



A new *Corydoras* (Ostariophysi: Siluriformes: Callichthyidae) with an unusual sexual dimorphism from the rio Juruena basin, Brazil

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Abstract

A new *Corydoras* is described from the rio Juruena system, upper rio Tapajós drainage, Amazon basin, Brazil. The new *Corydoras* is distinguished from all congeners by presenting a combination of a conspicuous broad vertical dark bar on head, at the level of the eye (mask), an overall light background color without large blotches or stripes on body or fins, the presence of two to four small dark blotches along the midline, and pectoral spine with antrorse serrations on its posterior margin. Males of the new species possess numerous, well-developed odontodes over the lateral portions of head, pectoral girdle, and pectoral spines, an uncommon feature for the genus. The new species is hypothesized to belong, within the genus *Corydoras*, either to Lineage 6 or Lineage 9.

Key words: *Corydoras atropersonatus*, *Corydoras griseus*, *Corydoras sychri*, Rio Tapajós, Amazon basin

Resumo

Uma nova espécie de *Corydoras* é descrita do sistema do rio Juruena, drenagem do alto rio Tapajós, bacia amazônica, Brasil. A nova espécie se distingue de todas as congêneres por apresentar uma combinação de uma conspícua larga barra vertical escura na cabeça, ao nível do olho (“máscara”), um padrão de colorido geral claro, sem grandes manchas ou faixas no corpo ou nadadeiras, a presença de duas a quatro pequenas manchas escuras ao longo da linha média, e espinho peitoral com serrações antrorsas em sua margem posterior. Machos da nova espécie possuem numerosos odontódeos bem desenvolvidos sobre as porções laterais da cabeça, cintura escapular e espinhos peitorais, uma característica dimórfica incomum, partilhada com poucas congêneres. A nova espécie é assinalada como pertencendo, dentro do gênero *Corydoras*, à Linhagem 6 ou Linhagem 9.

Palavras chave: *Corydoras atropersonatus*, *Corydoras griseus*, *Corydoras sychri*, Rio Tapajós, Bacia amazônica

Introduction

Corydoras Bloch is currently the most species-rich genus within the order Siluriformes, with 174 valid species (Espíndola *et al.*, 2018; Tencatt *et al.*, 2019). Most taxonomic works on the genus were conducted during the 1970s and 1980s (e.g., Nijssen, 1970; Nijssen & Isbrücker, 1980, 1983, 1986), but a recent upsurge in species descriptions (e.g., Tencatt & Ohara, 2016a,b; Ohara *et al.*, 2016; Lima & Sazima, 2017; Espíndola *et al.*, 2018; Tencatt *et al.*, 2019) shows that the taxonomic knowledge on the genus is still far from complete. The phylogenetic relationships within the genus were examined by Britto (2003), using morphological data, and Alexandrou *et al.* (2011), using molecular data, but similarly to the taxonomic knowledge, many questions still need to be addressed until relationships can be considered well understood.

The *Corydoras* species occurring in the upper rio Tapajós (i.e., the portion of this tributary of the Amazon River above the confluence of the rio Juruena and rio Teles Pires) are relatively poorly known. Espíndola *et al.* (2013)

described *Corydoras apiaka* Espíndola, Spencer, Rocha & Britto from the rio Juruena and the rio Teles Pires basins. Ohara *et al.* (2017) recorded four *Corydoras* species from the rio Teles Pires, i.e., *C. apiaka*, *C. aff. guianensis*, *C. sp. "brevirostris"*, and *C. sp. "loretoensis"*. The latter species was recently described as *C. bennatti* Espíndola *et al.* (2018) and is also known from the rio Xingu basin. During a collecting expedition in 2006 in the rio Papagaio, a tributary of the rio Juruena (rio Tapajós basin) in Mato Grosso, Brazil, the first author collected five specimens of a very singular *Corydoras* species, which were immediately recognized as undescribed. Its formal description was postponed until additional specimens could be obtained. More recently, during expeditions of the South American Characiformes Inventory (SACI Project), additional material of the species was collected from two additional localities in the rio Juruena basin at Mato Grosso state, Brazil. The aim of the present contribution is to describe this distinctive species and discuss its possible phylogenetic relationships.

Material and methods

Morphometric and meristic data were taken following Reis (1997) and Britto *et al.* (2007). Measurements were obtained with 0.1 mm precision calipers. Teeth and vertebral counts were taken only from cleared-and-stained (C&S) specimens, prepared according to Taylor & Van Dyke (1985). Vertebral counts include only free centra, with the compound caudal centrum (preural 1 + ural 1) counted as a single element. Lateral plate counts include all dorsolateral and ventrolateral plates, except for a pair of small, irregular platelets on caudal-fin base. In the description, numbers assigned with an asterisk represent counts from the holotype. Osteological nomenclature follows the literature summarized by Britto *et al.* (2007).

Institutional acronyms follow Sabaj (2019).

Corydoras rikbaktsa, new species

(Figs. 1–3; Table I)

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Holotype. MZUSP 125013, female, 37.4 mm SL, Brazil, Mato Grosso, Rio Juíinha (trib. Rio Juruena), road BR-174, 11°32'12"S, 58°51'8"W; O.T. Oyakawa, F.C.P. Dagosta, M.M.F. Marinho & P. Camelier, 31 Aug 2013.

