

Two new species of free-living nematodes (Nematoda) from Vietnam Два новых вида свободноживущих нематод (Nematoda) из Вьетнама

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Abstract. Two new species of nematodes from the families Monhysteridae and Tobrilidae are described. Nematodes were collected from small forest ponds in North and Central Vietnam. *Monhystera vietnamica* **sp. nov.** differs from morphologically close *M. uncigubernaculum* Zedan, Jacobset et Geraert, 1989 mainly in longer vagina and rectum, from *M. rolandi* Khan et Tahseen, 2006 in longer cephalic setae and presence of ocellus. *Brevitobrilus laeae* **sp. nov.** differs from morphologically close *B. orientalis* Tsalolikhin, 2013 mainly in longer body and longer and thinner, not hornlike cephalic setae. The genus *Brevitobrilus* was previously represented in Vietnam only by the species *B. stefanskii* (Micoletzky, 1925).

Резюме. Описаны два новых вида нематод из семейств Monhysteridae и Tobrilidae. Нематоды были собраны в лесных прудах Северного и Центрального Вьетнама. *Monhystera vietnamica* **sp. nov.** отличается от морфологически близкого *M. uncigubernaculum* Zedan, Jacobs et Geraert, 1989 главным образом длиной вагины и ректума, от *M. rolandi* Khan et Tahseen, 2006 длиной головных щетинок и наличием глазков. *Brevitobrilus laeae* **sp. nov.** отличается от морфологически близкого *B. orientalis* Tsalolikhin, 2013 главным образом большей длиной тела, более длинными и тонкими, не рогоподобными головными щетинками. Род *Brevitobrilus* ранее был представлен во Вьетнаме только видом *B. stefanskii* (Micoletzky, 1925).

Key words: free-living nematodes, Vietnam, Monhysteridae, Tobrilidae, *Monhystera*, *Brevitobrilus*, new species

Ключевые слова: свободноживущие нематоды, Вьетнам, Monhysteridae, Tobrilidae, *Monhystera*, *Brevitobrilus*, новые виды

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Introduction

The article presents descriptions of two new species of free-living nematodes from the families Monhysteridae (order Monhysterida) and Tobrilidae (order Tobrilida). Nematodes were collected from small forest ponds in North and Central Vietnam by the herpetologist Larissa Iogansen in summer 2018 and 2019. The collected substrate was sand with fine detritus and various organic

remains. Nematodes were fixed in 4% formalin and then mounted in glycerin-jelly on permanent slides. *Monhystera vietnamica* **sp. non.** is the third member of the family Monhysteridae, which was found in the fresh waters of Vietnam. Earlier, in North Vietnam, the following species were discovered: *M. longivaginata* Gagarin et Gusakov, 2013 (Gagarin & Gusakov, 2013) and *M. (Eumonhystera?) hamata* Gagarin et Nguen Vu Thanh, 2005 (Gagarin & Nguen Vu Thanh, 2005a; Gagarin & Gusakov,

2013). The genus *Brevitobrilus* Tsalolikhin, 1981 in Vietnam was previously represented by only one species, *B. stefanskii* Micoletzky, 1925 (Gagarin & Nguen Vu Thanh, 2005b; 2008).

The type material of the new species is deposited in the Zoological Institute, Russian Academy of Sciences, St Petersburg (ZISP).

Description of new species

Order Monhysterida

Family Monhysteridae

Genus *Monhystera* Bastian, 1865

Monhystera vietnamica sp. nov.

(Figs 1–4)

Holotype. Female, **Vietnam**, *Tuyn Quang Prov.*, Na Hang Distr., Tung Vui Commune, pond in forest, 400 m a.s.l., 22°19'46"N, 105°25'47"E, 16 June 2019, coll. L. Iogansen. Microscope slide No. A-9238, ZISP.

Paratypes. 9 females, same data as for holotype.

