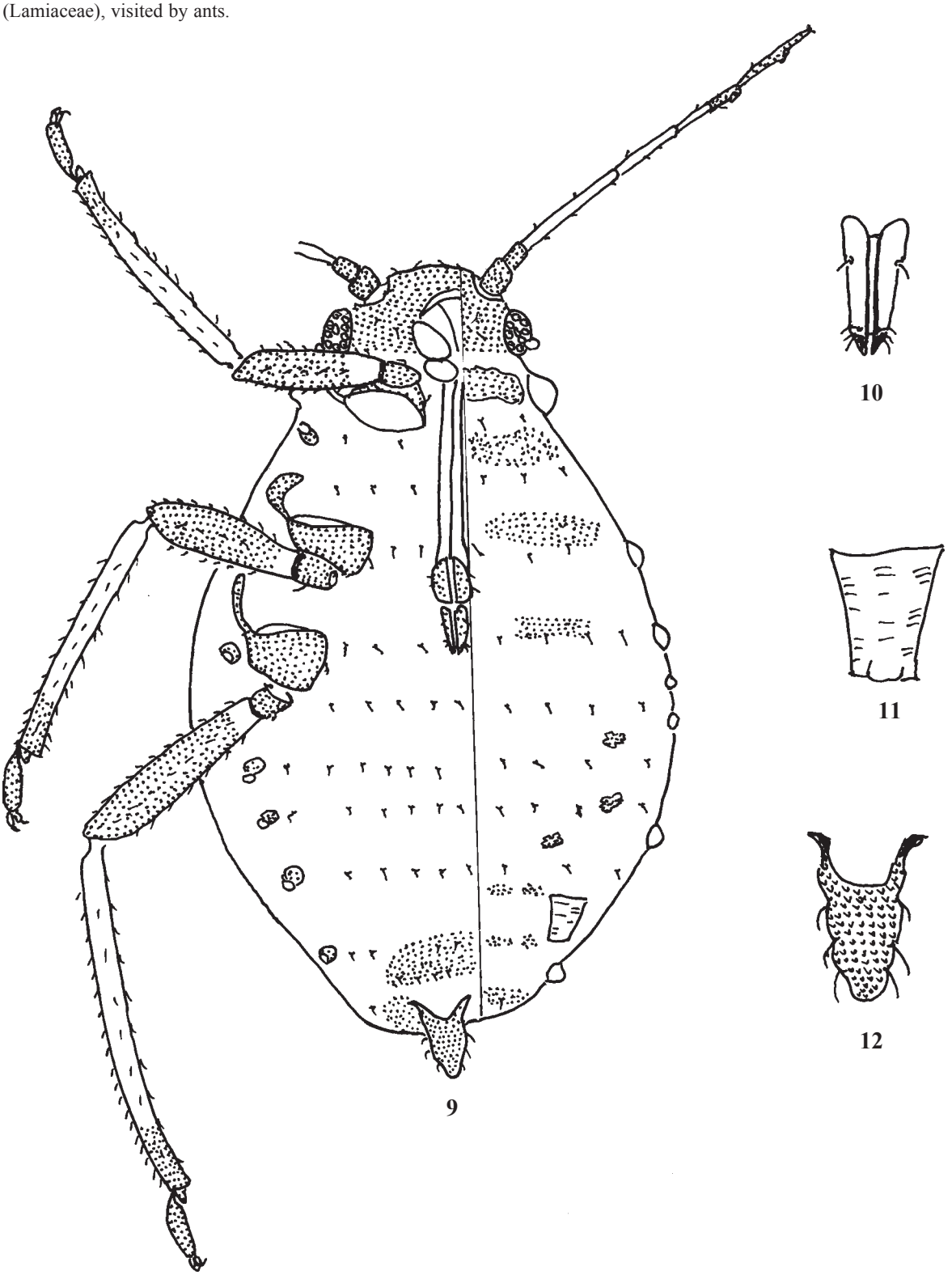
Coloration on slide: head, thorax, antennae, except of the basal part of 3rd antennal segments, clypeus, 3rd –4th segments of rostrum, femora, besides of basal one third, coxae, trochanters, apices of tibiae, tarsi, genital plate, cauda, dorsal spots brownish; siphunculi pale.