Paratypes. All from Brazil, Mato Grosso. MZUSP 93534, 3, 17.8–33.1 mm SL; CAS 245736, 1, 28.4 mm SL; ZUEC 16840, 1, 31.9 mm SL; Sapezal, Rio Papagaio and mouth of rio Buriti, near the bridge at the road between Sapezal and Brasnorte, 12°48'3"S, 58°23'53"W; F.A. Machado, F.C.T. Lima, C.M.C. Leite & N.E. Silva, 7–9 Oct 2006. MZUSP 115781, 4, 15.4–31.6 mm SL, same data as holotype. MZUSP 123863, 6, 1 C&S, 19.7–38.0 mm SL; ANSP 205808, 1, 36.6 mm SL; MNRJ 51477, 1, 32.9 mm SL: Juína, stream tributary of rio Juína-Mirim, Juína-Vilhena road, 11°33'45"S, 58°56'7"W; A. Datovo, F.C.P. Dagosta, P.C. Camelier & M.M.F. Marinho, 4 Oct 2016.

Diagnosis. *Corydoras rikbaktsa* can be diagnosed from all congeners, except for *C. atropersonatus* Weitzman & Nijssen, *C. griseus* Holly, and *C. sychri* Weitzman, by having the combination of a distinct broad vertical bar on head, at the level of the eye (mask) and an overall light background color, without large blotches or stripes on body or fins (vs. broad vertical bar on head, when present, always in combination with body and/or fins with distinct large blotches and/or stripes, or with an overall dark coloration). It can be diagnosed from the aforementioned species by having two to four blotches along the midline (vs. presence of irregular specks on the body, mostly on predorsal area, absent in some specimens, in *C. atropersonatus* and *C. sychri*, or lack of any dark markings with the exception of the vertical bar at the head in *C. griseus*), and for presenting broad vertical bar on head narrower at the level of the eye and extending over the entire opercle (vs. broad vertical bar on head roughly of the same width along its length and only extending to the anterior portion of opercle). It can be additionally distinguished from *C. sychri* by presenting posterior margin of pectoral-fin spine with serrations directed towards the tip of the spine (vs. directed towards its origin). See the Discussion, for additional comments.

Description. Morphometric data for the holotype and paratypes presented in Table I. Head moderately compressed, roughly triangular in profile, snout profile moderately pointed (Fig. 1, 2C, 3) or relatively rounded (Fig. 2A–B) ("intermediate long"/"intermediate short" sensu Alexandrou *et al.*, 2011: 85). Dorsal profile steep and slightly to considerably convex from snout tip to level through anterior naris, slightly concave from latter point to vertical

through middle of orbit, and slightly convex from latter point to dorsal-fin origin. Dorsal profile of body approximately straight from dorsal-fin origin to adipose-fin terminus, and slightly concave at caudal peduncle. Ventral profile of body straight from mouth to anal-fin origin, slightly concave along caudal peduncle. Body roughly triangular in cross section at pectoral girdle, gradually tapering toward caudal fin.



FIGURE 1. *Corydoras rikbaktsa*, holotype, MZUSP 125013, female, 37.4 mm SL, Brazil, Mato Grosso, rio Juuinha, in dorsal (upper), lateral (middle), and ventral (lower) views.

