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## Proposal of *Whittingtonocotyle* n. gen. (Dactylogyroidea: Dactylogyridae), with the description of two new species from the gills of *Hoplerythrinus unitaeniatus* (Characiformes: Erythrinidae) in Brazil

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### Abstract

*Whittingtonocotyle* n. gen. is proposed for species with a male copulatory organ sclerotized, spiral, clockwise, non-articulated to the accessory piece; prostatic reservoir separated into two/three zones with one or two terminal areas densely stained; vaginal opening dextrodorsal; anchors without well-defined roots; and dorsal bar with anteromedial protuberance. Two new species of *Whittingtonocotyle* n. gen. are described from the gills of *Hoplerythrinus unitaeniatus* (Agassiz), from two rivers of the State of Pará, Brazil. *Whittingtonocotyle caetei* n. sp. (type species) is characterized by possessing ventral anchor with deep root truncate; prostatic reservoir separated into two zones with one terminal area densely stained; and vaginal canal heavily sclerotized, coiled and dilate distally. *Whittingtonocotyle jeju* n. sp. is distinguished from the previously species mainly by having a male copulatory organ comprising a coil of about 19 rings (29 rings in *Whittingtonocotyle caetei* n. sp.); a prostatic reservoir separated into three zones with two terminal areas densely stained; vaginal canal sclerotized, sigmoid; and dorsal bar with short anteromedial process (elongate in *Whittingtonocotyle caetei* n. sp.).

**Key words:** Parasites, Monogenoidea, Dactylogyridae, *Whittingtonocotyle* n. gen., Erythrinidae, *Hoplerythrinus unitaeniatus*

### Introduction

Erythrinids are endemic to rivers from South America and are composed of 16 species in three genera (Oyakawa 2003; Oyakawa & Mattox 2009). Only one species of this fish family—*Hoplias malabaricus* (Bloch) (trahira)—has been investigated for monogenoidean parasites. Eight species of monogenoids are known from *Hoplias malabaricus* from Brazil, Argentina, and Peru: *Cosmetocleithrum bulbocirrus* Kritsky, Thatcher & Boeger, 1986, *Gyrodactylus trairae* Boeger & Popazoglo, 1995, *Urocleidoides brasiliensis* Rosim, Mendoza-Franco & Luque, 2011, *Urocleidoides cuiabai* Rosim, Mendoza-Franco & Luque, 2011, *Urocleidoides eremitus* Kritsky, Thatcher & Boeger, 1986, *Urocleidoides malabaricus* Rosim, Mendoza-Franco & Luque, 2011, *Urocleidoides naris* Rosim, Mendoza-Franco & Luque, 2011, and *Vanleaveus janauacaensis* Kritsky, Thatcher & Boeger, 1986 (Cohen *et al.* 2013; Graça *et al.* 2013a, b).

During a survey of gill parasites of characiform fishes from the streams of the Northeast Coast of the State of Pará, Brazil, two new species of *Whittingtonocotyle* n. gen. (Dactylogyridae) were encountered on the gills of *Hoplerythrinus unitaeniatus* (Agassiz) (jeju). Descriptions of the new species and the proposal of *Whittingtonocotyle* n. gen. are presented herein.

### Material and methods

Three host specimens were collected by trammel net from the Caeté River, municipality of Augusto Corrêa, Pará State, Brazil (1°3'58.21" S 46°40'3.65"W) in October 2013, and Guamá River, municipality of Irituia, Pará State, Brazil (01°51'59.8" S, 47°24'17.2"W) in July 2014. Gill arches were removed and placed in vials containing