Description. Females. Morphometric description of the holotype and paratypes is given in Table 1. Cuticle thin, about 1 µm. Space between internal organs with small cristalloid bodies of various sizes. Head not offset from body outline. Labial papillae undetectable. Diameter of amphidial fovea corresponding to 30% of body width. Ocellus present at about 20–26 (23) µm from anterior end. Cheilostome medium-sized, with thin walls. Esophagus muscular, gradually dilating towards its base. Cardium mushroom-shaped. Renette more or less oval, located somewhat below cardium; canal of renette and excretory pore not visible. Reproductive system monodelphic, prodelphic. Oocytes arranged in several rows in germinal zone. Uterus usually containing one or two eggs: 29–36 x 14–23 µm. Vagina very long, cuticularised, noticeably longer than one vulval body diameter. Paravulval gland present. Rectum longer than anal diameter. Tail slender, filiform.

Male not found.

Comparison. The new species *Monhystera vietnamica* sp. nov. most closely resembles *M. uncigubernaculum* Zeidan, Jacobs et Geraert, 1989, which was described from Africa (Zeidan, Jacobs & Geraert, 1989), and *M. rolandi* Khan et Tahseen, 2006 from India (Khan & Tahseen, 2005). The main differences of the new species from

M. uncigubernaculum are the following: vagina 45–52 µm (*vs* 25–37 µm), rectum/anal body diameter 0.9 (*vs* 0.7), and tail filiform (*vs* tail with slightly swollen spinneret). The main differences of the new species from *M. rolandi* are: ocellus present (*vs* absence of ocellus), cephalic setae 5 µm (*vs* 3–4 µm), and tail filiform (*vs* tail gradually tapering).

Etymology. This species name is a Latinized toponym.

Order Tobrilida

Family Tobrilidae

Genus *Brevitobrilus* Tsalolikhin, 1981

Brevitobrilus laeae sp. nov.

(Figs 5–9)

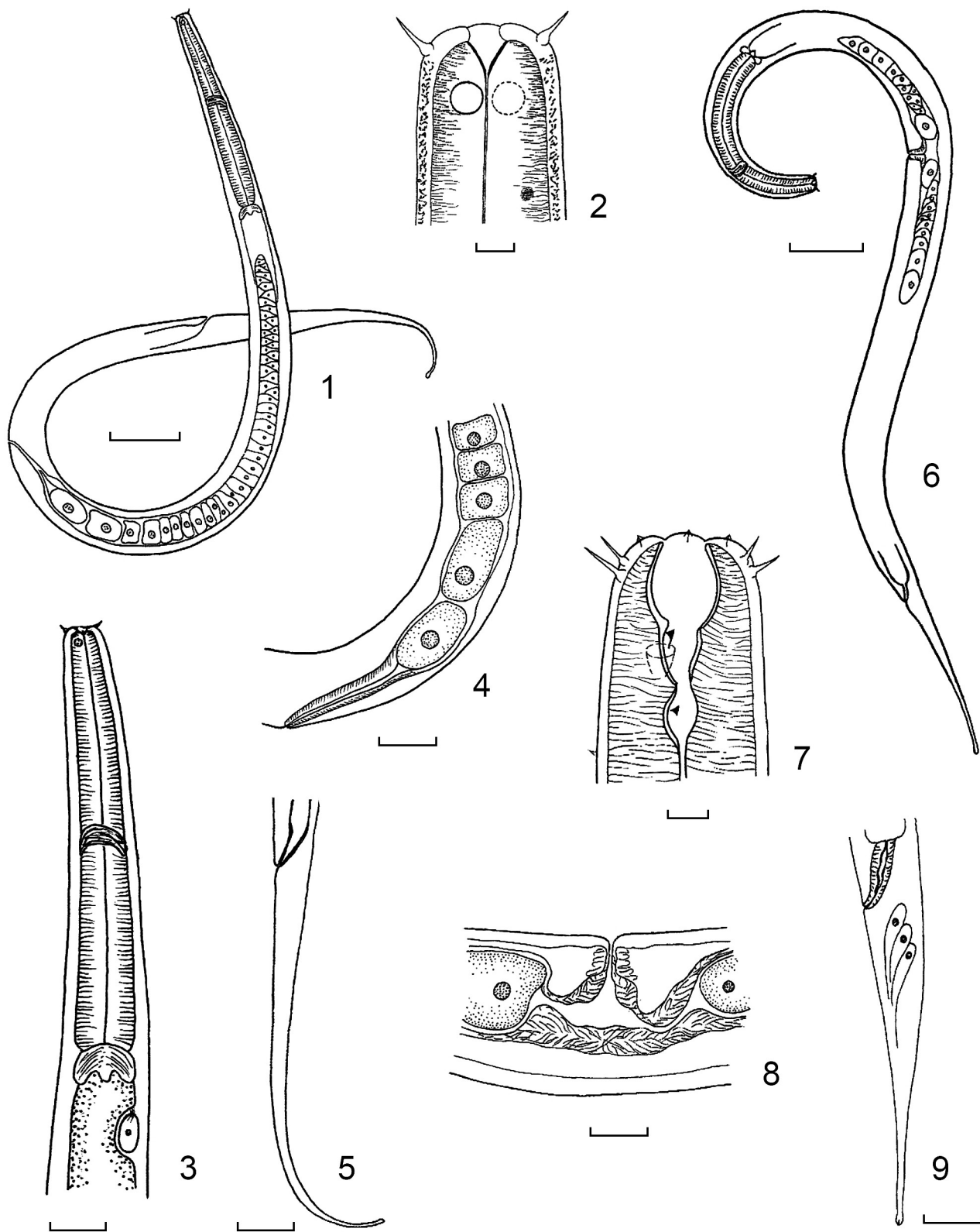
Holotype. Female, **Vietnam**, *Kon Tum Prov.*, Kon Plong Distr., Kon Chu Rang Nature Reserve, pond in forest, 1077 m a.s.l., 14°35'22"N, 108°25'04"E, 10 Oct. 2018, coll. L. Iogansen. Microscope slide No. A-9195, ZISP.