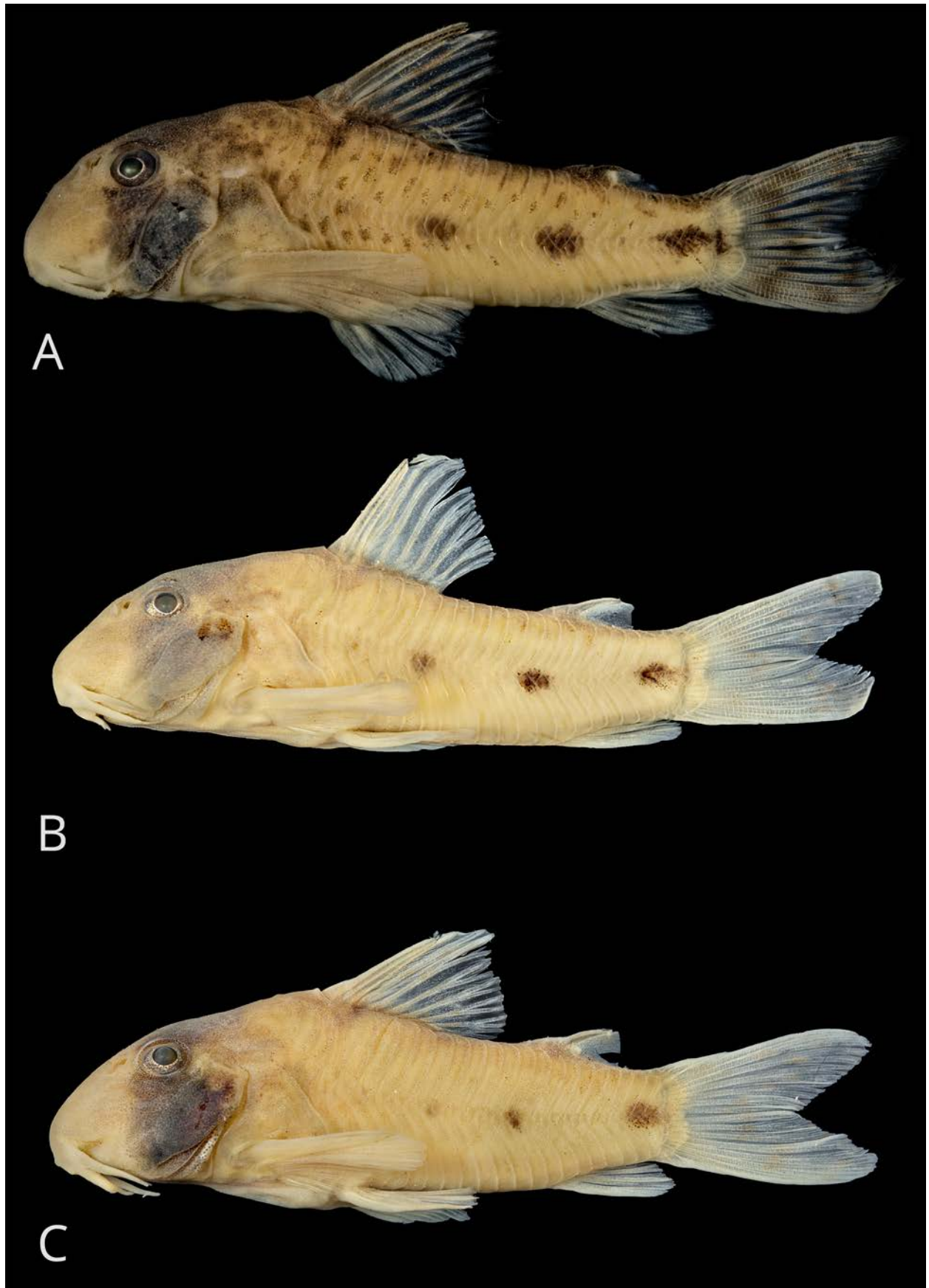


FIGURE 2. *Corydoras rikbaktsa*: (A) paratype, MZUSP 123863, male, 36.7 mm SL, Brazil, Mato Grosso, trib. rio Juína; (B) paratype, MZUSP 93534, male, 33.1 mm SL, and (C) paratype, CAS 245736, female, 28.4 mm SL; both from Brazil, Mato Grosso, rio Buriti (trib. rio Papagaio).



FIGURE 3. *Corydoras rikkaktsa*, paratype, MZUSP 115781, 28.0 mm SL: Brazil, Mato Grosso, rio Juuinha. Photo by Fernando C.P. Dagosta.

Eye rounded, located dorsolaterally on head; orbit delimited dorsally by frontal and sphenotic, ventrally by infraorbitals. Anterior and posterior nares proximal, only separated by flap of skin. Anterior naris tubular. Posterior naris close to anterodorsal margin of orbit, separated from it by distance slightly larger than naris diameter. Mouth small, subterminal, slightly wider than bony orbit diameter. Maxillary barbel relatively short, only reaching anteroventral portion of opercle. Outer mental barbel slightly shorter than maxillary barbel. Inner mental barbels very short, fleshy and depressed. Small rounded papillae covering entire surface of all barbels, upper and lower lips, and isthmus. Gill membranes united to isthmus.

Nasal, frontal, sphenotic, compound pterotic, and parieto-supraoccipital visible externally, all covered by thin layer of skin and bearing minute scattered odontodes. Mesethmoid entirely covered by thick layer of skin, relatively long, anterior portion variably developed; one C&S specimen (MZUSP 123863) with anterior portion about 50% of bone length. Posterior portion of mesethmoid wide, with short lateral expansions sutured to lateral ethmoid, delimiting nasal capsule. Nasal slender, slightly curved laterally, inner margin with small laminar expansion; outer margin with reduced laminar expansion; mesial border contacting only frontal. Frontal elongated, narrow, with width smaller than half of entire length; anterior projection short, size smaller than nasal length. Frontal fontanel elongated, covered by thin layer of skin; posterior tip extending into parieto-supraoccipital. Sphenotic somewhat trapezoid in shape, contacting parieto-supraoccipital dorsally, compound pterotic posteriorly, second infraorbital ventrally and frontal anteriorly. Compound pterotic with posteriormost portion contacting first lateral-line ossicle, first dorsolateral body plate and ventral margin contacting opercle and cleithrum. Compound pterotic occluding swimbladder capsule. Parieto-supraoccipital wide, posterior process long and contacting nuchal plate; region of contact between posterior process and nuchal plate covered by layer of skin.

Two infraorbital bones, externally visible, covered by thin layer of skin, with minute odontodes. First infraorbital large, ventral laminar expansion moderately developed (Fig. 4); anterior portion with moderately developed expansion, reaching to middle portion of nasal capsule, articulated only to lateral ethmoid; inner laminar expansion poorly developed. Second infraorbital short and narrow, contacting only sphenotic dorsally; inner laminar expansion strongly reduced; posteroventral margin contacting posterodorsal ridge of hyomandibula. Posterodorsal ridge of hyomandibula close to its articulation with opercle slender and exposed; dorsal ridge of hyomandibula between compound pterotic and opercle covered by thick layer of skin. Interopercle covered by relatively thick layer of skin, partially visible externally; somewhat triangular, deeper than long in shape. Preopercle elongated, relatively slender; minute odontodes sparse on external surface. Opercle exposed, compact in shape, and covered by small odontodes; free margin gently curved.