heated water (~65°C). Each vial was vigorously shaken and formalin was added to obtain a 5% solution. In the laboratory, the contents of each vial were examined under a dissecting microscope LEICA S6D and helminths were removed from the gills or sediment using small probes. Some specimens were stained with Gomori's trichrome (Humason 1979) and mounted in Canada balsam to determine internal soft structures and others were mounted in Hoyer' medium (Humason 1979) for study of sclerotized structures. The measurements, all in micrometers, were obtained according to the procedures of Mizelle and Klucka (1953). Dimensions of organs and other structures represent the greatest measurement in dorso-ventral view; lengths of curved or bent structures (anchors, bars, accessory piece, and male copulatory organ) represent the straight line distances between extreme ends. The average measurement is followed by the ranges and the number (n) of specimens measured in parentheses. Illustrations were prepared with the aid of a drawing tube on a Leica DM 2500 microscope with differential interference contrast and phase contrast optics. Definitions of prevalence and mean intensity follow the usage of Bush *et al.* (1997). Type specimens and vouchers were deposited in the following collections: Helminthological Collection of the Instituto Oswaldo Cruz (CHIOC), Rio de Janeiro, State of Rio de Janeiro, Brazil; Invertebrate Collection of the Instituto de Pesquisas da Amazônia (INPA), Manaus, State of Amazonas, Brazil; Invertebrate Collection of the Museu Paraense Emílio Goeldi (MPEG), Belém, State of Pará, Brazil. The following museum specimens were examined: seven specimens of Dactylogyridae gen. sp. *sensu* Rosim *et al.* (2011) (CHIOC 37472 a–e, CHIOC 37802 a–b); one specimen of Dactylogyridae gen. 2 sp. *sensu* Graça *et al.* (2013a) (CHIOC 37803). Host scientific names were validated according to Oyakawa (2003). Basins and sub-basins nomenclature follow the Agência Nacional de Águas, Ministério do Meio Ambiente, Brazil (<http://hidroweb.ana.gov.br/>).

## Results

### Class Monogenoidea Bychowsky, 1937

#### Subclass Polyonchoinea Bychowsky, 1937

#### Order Dactylogyridea Bychowsky, 1937

#### Dactylogyridae Bychowsky, 1933

##### *Whittingtonocotyle* n. gen.

**Type species.** *Whittingtonocotyle caetei* n. gen. n. sp. from *Hoplerythrinus unitaeniatus* (Agassiz).

**Site.** Gills.

**Type locality.** Caeté River (North/Northeast Atlantic Basin; Caeté, Gurupi, Turiaçu sub-basin), municipality of Augusto Corrêa, Pará State, Brazil (1°3'58.21" S 46°40'3.65"W) collected in October 2013.

**Other species.** *Whittingtonocotyle jeju* n. gen. n. sp.

**Other localities.** *Whittingtonocotyle caetei* n. gen. n. sp. from *Hoplerythrinus unitaeniatus* from Guamá River (North/Northeast Atlantic Basin; Meruu, Acará, Guamá sub-basin), municipality of Irituia, Pará State, Brazil (01°51'59.8" S, 47°24'17.2"W) collected in July 2014, *Whittingtonocotyle jeju* n. gen. n. sp. from *Hoplerythrinus unitaeniatus* from Caeté River, municipality of Augusto Corrêa, Pará State, Brazil (1°3'58.21" S 46°40'3.65"W) collected in October 2013; and Guamá River, municipality of Irituia, Pará State, Brazil (01°51'59.8" S, 47°24'17.2"W) collected in July 2014.

**Etymology.** The genus name is in honor of the late Dr. Ian D. Whittington, the South Australian Museum, in recognition of his valuable work on the Monogenoidea. Dr. Whittington passed away prematurely on 26th October, 2014, after a long battle with cancer.

**Diagnosis.** Body divisible into cephalic region, trunk, haptor. Tegument thin, smooth. Cephalic region with terminal ventral cephalic lobe poorly developed or absent. Bilateral pair of head organs opening subterminal to tip of cephalic lobes; cephalic glands lateral or postero-lateral to pharynx. Eyes present (2 pairs); granules elongate. Mouth subterminal, midventral; pharynx muscular, glandular; oesophagus short. Intestinal caeca 2, confluent posteriorly to gonads, lacking diverticula. Genital pore mid-ventral near level of cecal bifurcation. Genital atrium muscular. Gonads tandem or testis post-germinal; testis dorsal to germarium. Vas deferens looping left intestinal

cecum; seminal vesicle sigmoid, looping dorso-ventrally before entering into the male copulatory organ. One prostatic reservoir, saccate; separated into two or three zones; one or two terminal areas densely stained. Copulatory complex comprising male copulatory organ, accessory piece; male copulatory organ sclerotized, spiral, clockwise; accessory piece sclerotized, non-articulated with the male copulatory organ. Vagina single; vaginal aperture dextro-dorsal, marginal, opening anteriorly or at mid-level of the trunk; vaginal vestibule muscular; vaginal canal heavily sclerotized, sigmoid or coiled. Seminal receptacle present, anterior to germarium. Egg ovate with short filament. Vitellaria well developed, coextensive with caeca. Haptor armed with, 14 hooks (7 pairs) with ancyrocephaline distribution (Mizelle 1936). Pair of ventral and dorsal anchors; anchors without well-defined roots. Ventral and dorsal bar; dorsal bar with anteromedial process. Parasites of gills of erythrinid fishes.