Paratypes. 6 females, same data as for holotype.

Description. Females. Morphometric descriptions of the holotype and paratypes are given in Table 2. Cuticle thin, in total about 2 µm thick in middle of body. Outline of head round and not offset. Head with six distinct lips, each with one small papilla. Longer cephalic setae 6–8 µm, shorter setae about 4 µm. Width of head 19 µm. Buccal cavity 8–10 (9) µm wide and 10 µm long; total depth of stoma (buccal cavity and pockets) 20–26 (23) µm; two pockets separated by short isthmus, each pocket with one teeth, distance between tops of teeth 9 µm. Amphid openings at level of bottom of buccal cavity or at level of first pocket; amphid diameter 4 µm, approximately one-sixth part of corresponding body width. Reproductive system didelphic, amphidelphic; ovaries reflexed, oocytes arranged in double rows in germinal zone; only two females with mature eggs in uterus. Depth of vagina corresponding to one-third – half of body width. Tail elongate-conoid, spinneret 1–2 µm long; subterminal setae absent.

Male not found.

Comparison. The new species *Brevitobrilus laeae* sp. nov. most closely resembles *B. orientalis* Tsalolikhin, 2013, which was described from Kazakhstan (Tsalolikhin, 2013). The new



Figs 1–9. Morphology of *Monhistera vietnamica* sp. nov. (1–5) and *Brevitobrilus laeae* sp. nov. (6–9). 1, 6, entire body of female; 2, 7, head; 3, esophagus; 4, 8, vulval section; 5, 9, tail. Scale bars: 2, 7 – 5 μ m; 3, 4, 5, 8, 9 – 20 μ m; 1, 6 – 50 μ m.

Table 1. Comparative morphology of *Monhystera vietnamica* sp. nov., *M. rolandi* and *M. uncigubernaculum* (females).