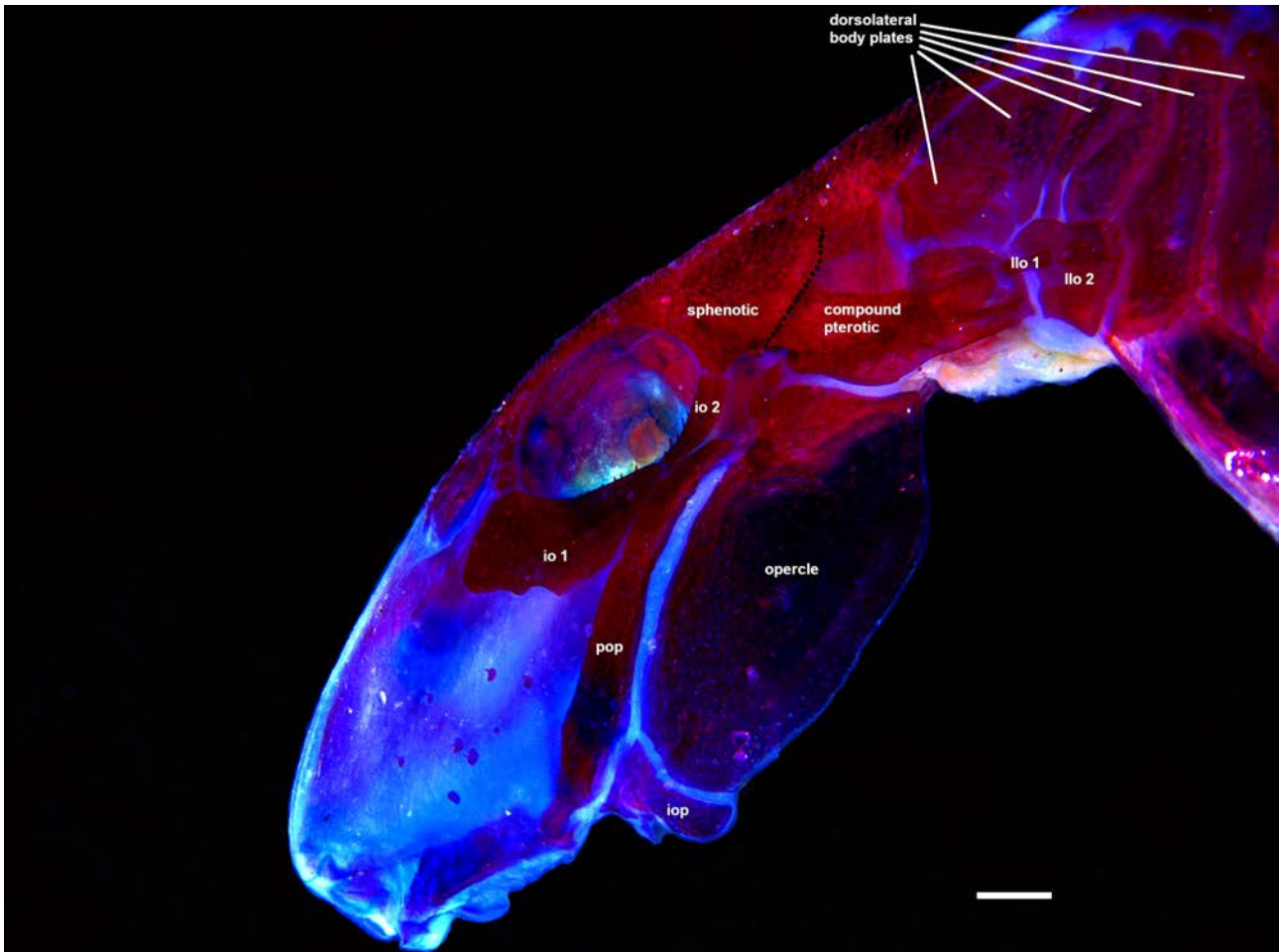


FIGURE 4. Lateral view of the head in cleared and stained paratype of *Corydoras rikbaktsa*, MZUSP 123863, 36.7 mm SL. io1, infraorbital 1; io2, infraorbital 2; iop, interopercle; llo 1, first lateral line ossicle; llo 2, second lateral line ossicle; pop, preopercle. Scale bar: 1.0 mm.

Four branchiostegal rays covered by thin layer of skin. Fifth ceratobranchial with 35 teeth in single row along mesial and posterior border on dorsal surface. Upper pharyngeal tooth plate oval, with 43 teeth in roughly single row along posterior border on ventral surface.

Trunk lateral line reduced to two latero-sensory ossicles, anterior one tubular. Lateral-line canal entering neurocranium through compound pterotic, branching twice before entering sphenotic: pterotic, with single pore, and preoperculo-mandibular branch, conspicuously reduced, with a single pore opening close to postotic main canal. Sensory canal continuing through compound pterotic, entering sphenotic as temporal canal, which splits into two branches: first branch giving rise to infraorbital canal, second branch entering frontal through supraorbital canal, both with single pore. Supraorbital canal branched, running through nasal bone. Epiphyseal branch conspicuously reduced; pore opening close to supraorbital main canal, directed towards frontal fontanel. Nasal canal with two openings, first on posterolateral portion, and second on anterior edge. Infraorbital canal running through entire second infraorbital, extending to infraorbital 1 and generally opening into two pores. Preoperculo-mandibular branch giving rise to preoperculo-mandibular canal, which runs through entire preopercle with three openings, leading to pores 3, 4, and 5, respectively.