**Remarks.** *Whittingtonocotyle* n. gen. is characterized by species possessing: (1) male copulatory organ sclerotized, spiral, clockwise, non-articulated with accessory piece; (2) prostatic reservoir separated into two/three zones with one or two terminal areas densely stained with Gomori's trichrome; (3) vaginal aperture dextrodorsal; (4) anchors without well-defined roots; and (5) dorsal bar with anteromedial protuberance. *Whittingtonocotyle* n. gen. resembles *Unilatus* Mizelle & Kritsky, 1967, by having species with a male copulatory organ spiral, cork-screw like, non-articulated with accessory piece. The new genus differs from *Unilatus* by lacking small bulb on the distal medial portion of the male copulatory organ, by having dorsal and ventral anchor/bar complexes (anchor/bar complexes in the dorsal area of the haptor in *Unilatus*), and by the vagina opening dorsally on the right side (ventral, medial in *Unilatus*).

### *Whittingtonocotyle caetei* n. sp.

(Figs. 1–9)

**Type host.** *Hoplerythrinus unitaeniatus*

**Site.** Gills

**Type locality.** Caeté River, municipality of Augusto Corrêa, Pará State, Brazil (1°3'58.21" S 46°40'3.65"W) collected in October 2013.

**Other records.** Guamá River, municipality of Irituia, Pará State, Brazil (01°51'59.8" S, 47°24'17.2"W) collected in July 2014.

**Prevalence.** 66% of 3 hosts examined.

**Mean intensity.** 13 parasites per infected host.

**Specimens deposited.** Holotype, CHIOC 38012a; 5 paratypes, CHIOC 38012b–d, INPA 657, MPEG 00038; 12 vouchers, CHIOC 38013a–f, INPA 658, MPEG 00039–00041.

**Etymology.** The specific name is derived from the type locality.

**Comparative measurements.** Table 1.

**Description** (based on 6 specimens; 4 mounted in Gomori's trichrome, 2 mounted in Hoyer's medium): Body fusiform. Cephalic margin tapered; cephalic lobes poorly developed, 2 pairs; 4–5 pairs of head organs with rod-shaped secretion; cephalic glands not observed. Eyes 4, posterior pair slightly larger and farther apart than anterior pair; accessory granules distributed in cephalic and anterior trunk regions. Pharynx spherical to subovate. Male copulatory organ with approximately 29 rings (Fig. 2). Accessory piece, a variable sheath, enclosing some distal rings of MCO. Testis spherical; vas deferens conspicuous; seminal vesicle fusiform; prostatic reservoir large, bacilliform separated into two zones with one terminal area densely stained. Germarium fusiform; oviduct, ootype, Mehlis' glands, uterus not observed. Vagina comprising vaginal vestibule with soft tissue, vaginal canal heavily sclerotized, coiled, dilated in the distal portion before entering into the seminal receptacle. Seminal receptacle spherical. Peduncle short; pair of haptor glands starting at level of peduncle with long narrow ducts ending at level of the anchor/bar complexes (Fig. 1). Haptor subhexagonal. Anchors dissimilar, with poorly developed roots. Ventral anchor (Fig. 8) with superficial root short, tapered, deep root truncate, broad base, evenly curved shaft, point. Dorsal anchor (Fig. 9) with superficial root depressed, deep root short, evenly curved shaft, point. Ventral bar, broadly V-shaped, ends enlarged. Dorsal bar (Fig. 4), broadly V-shaped, with elongate anteromedial process, ½ dorsal bar length. Hooks similar (Figs. 6–7); each with delicate point and shaft, slightly depressed thumb, elongate straight shank; FH loop ½ shank length; hook pair 1 smaller than hook pairs 2–7.