Measurement of paratype. Body 1.94; antennae 1.02–1.03: III 0.29, IV 0.17–0.18, V 0.17, VI 0.25 (0.135–

0.140+0.110–0.115); siphunculi 0.07–0.09; cauda 0.14; ultimate rostral segment 0.09; 2 segment of hind tarsus 0.16.

BIOLOGY. Aphids suck on the flowers of *Ziziphora* sp. (Lamiaceae), visited by ants.

ETYMOLOGY. New species is named in honor of Kazakhstan aphidologist Nurikamal Smajlova who for the first time has collected it.



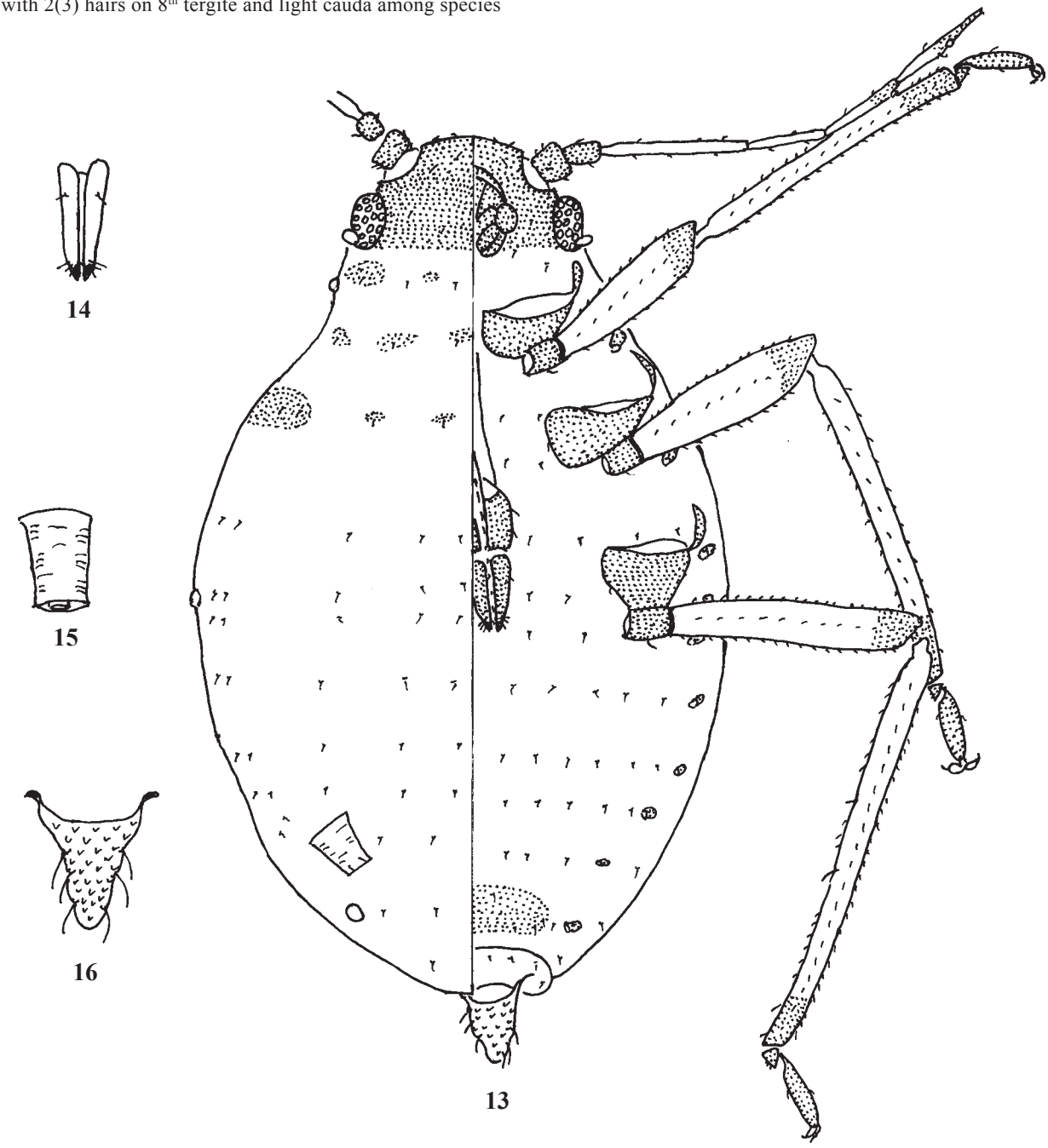
Figs 9–12. Apterous viviparous female of *Brachyunguis nurikamalae* Kadyrbekov **sp.n.**: 9 — habitus; 10 — ultimate rostral segment; 11 — siphunculus; 12 — cauda.