Dorsal-fin origin just posterior to third dorsolateral body plate. Dorsal spine shorter than first branched ray. Anterior margin of dorsal spine with scattered odontodes; posterior margin with few distal serrations directed towards its tip (Fig. 5). Dorsal-fin rays II, 7, i* (13). Anal fin origin located posterior to 13th ventrolateral body plates, at vertical through posterior margin of last preadipose platelet. Anal-fin rays ii,5 in all specimens. Pectoral-fin origin located just posterior to gill opening. Pectoral spine shorter than first branched ray, its tip conical. Distal tip of spine followed by a short, segmented unossified portion. Pectoral spine flattened with smooth anterior margin and moderately developed, numerous (18–28) antrorse, oblique serrations along entire posterior margin, except for tip (Fig.

6). Pectoral-fin rays I, 9*(13). Pelvic-fin insertion just below first ventrolateral body plate, at vertical through first branched dorsal-fin ray. Pelvic-fin rays i,5 in all specimens. Caudal fin bilobed, weakly forked; upper lobe slightly longer. Principal caudal-fin rays i,6/6,i; upper and lower procurent caudal-fin rays 4 and 3, respectively. Total number of caudal-fin rays 21. All fins with minute odontodes scattered over all rays.

Body plates with minute odontodes scattered over the entire surface of plates in specimens smaller than 24.4 mm SL, but mostly restricted to posterior margins in specimens larger than 28.4 mm SL. Nuchal plate exposed. Cleithrum and mesial process of scapulocoracoid exposed. Minute odontodes scattered over area between scapulocoracoids. Dorsolateral and ventrolateral plates not touching counterparts in specimens up to 28.6 mm SL, leaving narrow naked area along dorsal and ventral surfaces between dorsal and adipose fin and urogenital papillae and anal-fin origin. Dorsolateral and ventrolateral plates at caudal peduncle not touching counterparts leaving naked area in specimens up to 24.4 mm SL. Dorsolateral body plates 23(1), 24*(10), or 25(2); ventrolateral body plates 21*(11), or 22(2); dorsolateral body plates along dorsal-fin base 5*(4), or 6(9); dorsolateral body plates from adipose fin to caudal-fin base 7(4), 8*(8), or 9(1); preadipose platelets 1*(4), 2(4), or 3(5). First dorsolateral body plate subdivided dorsally and ventrally, respectively; second dorsolateral body plate narrower than adjacent plates (Fig. 4). Total vertebrae 23, precaudal 9, caudal 14; six ribs, first pair well developed.