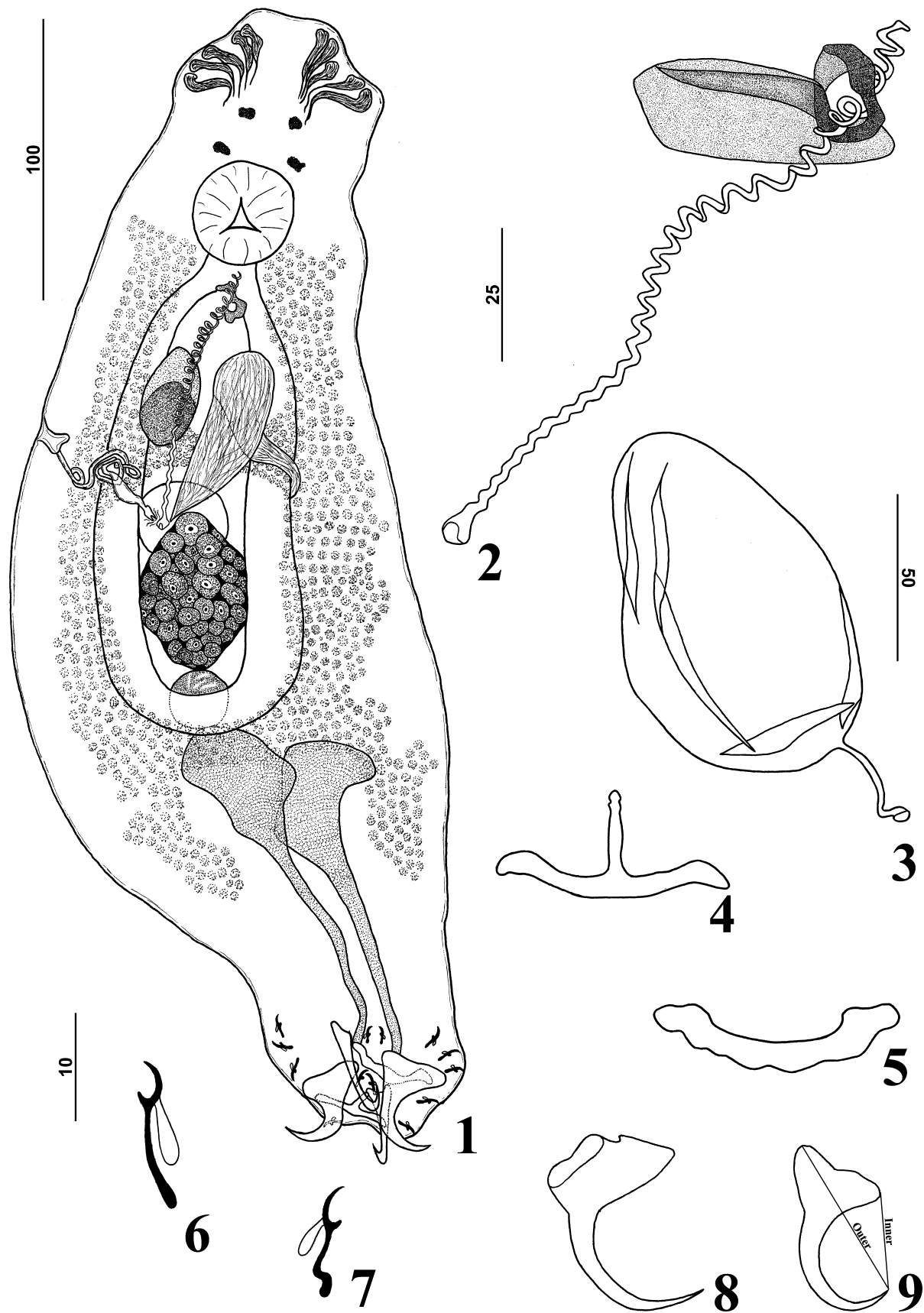
**Remarks.** *Whittingtonocotyle caetei* n. gen. n. sp. is the type species of the genus. The new species is

characterized by having: (1) ventral anchor with deep root truncate; (2) prostatic reservoir separated into two zones with one terminal area densely stained; and (3) vaginal canal heavily sclerotized, coiled and dilate distally.

**TABLE 1.** Comparative measurements (in  $\mu\text{m}$ ) of specimens of *Whittingtonocotyle caetei* n. gen. n. sp. from two localities, respectively. MCO= male copulatory organ.