Рис. 9–12. Бескрылая живородящая самка *Brachyunguis nurikamalae* Kadyrbekov **sp.n.**: 9 — габитус; 10 — последний членик хоботка; 11 — трубочка; 12 — хвостик.

Brachyunguis (s.str.) ***tigrahaudus*** Kadyrbekov **sp.n.**
Figs 13–16.

TYPE MATERIAL. Holotype: 1 apterous viviparous female, slide № 1840a, *Helichrysum arenarium*, South-West Kazakhstan, Aral region, Big Barsuki desert, 90 km to South Chelkar town, 06.06.1990, R. Kh. Kadyrbekov; paratypes: 19 apterous viviparous females together with holotype; 1 apterous viviparous female, slide № 1836, *Jurinea cyanoides*, South-West Kazakhstan, Aral region, Aral Karakum desert, 75 km North-West of Kazaly small town, 28.05. 1990, R.Kh. Kadyrbekov.

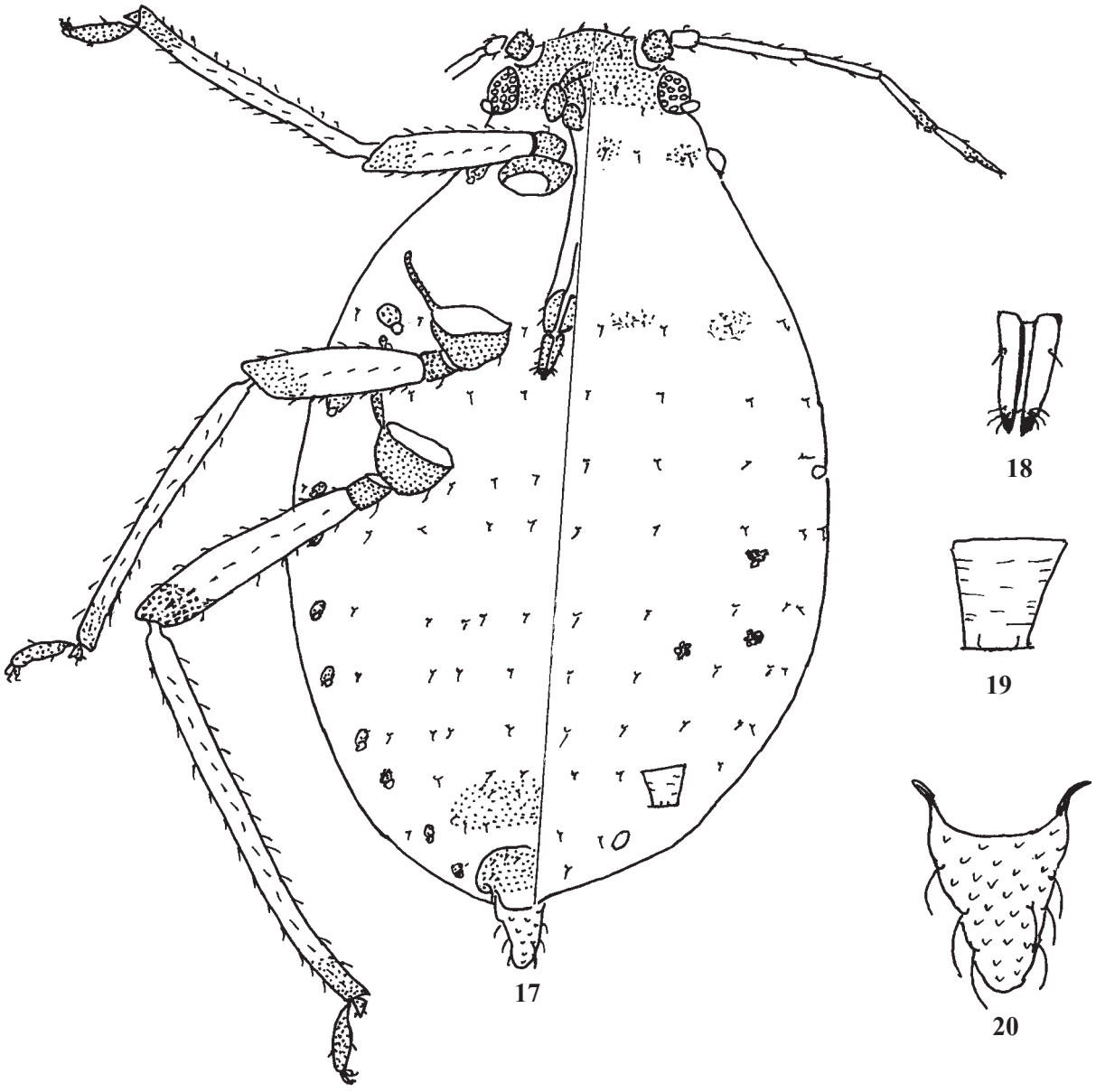
DIAGNOSIS. New species is related to species group with 2(3) hairs on 8th tergite and light cauda among species with brown head and dorsal sclerites [Kadyrbekov, 1999]. It differs from all taxa within this species group by more long rostrum reaches behind to hind coxae, by ratio apical rostral segment to second segment of hind tarsus (0.81–0.91 versus 0.7–0.8) and short frontal hairs. *B. tigrahaudus* Kadyrbekov **sp.n.** differs from related *B. flexosiphon* Kadyrbekov, 1999*, B. transaralensis* Kadyrbekov **sp.n.** by lesser numerous caudal hairs. It differs from *B. rhei* (Nevsky, 1951) by ratios of siphunculi to body length (0.050–0.065 against 0.060–0.080) and to second segment of hind tarsus (0.50–0.75 in comparison 0.80–1.00) too.



Figs 13–16. Apterous viviparous female of *Brachyunguis tigrahaudus* Kadyrbekov **sp.n.**: 13 — habitus; 14 — ultimate rostral segment; 15 — siphunculus; 16 — cauda.

Рис. 13–16. Бескрылая живородящая самка *Brachyunguis tigrahaudus* Kadyrbekov **sp.n.**: 13 — габитус; 14 — последний членик хоботка; 15 — трубочка; 16 — хвостик.