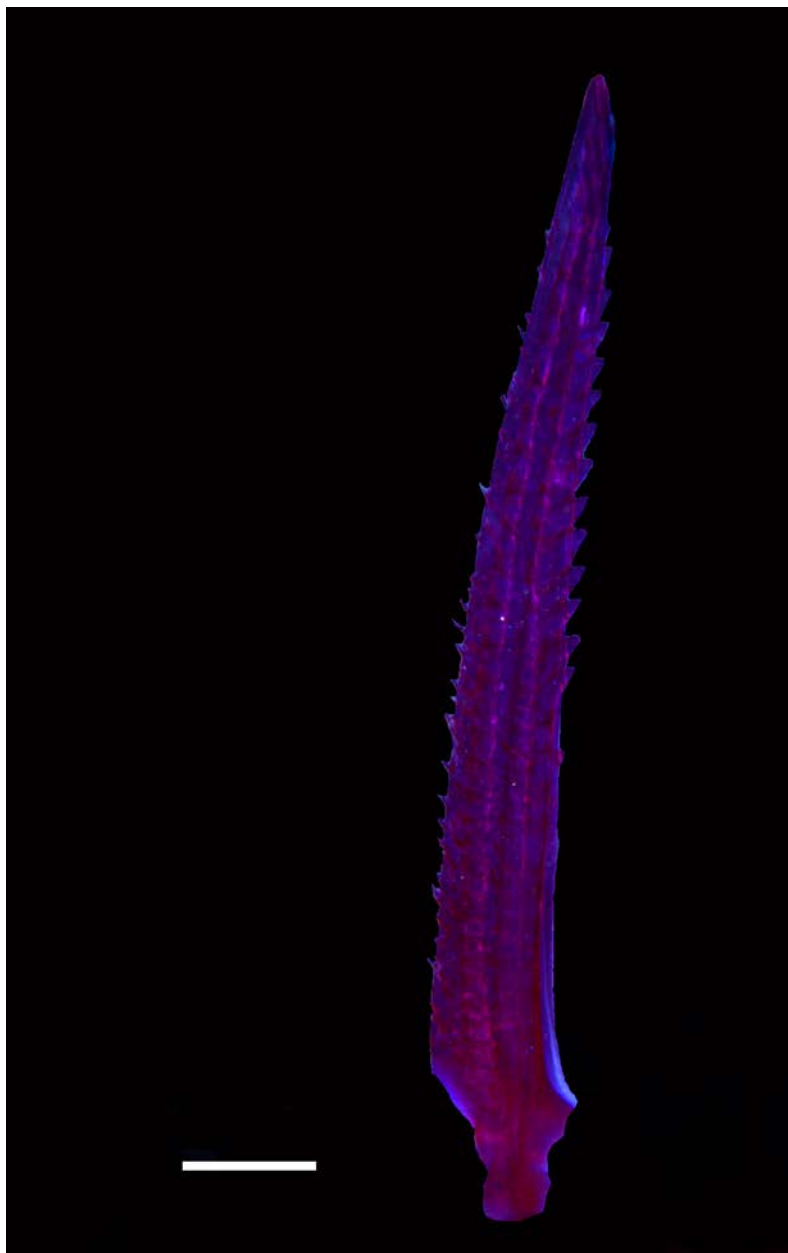


FIGURE 5. Lateral view of the dorsal-fin spine in a cleared and stained paratype of *Corydoras rikkaktsa*, MZUSP 123863, 36.7 mm SL. Scale bar: 1.0 mm.

TABLE I. Morphometric data for *Corydoras rikbaktsa*. N (number of specimens measured) = 13.

	Holotype	Range	Mean
Standard length (mm)	37.4	24.4-38.1	-
Percents of standard length			
Depth of body	30.7	28.9-33.1	30.7
Predorsal distance	50.5	40.4-50.7	48.6
Prepelvic distance	45.2	42.1-47.1	44.9
Preanal distance	80.7	74.8-81.8	78.6
Preadipose distance	83.2	75.8-85.1	82.7
Length of dorsal spine	23.3	19.3-26.9	22.8
Length of pectoral spine	23.3	21.7-27.6	24.5
Length of adipose-fin spine	11.0	7.7-11.0	9.9
Depth of caudal peduncle	12.6	12.3-14.6	13.3
Dorsal to adipose distance	17.6	17.6-22.1	20.2
Length of dorsal-fin base	20.3	15.4-20.3	18.0
Maximum cleithral width	27.8	25.7-29.9	28.1
Head length	40.9	40.4-45.3	42.4
Percents of head length			
Length of maxillary barbel	47.1	43.5-55.2	47.9
Head depth	66.7	57.0-67.4	63.4
Least interorbital distance	24.2	23.4-30.3	25.4
Horizontal orbit diameter	17.0	15.4-18.9	17.0
Snout length	48.4	42.9-48.4	45.6
Least internareal distance	18.3	12.1-23.5	15.4

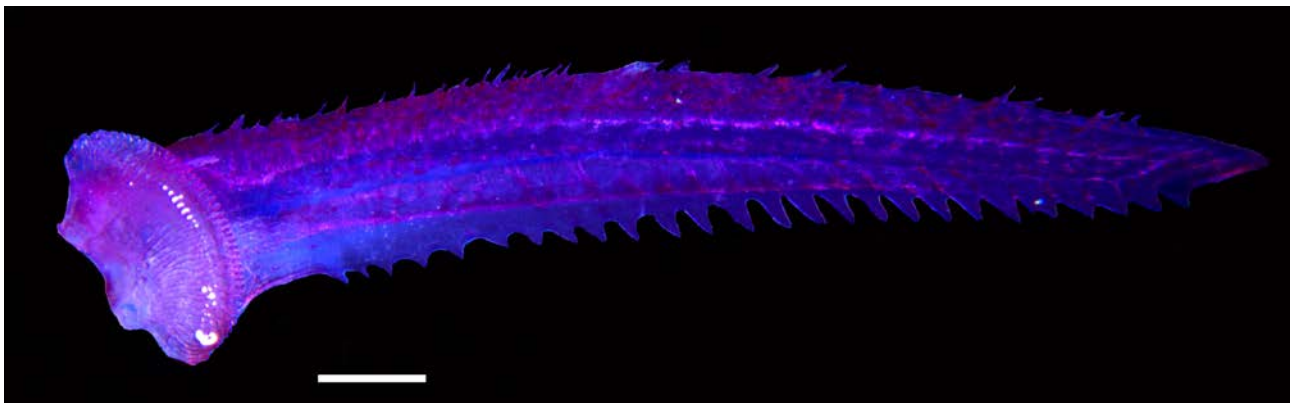


FIGURE 6. Lateral view of the pectoral-fin spine in a cleared and stained paratype of *Corydoras rikbaktsa*, MZUSP 123863, 36.7 mm SL. Scale bar: 1.0 mm.

Color in alcohol. Overall ground color cream. A broad, dark vertical bar at the level of eye, occupying top of head, opercle, posterior portion of first infraorbital and entire second infraorbital, and preopercle. Two to four small blotches at midline, along junction of dorsolateral and ventrolateral plates. First blotch, when present, at level of 7th dorsolateral plate. Second blotch, when present, at the level of 9–12th dorsolateral plate. Third blotch at level of 13–16th dorsolateral plate. Fourth blotch at level of 21st–22th dorsolateral plate, at caudal peduncle. Dark chromatophores concentrated over nuchal plate, parieto-supraoccipital, anteriormost dorsolateral plates, dorsal-fin terminus, base of adipose fin, and lateral surface of cleithrum, imparting slightly darker pigmentation than overall body color, especially in two specimens (MZUSP 123863, 36.7 mm SL, Fig. 2A, and MZUSP 123863, 38.0 mm SL), also

with tiny irregular rows of specks of dark pigmentation along dorsolateral and ventrolateral plates. Caudal fin with three irregular, narrow vertical dark stripes, first at anterior third of fin, second at middle portion, and third slightly anterior to margin. Dorsal fin with irregular, inconspicuous dark stripe at mid-length. Some specimens (MZUSP 93534, ZUEC 16840; Fig. 2B–C) with dark markings on fins almost inconspicuous. Remaining fins clear.