	*Caeté River	N	Guamá River	N
<b>Body</b>				
Length	605 (550–860)	5	978 (700–1280)	8
Width	241 (146–259)	5	244 (146–391)	12
<b>Pharynx</b>				
Length	31 (25–38)	3	71 (52– 80)	7
Width	39 (31–55)	3	48 (48–58)	8
<b>Haptor</b>				
Length	64 (58–69)	5	59 (50–65)	8
Width	108 (80–125)	5	103 (75–134)	10
<b>Ventral Anchor</b>				
Outer	34 (33–35)	3	35 (32–37)	7
Inner	28 (27–30)	3	27 (26–28)	5
Base	12 (11–12)	3	14 (13–15)	7
<b>Dorsal Anchor</b>				
Outer	31 (29–33)	3	33 (30–34)	6
Inner	21 (20–23)	3	22 (20–24)	6
Base	16 ( 16–17)	3	14 (12–15)	7
<b>Ventral Bar</b>				
Length		3		4
Width	39 (35–42)	3	43 (42–50)	5
<b>Dorsal Bar</b>				
**Length	15 (12–17)	3	14 (12–16)	4
Width	39 (35–45)	3	41 (39–46)	5
Hook pair 1	9	1	8	1
Hook pair 2–7	13 (12–14)	10	12 (11–13)	10
<b>Testis</b>				
Length	–	–	34 (32–38)	2
Width	–	–	26 (22–30)	
<b>Germarium</b>				
Length	98 (70–120)	3	103 (100–107)	3
Width	52 (40–80)	2	49 (40–51)	7
MCO	117 (104–126)	5	110 (100–120)	10
Accessory piece	42 (39–45)	3	–	–
<b>Egg</b>				
Length	–		55 (49–60)	2
Width	–		41 (38–43)	2

\*Type locality; \*\*Dorsal bar length measurement at level of anteromedial process.



**FIGURES 1–9.** *Whittingtonocotyle caetei* n. gen. n. sp. 1. Holotype, whole-mount (ventral). 2. Copulatory complex. 3. Egg. 4. Dorsal bar. 5. Ventral bar. 6. Hook pairs 2–7. 7. Hook pair 1. 8. Ventral anchor. 9. Dorsal anchor. Fig. 1 scale of 100 µm; Figs. 2, 4–5, 8–9 scale of 25 µm; Fig. 3 scale of 50 µm; Figs. 6–7 scale of 10 µm.

***Whittingtonocotyle jeju* n. sp.**

(Figs. 10–18)

**Type host.** *Hoplerythrinus unitaeniatus*.

**Site.** Gills

**Type locality.** Guamá River, municipality of Irituia, Pará State, Brazil (01°51'59.8" S, 47°24'17.2"W) collected in July 2014.

**Other records.** Caeté River, municipality of Augusto Corrêa, Pará State, Brazil (1°3'58.21" S 46°40'3.65"W) collected in October 2013.

**Prevalence.** 66% of 3 hosts examined.

**Mean intensity.** 9 parasites per infected host.

**Specimens deposited.** Holotype, CHIOC 38014a; 6 paratypes, CHIOC 38014b–e, INPA 659, MPEG 00042; 7 vouchers, CHIOC 38015a–d, INPA 660, MPEG 00043.