DESCRIPTION. *Apterous viviparous female* (by 19 specimens). Body oval, 1.03–1.40 (Fig. 13). Cuticle reticulated. Frons convex without antennal tubercles. Frontal setae (0.017–0.022) 0.9–1.1 of basal diameter of 3rd antennal segment. Antennae six-segmented, 0.54–0.64 of body length. Third segment 1.4–1.9 of 4th, 2.6–3.7 of processus terminalis and 1.1–1.5 of 6th segment length. Processus terminalis 0.55–0.85 of base of 6th segment with 3–4 apical setae. Fourth segment 0.9–1.2 of 5th. Secondary rhinariae absent. Hairs on 3rd segment (0.006–0.010) 0.4–0.5 of its basal diameter. Clypeus normal, rostrum reaches behind to hind coxae. Ultimate rostral segment (Fig.14) about 0.8–0.9 of second segment of hind tarsus with 2 accessory hairs. Siphunculi very short, conic with faintly visible flange, 0.050–0.070 of body length, 0.5–0.7 of cauda, 1.0–1.6 of its maximal width, 0.50–0.75 of second segment of hind tarsus (Fig. 15). Cauda triangular-conic with acute apex and faintly concave margins, 1.00–1.45 of its basal width, 0.9–1.1 of second segment of hind tarsus with 6–8 hairs (Fig. 16). Marginal tubercles nippleformed with sclerotic boards, developed on prothorax, 1st and 7th tergites. Diameter of tubercle on 7th tergite approximately equal to that on 1st one and 1.4–1.9 of basal diameter of 3rd antennal segment. Hairs on 3–5 tergites (0.017–0.022) 0.9–1.1 of basal diameter of 3rd antennal segment. Number of hairs: 8–10 on 3rd tergite; 4 between siphunculi on 6th tergite and 2–3 on 8th tergite. Genital plate oval with 2–3 hairs on disc and 5–6 ones along its posterior margin. Legs normally developed. Trochanter hair of middle legs (0.022–0.028) 0.55–0.70 of trochantro-femoral suture. Longest hair on external side of middle femora (0.017–0.022) 0.35–0.50 of trochantro-femoral suture. First tarsal segments with 3:3:2 hairs.



Figs 17–20. Apterous viviparous female of *Brachyunguis transaralensis* Kadyrbekov **sp.n.**: 17 — habitus; 18 — ultimate rostral segment; 19 — siphunculus; 20 — cauda.

Рис. 17–20. Бескрылая живородящая самка *Brachyunguis transaralensis* Kadyrbekov **sp.n.**: 17 — габитус; 18 — последний членик хоботка; 19 — трубочка; 20 — хвостик.

Coloration on slide: head, 1st, apices of the 5th and 6th antennal segments, clypeus, 3rd –4th segments of rostrum, coxae, trochanters, distal parts of femora, apices of tibiae, tarsi, genital plate, dorsal spots light-brownish; siphunculi and cauda pale.

Natural coloration: body greenish without grey film; head brown, eyes dark-reddish, siphunculi and cauda pale.

Measurement of holotype. Body 1.22; antennae 0.62–0.65: III 0.18–0.19, IV 0.10–0.11, V 0.10, VI 0.14–0.15 (0.09+0.05–0.06); siphunculi 0.080/0.052, 0.080/0.060; cauda 0.12/0.10; ultimate rostral segment 0.10; 2 segment of hind tarsus 0.11.

BIOLOGY. Aphids suck on the flowers of *Helichrysum arenarium* (L.) Moench., *Jurinea cyanoides* (L.) Rchb. (Asteraceae), visited by ants.

ETYMOLOGY. New species is named for the Scythian race — tigrahauda who lived in the Aral region in the VII–IV centuries BC.

Brachyunguis (s.str.) ***transaralensis*** Kadyrbekov **sp.n.**
Figs 17–20.

TYPE MATERIAL. Holotype: 1 apterous viviparous female, slide № 1831a, *Chondrilla brevirostris*, South-West Kazakhstan, Aral region, Aral Karakum desert, 68 km North-West of Kazaly small town, 27.05.1990, R. Kh. Kadyrbekov; paratypes: 7 apterous viviparous females, 7 alate viviparous females together with holotype.

DIAGNOSIS. New species is related to species group with 2(3) hairs on the 8th tergite and light cauda among species with brown head and dorsal sclerites (Kadyrbekov, 1999). It differs from all taxa within this species group by stumpy siphunculi (0.77–1.10 of its maximal width) and cauda (0.9–1.1 of its basal width) and other host plant from Asteraceae. It differs from *B. flexosiphon* Kadyrbekov, 1999, *B. rhei* (Nevsky, 1951) by ratios of siphunculi to body length (0.041–0.055 versus 0.060–0.090) and to second segment of hind tarsus (0.55–0.70 in comparison 0.80–1.25) too.