Color in life. Based on a picture of a specimen (MZUSP 115781, 28.0 mm SL, Fig. 3) taken in the field. Overall color light beige, greenish-copper hue on opercle and pectoral girdle, dorsolateral and ventrolateral plates behind dorsal fin slightly translucent. Dark markings as in preserved specimens.

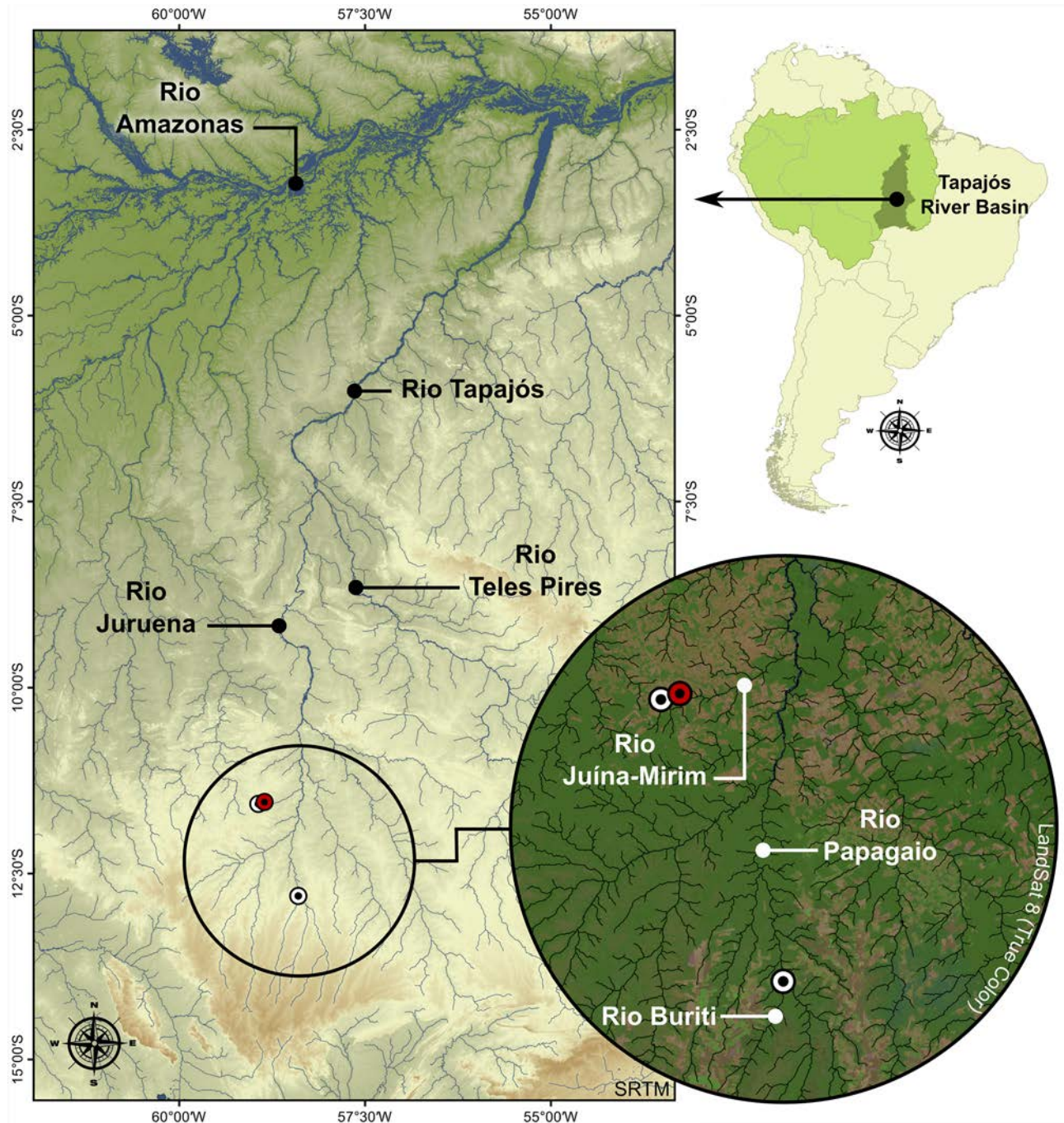


FIGURE 7. Map of the upper rio Tapajós basin and adjoining areas, showing the known sites of occurrence of *Corydorax rikbaktsa* (red circle denotes type-locality).