Species	<i>M. vietnamica</i>			<i>M. rolandi</i>		<i>M. uncigubernaculum</i>	
	Holotype	Range	Mean (n=9)	Range	Mean (n=13)	Range	Mean (n=6)
L	896	791–964	898±19	770–930	877±43	720–920	841±69
a	34.5	29–35.4	31.9±0.8	25–31	28.9±1.8	25–31	28±2
b	6.6	6.0–6.7	6.5±0.1	5.1–7.2	6.3±0.3	5.4–7.6	6.5±0.6
c	4.9	4.9–5.9	5.4±0.1	4.5–6.1	4.9±0.4	4.2–5.6	4.8±0.5
c'	10.5	8.5–10.7	9.6±0.3	7.5–10.3	9.0±0.7	7.6–9.7	9.0±0.8
V%	61	60–63	62±0.5	59–64	61±1	57–61	60±3
Body width	26	26–31	28±1	25–31	29±2	–	~30
Esophagus	136	131–148	138±2	128–151	141±8	104–158	131±21
Tail	180	136–182	168±5	163–189	177±13	152–192	174±13
Anal diameter	17	16–20	17±0.5	18–22	20±1	19–20	20±0.4
Vulva-anus	170	160–191	177±4	–	~161	136–174	154±14
Vulva-anus/tail	0.9	0.9–1.2	1.1±0.03	1.0–1.2	1.1±0.1	–	~0.9
Vagina	49	45–52	48±1	–	~50	25–37	31±5
Vagina/body width	1.9	1.4–2.0	1.7±0.1	–	~1.7	–	~1
Gonad	400	340–432	386±11	–	~300	–	~400
Rectum	23	18–23	22±1	–	~20	11–16	~14
Rectum/anal diameter	1.3	0.9–1.3	1.2±0.1	–	~1	–	~0.7
NR%	57	48–57	53±2	–	~50	–	~52
Head width	10	10–13	11±0.5	12–13	12.5	–	10
Cephalic setae	5	5	5	3–4	3.5	–	–
Amphid diameter	4	4	4	3–4	3.5	3–4	3.5±0.5
Amphid position	9	6–9	7±0.5	8–11	9.5±1	8	8
Amphid position/head width	0.9	0.5–0.9	0.6±0.04	–	~0.75	0.8	0.8

Note: All absolute measurements are in μm and the form: range and mean \pm error of mean.

Table 2. Comparative morphometry of *Brevitobilus laeae* sp. nov. and *B. orientalis* (females)

Species	<i>B. laeae</i>			<i>B. orientalis</i>	
	Holotype	Range	Mean (n=7)	Range	Mean(n=6)
L	1010	851–1048	974±23	788–871	828±11
a	20.6	18.8–23.3	20.3±0.5	20.4–23.5	22±0.5
b	4.9	4.8–5.0	4.9±0.04	4.5–5.6	4.9±0.2
c	7.3	7–8	7.4±0.1	10–10.6	10.4±0.1
c'	6.3	5.0–6.5	5.9±0.2	3.3–3.5	3.4±0.03
V%	41	41–50	45±1	47–50	49±1
Body wide	49	42–52	48±1	37–40	38±0.5
Esophagus	206	170–211	198±5	141–183	171±7
Tail	138	111–147	132±4	77–82	80±1
Anal diameter	22	21–23	22±0.5	23–25	23±0.5
Vulva-anus	418	356–441	397 ±13	330–352	343±4
Vulva-anus/tail	3	2.5–3.3	3±0.1	4.0–4.3	4.2±0.1
Gonad ₁	164	127–172	154±6	114–142	133±4
Gonad ₂	168	136–168	147±4	114–148	124±6
Rectum	29	24–30	28±1	18–26	23±2
Rectum/anal diameter	1.4	1–1.4	1.2±0.1	0.8–1.1	1±0.06
NR%	38	38–42	40±2	41–48	43±2
Head wide	19	19	19	14–17	16±0.5
Cephalic setae	7	6–8	7	5–6	5.5
Stoma	23	20–26	23±1	18–20	19±1
Buccal cavity	9 x 9	8–10 x 9	9 x 9	4–6 x 6	5 x 6
Between teeth	9	9	9	7–9	8

Note: All absolute measurements are in µm and in the form: range and mean ± error of mean.

species differs from *B. orientalis* by longer body (851–1048 µm vs 788–871 µm), longer (6–8 µm vs 5–6 µm) and thinner, not hornlike cephalic setae, in longer tail (111–147 µm vs 77–82 µm) and absence of subterminal setae.

Etimology. The species is named after the herpetologist Larissa (Lara) Iogansen, who collected material for me in the jungles of Vietnam.

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