**Etymology.** The specific name is derived from the local name of the host.

**Comparative measurements.** Table 2.

**Description** (based on 7 specimens; 5 mounted in Gomori's trichrome, 2 mounted in Hoyer's medium): Body fusiform. Cephalic margin tapered; cephalic lobes inconspicuous; 4–5 pairs of head organs with rod-shaped secretion; cephalic glands lateral or postero-lateral to pharynx. Eyes 4, posterior pair larger and slightly farther apart than anterior pair; accessory granules absent in the cephalic area. Pharynx muscular, ovate. Male copulatory organ, with approximately 19 rings, base with sclerotized cap (Fig. 11). Accessory piece, a variable sheath, enclosing some distal rings of MCO. Testis subspherical, vas deferens conspicuous; seminal vesicle sigmoid; prostatic reservoir large, bacilliform separated into three zones with two terminal areas densely stained. Germarium subovate; oviduct, ootype, Mehlis' glands, uterus not observed. Vagina comprising vaginal vestibule with soft tissue, vaginal canal heavily sclerotized, sigmoid. Seminal receptacle pyriform. Peduncle short; pair of haptor glands starting at level of peduncle, convolute at distal portion, ending at level of the anchor/bar complexes (Fig. 10). Haptor subtrapezoidal. Anchors similar, with broad base, poorly developed roots, short shaft. Ventral anchor (Fig. 16) with superficial root depressed covered by sclerotized cap; deep root short covered by sclerotized cap on outer proximal portion; evenly curved shaft, point. Dorsal anchor (Fig. 15) with superficial root broad covered by sclerotized cap; deep root short covered by sclerotized cap; evenly curved shaft, point. Ventral bar (Fig. 17), curved with tapered ends. Dorsal bar (Fig. 18), straight, with short anteromedial process, 1/3 dorsal bar length. Hooks similar (Figs. 13–14); each with delicate point and shaft, slightly erect thumb, elongate straight shank, short point; FH loop not observed; hook pair 1 smaller than hook pairs 2–7.

**Remarks.** This species differs from *Whittingtonocotyle caetei* n. sp. by the morphology of the anchors, and by possessing a male copulatory organ comprising a coil of about 19 rings (29 rings in *W. caetei* n. sp.), a prostatic reservoir separated into three zones with two terminal areas densely stained (two zones with one terminal areas densely stained in *W. caetei* n. sp.), vaginal canal sigmoid (coiled in *W. caetei* n. sp.), and a dorsal bar with short anteromedial process (elongate in *W. caetei* n. sp.).

## Discussion

Although only one species of erythrinid had previously been examined for monogenoidean parasites, the diversity is higher, with many species exhibiting high host specificity. From the eight valid species of monogenoids reported from *H. malabaricus* from different drainages in South America, six species (*Gyrodactylus trairae*, *Urocleidoides brasiliensis*, *U. cuiabai*, *U. eremitus*, *U. malabaricus*, and *U. naris*) seem to be restricted to this host. Graça *et al.* (2013a) reported *Cosmetocleithrum bulbocirrus* and *Vancleaveus janauacaensis* from the gills of *H. malabaricus* from Brazil. However, Graça *et al.* (2013b) commented that the occurrence of these two species in *H. malabaricus* can be considered accidental, since the parasitism indexes were low and species of both genera are reported only for Neotropical freshwater siluriform fishes.