DESCRIPTION. *Apterous viviparous female* (by 8 specimens). Body oval, 1.51–1.80 (Fig. 17). Cuticle reticulated. Frons convex without antennal tubercles. Frontal setae (0.028–0.034) 1.30–1.35 of basal diameter of 3rd antennal segment. Antennae six-segmented, 0.40–0.48 of body length. Third segment 1.50–1.75 of 4th, 3.0–4.2 of processus terminalis and 1.25–1.50 of 6th segment length. Processus terminalis 0.55–0.75 of the base of 6th segment with 3–4 apical setae. Fourth segment 0.9–1.2 of 5th. Secondary rhinariae absent. Hairs on 3rd segment (0.011) 0.5 of its basal diameter. Clypeus normal, rostrum reaches to middle coxae. Ultimate rostral segment (Fig. 18) 0.75–0.80 of second segment of hind tarsus with 2 accessory hairs. Siphunculi short, conic with faintly visible flange, 0.041–0.055 of body length, 0.57–0.65 of cauda, 0.77–1.10 of its maximal width, 0.55–0.70 of second segment of hind tarsus (Fig. 19). Cauda triangular-conic with blunt apex and straight margins, 0.9–1.1 of its basal width, 0.86–1.10 of second segment of hind tarsus with 6–10 hairs (Fig. 20). Marginal tubercles nippleformed with sclerotic boards, developed on prothorax, 1st and 7th tergites. Diameter of tubercle on 7th tergite approximately equal to that on 1st one and 1.3–1.8 of basal diameter of 3rd antennal segment. Hairs on 3–5 tergites (0.028) 1.3 of basal diameter of 3rd antennal segment. Number of hairs: 8–10 on 3rd tergite; 3–4 between siphunculi on 6th tergite and 2(3) on 8th tergite. Genital plate oval with 2–3 hairs on disc and 5–9 ones along its posterior margin. Legs normally developed. Trochanter hair of the middle legs (0.034) 0.60–0.75 of trochantro-femoral suture. Longest hair on external side of middle femora (0.022–0.028) 0.35–0.50 of trochantro-femoral suture. First tarsal segments with 3:3:2 hairs.

Coloration on slide: head, 1st, apices of 5th and 6th antennal segments, clypeus, 3rd–4th segments of rostrum, coxae, trochanters, apices of femora and tibiae, tarsi, genital plate, dorsal spots light-brownish; siphunculi and cauda pale.

Natural coloration: body greenish without grey film, eyes dark-reddish.

Measurement of holotype. Body 1.77; antennae 0.71–0.73: III 0.21, IV 0.12–0.14, V 0.13–0.14, VI 0.14–0.15 (0.09+0.05–0.06); siphunculi 0.08/0.09; cauda 0.14/0.14; ultimate rostral segment 0.10; 2 segment of hind tarsus 0.13.

Alate viviparous female (by 7 specimens). Body elliptical, 1.75–1.82. Antennae 0.46–0.50 of body length. Third antennal segment 1.30–1.47 of 4th with 5–9 secondary rhinaria. Fourth antennal segment 1.0–1.2 of 5th. Siphunculi about 0.036–0.046 of body length, 0.46–0.50 of cauda, 1.0–1.4 of its maximal width. Cauda 1.1–1.2 of its basal width with concave margins. Diameter of tubercle on 7th tergite 2.0–2.3 of basal diameter of 3rd antennal segment. Other characters as apterous female.

Coloration on slide: head, thorax, antennae, except of the basal part of 3rd antennal segments, clypeus, 3rd –4th segments of rostrum, femora (besides of basal one third), coxae, trochanters, apices of tibiae, tarsi, genital plate, dorsal spots light-brownish.

Measurement of paratype: Body 1.82; antennae 0.87: III 0.25, IV 0.17–0.18, V 0.16–0.17, VI 0.17 (0.10+0.07); siphunculi 0.078/0.052, 0.078/0.078; cauda 0.16/0.13; ultimate rostral segment 0.10; 2 segment of hind tarsus 0.14.

BIOLOGY. Aphids suck on the flowers of *Chondrilla brevirostris* Fisch. et Mey. (Asteraceae), visited by ants.

KEY TO APTEROUS VIVIPAROUS FEMALES OF *BRACHYUNGUIS* B. DAS, 1918 WITH BROWN HEAD AND SOME DORSAL SPOTS AND STRIPES

1 Siphunculi longer, 0.08–0.12 of body length. Cauda with 10–12 hairs 2
— Siphunculi shorter, not more 0.07 of body length. Cauda with 6–10 hairs 3
2 Frontal hairs 0.4–0.5 of basal diameter of 3rd antennal segment; 3rd antennal segment 0.8–1.0 of 6th segment; processus terminalis 0.7–1.0 of base of 6th antennal segment. On *Convolvulus arvensis* (Convolvulaceae). Uzbekistan ..... *B. azimovi* Akhmedov et Tashmatova, 2005
— Frontal hairs 0.8–1.0 of basal diameter of 3rd antennal segment; 3rd antennal segment 1.3–1.5 of 6th segment; processus terminalis 0.5–0.7 of base of 6th antennal segment. On *Cynanchum acutum, C. sibiricum* (Asclepiadaceae). Uzbekistan, Kazakhstan (West, South, South-East) ..... *B. cynanchi* (Nevsky, 1928)
3 Cauda pale. 8th tergite with 2(3) hairs 4
— Cauda light brown. 8th tergite with 2(3) or 4 hairs 10
4 Siphunculi 0.80–1.25 of second segment of hind tarsus 5
— Siphunculi not more 0.75 of second segment of hind tarsus 6
5 Siphunculi straight, more stumpy, 1.2–1.7 of their maximal width. Cauda 1.2–1.5 of its basal width. On *Rheum* and *Rumex* (Polygonaceae). Turkmenistan, Kazakhstan (South, South-East) ..... *B. rhei* (Nevsky, 1951)
— Siphunculi curved, more slender, 1.6–2.2 of their maximal width. Cauda 1.5–2.0 of its basal width. On *Ferula, Schrenkia, Zosimia* (Apiaceae). Kazakhstan (South, South-East) ..... *B. flexosiphon* Kadyrbekov, 1999
6 Ultimate rostral segment 0.8–0.9 of second segment of hind tarsus 7
— Ultimate rostral segment is 0.7–0.8 of second segment of hind tarsus 8