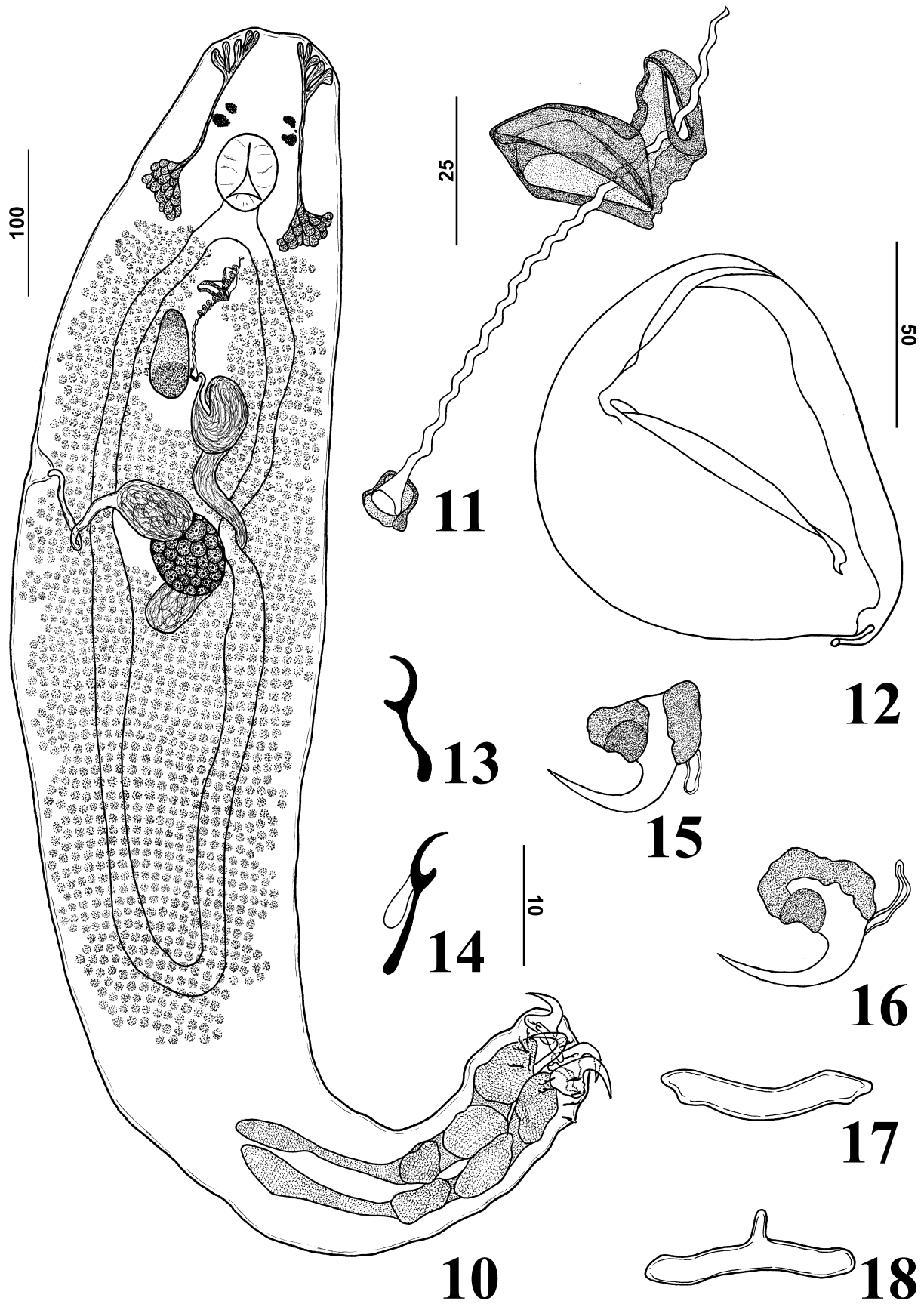
Presence of a male copulatory organ spiral, cork-screw like is an important taxonomic feature of *Whittingtonocotyle* n. gen. The character also occurs in species of *Unilatus* Mizelle & Kritsky, 1967. However, all *Unilatus* are parasites of the gills of Loricariidae (Siluriformes), and they are characterized by possessing a small

bulb on the distal medial portion of the male copulatory organ (absent in *Whittingtonocotyle* n. gen.), and anchor/bar complexes in the dorsal area of the haptor (anchor/bar complexes ventral and dorsal in *Whittingtonocotyle* n. gen.) (see Branches & Domingues 2014). Also, the new genus differs from the other dactylogyrid group, *Urocleidoides* (*sensu* Kritsky *et al.* 1986), reported from erythrinid fishes, mainly by the absence of a vaginal sclerite.

**TABLE 2.** Comparative measurements (in  $\mu\text{m}$ ) of specimens of *Whittingtonocotyle jeju* n. gen. n. sp. from two localities, respectively. MCO= male copulatory organ.

	Caeté River	N	*Guamá River	N
<b>Body</b>				
Length	756 (515–1041)	7	914 (773–1235)	7
Width	181 (138–216)	7	172 (113–295)	7
<b>Pharynx</b>				
Length	45 (38–54)	6	51 (42–70)	6
Width	32 (25–37)	6	46 (39–54)	6
<b>Haptor</b>				
Length	45 (41–48)	6	109 (92–126)	6
Width	84 (71–121)	6	105 (65–152)	6
<b>Ventral Anchor</b>				
Outer	26 (25–27)	4	27 (25–28)	2
Inner	20 (19–21)	3	21 (20–22)	2
Base	19 (17–20)	2	–	
<b>Dorsal Anchor</b>				
Outer	27 (25–28)	4	25	1
Inner	20 (19–21)	3	20	1
Base	19 (17–20)	2	–	
<b>Ventral Bar</b>				
Length	5	3	5	1
Width	34 (32–36)	4	31	1
<b>Dorsal Bar</b>				
*Length	10	3	10	1
Width	33 (29–34)	4	30	1
Hook pair 1	8 (8–9)	3	9	2
Hook pair 2–7	13 (13–14)	7	13 (12–14)	5
<b>Testis</b>				
Length	–	–	–	–
Width	–	–	34 (29–39)	3
<b>Germarium</b>				
Length	64 (63–65)	3	62 (50–75)	2
Width	46 (34–54)	4	58 (45–70)	4
MCO	104 (103–108)	4	111 (109–113)	5
Accessory piece	26 (18–28)	4	23 (22–24)	2
<b>Egg</b>				
Length	–	–	101 (100–102)	2
Width	–	–	65 (43–86)	2

\*Type locality; \*\*Dorsal bar length measurement at level of anteromedial process.



**FIGURES 10–18.** *Whittingtonocotyle jeju* n. gen. n. sp. **10.** Whole-mount, composite (ventral). **11.** Copulatory complex. **12.** Egg. **13.** Hook pair 1. **14.** Hook pairs 2–7. **15.** Dorsal anchor. **16.** Ventral anchor. **17.** Ventral bar. **18.** Dorsal bar. Figs. 10 scale of 100  $\mu$ m; Figs. 11, 15–18 scale of 25  $\mu$ m; Fig. 12 scale of 50  $\mu$ m; Figs. 13–14 scale of 10  $\mu$ m.



Rosim *et al.* (2011) found specimens of an undescribed species of dactylogyrid from the gills of *Hoplias* aff. *malabaricus* from Jaguari-Mirim River (Eastern Atlantic Basin; Paraíba do Sul River sub-basin), Machado River (Paraná Basin; Grande River sub-basin), Cuiabá River (Paraná Basin; Paraguay and São Lourenço Rivers sub-basin) and Rio Paraná (Paraná Basin; Paraná and Paranapanema Rivers sub-basin), Brazil. These authors described the specimens as Dactylogyridae gen. sp. However, they were unable to determine the taxonomic status of the specimens based on the absence of features that fit with the diagnosis of dactylogyrids reported from Neotropical freshwater fishes, as well as, the specimens exhibited some morphological differences among localities, not allowing the proposal of a new genus.

Unidentified specimens of Dactylogyridae were also reported by (Graça *et al.* 2013a, b) from this host, and named as Dactylogyridae gen. 1 sp. and Dactylogyridae gen. 2 sp. Graça *et al.* (2013b) confirmed that specimens of Dactylogyridae gen. 1 sp. fit with the description of Dactylogyridae gen. sp. as presented by Rosim *et al.* (2011). However, these authors (Graça *et al.* 2013a, b) were unable to find diagnostic features for the inclusion of Dactylogyridae gen. 2 sp. in a known genus or proposing a new genus.

The analysis of specimens of Dactylogyridae gen. sp. *sensu* Rosim *et al.* (2011) (CHIOC 37472 a–e, CHIOC 37802 a–b) indicates that they are not congeneric with *Whittingtonocotyle*. Species of *Whittingtonocotyle* **n. gen.** can be easily distinguished from Dactylogyridae gen. sp. *sensu* Rosim *et al.* (2011) by having a male copulatory organ spiral, cork-screw like, with 19–29 rings (male copulatory organ coil with 1–1.5 rings in Dactylogyridae gen. sp.). The ventral and dorsal anchors have inconspicuous roots in *Whittingtonocotyle* **n. gen.**, whereas anchor complexes are well defined with divergent roots in Dactylogyridae gen. sp. The anteromedial process in the dorsal bar is present in *Whittingtonocotyle* **n. gen.**, but it is absent in Dactylogyridae gen. sp.

The study of the only available specimen of Dactylogyridae gen. 2 sp. *sensu* Graça *et al.* (2013a) (CHIOC 37803) indicates that it represents an undescribed species of *Rhinoxenus* Kritsky, Thatcher & Boeger, 1988. It differs from species of *Whittingtonocotyle* **n. gen.** mainly by lacking dorsal bar, presence dorsal anchor modified into a spike-like sclerite, and a copulatory complex comprising a male copulatory organ counterclockwise rings (clockwise rings in *Whittingtonocotyle* **n. gen.**) articulated to accessory piece by a ligament (non-articulated in *Whittingtonocotyle* **n. gen.**). Kritsky *et al.* (1988) suggest that the nasal cavities of the Characiformes are the specific site of infestation for species of *Rhinoxenus*. However, since no specimen of *Rhinoxenus* has been reported from the gills, we propose that its finding in the gills of *H. unitaeniatus* is accidental.

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