7 Frontal hairs 0.9–1.1 of basal diameter of 3rd antennal segment. Siphunculi 0.050–0.070 of body length. On *Helichrysum arenarium, Jurinea cyanoides* (Asteraceae). Kazakhstan (South-West) ..... *B. tigrahaudus* **sp.n.**
— Frontal hairs 1.1–1.2 of basal diameter of 3rd antennal segment. Siphunculi 0.030–0.040 of body length. On *Scorzonera tausaghyz* (Asteraceae). Kazakhstan (South) ..... *B. tausaghyz* Nevsky, 1949
8 Siphunculi more slender, 1.5–1.8 of their maximal width, 0.6–0.9 of cauda length. Cauda 1.2–1.3 of its basal width with 6–7 hairs. On *Cuscuta monogina* (Cuscutaceae). Uzbekistan, Kazakhstan (South, South-East) .... *B. cuscutae* (Nevsky, 1928)
— Siphunculi more stumpy, not more 1.2 of their maximal width, 0.5–0.7 of cauda. Cauda 0.9–1.2 of its basal width 9
9 Processus terminalis 0.5–0.8 of base of 6th antennal segment; ultimate rostral segment 0.75–0.80 of second segment of hind tarsus; siphunculi 0.55–0.70 of second segment of hind tarsus; cauda with 8–10 hairs in norm. On *Chondrilla brevirostris* (Asteraceae). Kazakhstan (South-West) ..... *B. transaralensis* **sp.n.**
— Processus terminalis 0.8–1.0 of base of 6th antennal segment; ultimate rostral segment 0.70–0.75 of second segment of hind tarsus; siphunculi 0.70–0.75 of second segment of hind tarsus; cauda with 6–8 hairs. On *Nitraria schoberi* (Nitrariaceae). Kazakhstan (South-East) .... *B. armelliae* **sp.n.**
10 Frontal hairs 1.4–1.5 of basal diameter of 3rd antennal segment. Processus terminalis approximately equal to base of 6th antennal segment. On *Artemisia turanica* (Asteraceae). Afghanistan .... *B. afghanicus* Narzikulov et Umarov, 1972
— Frontal hairs not more 1.2 of basal diameter of 3rd antennal segment. Processus terminalis not more 0.9 of base of 6th antennal segment. Not on Asteraceae 11
11 Ultimate rostral segment 1.0–1.2 of second segment of hind tarsus. Cauda more stumpy, 0.6–0.9 of its basal width. On *Astragalus* spp. (Fabaceae). Lebanon, Turkey, Iran ..... *B. skafi* Remaudiere et Talhouk, 1999
— Ultimate rostral segment 0.7–1.0 of second segment of hind tarsus. Cauda more slender, 1.0–1.5 of its basal width 12
12 Frontal hairs shorter, 0.6–0.8 of basal diameter of 3rd antennal segment 13
— Frontal hairs longer, 0.9–1.2 of basal diameter of 3rd antennal segment. 8th tergite with 4–5 hairs. On *Atraphaxis* spp. (Polygonaceae) 14
13 Ultimate rostral segment 0.75–0.85 of second segment of hind tarsus. Siphunculi 0.5–0.6 of cauda length. Marginal tubercles constantly developed on prothorax, 1st and 7th, frequently on meso-, metothorax, 2–3 abdominal tergites, rarely on 4–5 ones. On *Ziziphora* sp. (Lamiaceae). Kazakhstan (North) ..... *B. nurikamalae* **sp.n.**
— Ultimate rostral segment 0.85–0.95 of second segment of hind tarsus. Siphunculi 0.7–0.9 of cauda length. Marginal tubercles developed on prothorax, 1st and 7th abdominal tergites. On *Equisetum arvense* (Equisetaceae). Uzbekistan ..... *B. uzbekistanicus* Akhmedov et Tashmatova, 2004
14 Siphunculi shorter, 0.040–0.050 of body length, 0.4–0.5 of cauda, 0.8–1.3 of their maximal width. Rostrum reaches behind to hind coxae. Kazakhstan (South-East, East), China (Xinjiang) ..... *B. monstratus* Kadyrbekov, 1999
— Siphunculi longer, 0.055–0.070 of body length, 0.7–0.9 of cauda, 1.3–2.0 of their maximal width. Rostrum reaches behind to middle coxae. Iran, Turkmenistan, Uzbekistan, Tajikistan, Kyrgyzstan, Kazakhstan (West, South, East) ..... *B. atraphaxidis* (Nevsky, 1928)

Conclusion

Brachyunguis B. Das, 1918 genus includes now 44 species. Most of the species found in Central Asia. Some new families of plants are colonized by species of this genus — Lamiaceae, Nitrariaceae, Thymelaeaceae. Most species have a similar habit. Characters and proportions suitable for distinguishing between the following: the presence or absence of sclerotization, shape and color of cauda, number of hairs on the 8th tergite and cauda, the length of the dorsal hairs, ratios of siphunculi to the body, cauda, their maximal width, second segment of hind tarsus, proportion of cauda to its basal width, second segment of hind tarsus, ultimate rostral segment to second segment of hind tarsus, processus terminalis to base of 6th antennal segment.

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