Sexual dimorphism. Three male specimens (MZUSP 93534, 1, 33.1 mm SL; MZUSP 123863, 36.7 mm SL; ZUEC 16840, 1, 31.9 mm SL) with slightly elongated, lanceolated urogenital papilla, as other Corydoradinae (Britto, 2003: 82–83, fig. 23). Additionally, males possess well-developed, numerous odontodes over lateral portions of

head, pectoral girdle, and pectoral spines, especially developed at cheeks and opercle, while all females only possess small, scattered odontodes over lateral portions of head and pectoral girdle. Also, head profile of males somewhat more rounded than overall pointed head profile of females (compare Figs. 1, 2A, and 3 with 2B–C).

Distribution. *Corydoras rikbaktsa* is so far known from three localities, two of which are small tributaries of the rio Juína-Mirim west of the city of Juína, near the water divide with the rio Aripuanã (upper rio Madeira basin), and the third one a tributary of the rio Papagaio below the Cachoeira de Utiariti. All known localities are in the rio Juruena basin (rio Tapajós basin), Mato Grosso, Brazil (Fig. 7).

Habitat notes. The type-locality, the rio Juíinha, is a clearwater river with sandy banks where the specimens were collected (F.C.P. Dagosta, pers. comm.). The locality at the rio Papagaio basin, the rio Buriti, is a mid-sized clearwater river (approximately 6–8 meters wide, > 2.0 meters deep at the deepest portions) with strong current in its channel, near its mouth with the rio Papagaio. *Corydoras rikbaktsa* were exclusively collected at this site along a small, shallow sandy shore.

Etymology. The specific name honors the Rikbaktsa (also known as Rikbakta or Erikbaktsa), a Jê-speaking indian nation, who formerly inhabited the area between the rio Juruena and rio Aripuanã in northern Mato Grosso. Their first contacts with the western world happened when they clashed and fought rubber-tappers encroaching on their territories during the 1940's and 1950's. They were subsequently contacted by Jesuit priests (and almost completely wiped out by contagious diseases) during the 1960's. During the 1990's the Rikbaktsa finally obtained the demarcation of three non-contiguous lands (Hemming, 2003).

Discussion

Alexandrou *et al.* (2011) proposed nine lineages within Corydoradinae, based on molecular data. Some of those lineages show a rough correspondence with the clades proposed by Britto (2003), which were recovered in a morphological phylogenetic analysis. Since then, several papers have attempted to provide morphological diagnoses to Alexandrou *et al.*'s lineages (e.g. Tencatt & Ohara 2016a,b; Bono *et al.*, 2019; Tencatt *et al.* 2019). Accordingly, *Corydoras rikbaktsa* could be assigned to either lineage 6 or lineage 9, both of which include short and intermediate short/long snout species. Both lineages share the following combination of features: pectoral spine with weakly to moderately developed serrations (vs. well-developed), perpendicularly or obliquely oriented in relation to main axis of spine (vs. curved or laminar), and directed towards its tip (vs. directed towards its origin); posterior margin of the dorsal spine with serrations directed towards its tip (vs. directed towards its origin); infraorbital 1 generally with poorly to moderately developed ventral laminar expansion (vs. well-developed); and infraorbital 2 generally not contacting compound pterotic (vs. in contact). Currently no morphological diagnosis allowing the assignment of a given *Corydoras* species to either of these two lineages is available.

Corydoras rikbaktsa shares an overall color pattern with a few other *Corydoras* composed of a light beige body and a conspicuous vertical bar (mask) on the head, at the level of the eye. Specifically, *C. atropersonatus*, *C. griseus*, and *C. sychri* have this same overall color pattern. As mentioned in the Diagnosis, *C. rikbaktsa* can be diagnosed from all these species by some details of the color pattern. *Corydoras atropersonatus* and *C. griseus* were recovered by Alexandrou *et al.* (2011: suppl. fig. 2) as belonging to the lineage 9, although not closely related to each other. *Corydoras sychri* was not analyzed by Alexandrou *et al.* (2011) but very likely belongs to lineage 8, as it possesses the typical morphology of this clade, i.e., an intermediate long snout and a relatively compressed pectoral spine with moderately-developed retrorse serrations (Weitzman, 1960: 151, fig. 8; pers. obs.).

Another relevant morphological feature worth pointing in *Corydoras rikbaktsa* concerns its snout shape. Alexandrou *et al.* (2011: fig. 1) identified five types of snout in corydoradine catfishes: “short”, “intermediate short”, “intermediate long”, “long”, and “extra long”. *Corydoras rikbaktsa* presents what we consider the “intermediate long” condition (anterior tip of mesethmoid about 50% of bone length, straight and directed anteriorly, slightly downward). This condition is typical for species belonging to lineage 8, rather than from representatives of lineages 6 and 9, which always have the “short” snout condition. Consequently, *C. rikbaktsa*, although possessing most of its morphological features indicating it to putatively belong either to lineage 6 or lineage 9, does not conform entirely the present diagnosis of these lineages and cannot be presently assigned to any of the corydoradine lineages proposed by Alexandrou *et al.* (2011).

Sexual dimorphism in most corydoradines is limited to a slight difference in the genital papillae, with a small projection present in males, which is absent in females (Britto, 2003: 123). The elongation of the pectoral and dorsal

fins is a known dimorphic feature of *Scleromystax* species, especially *S. barbatus* (Quoy & Gaimard) and *S. macropterus* (Regan) (e.g., Britto, 2003: 138, 140), although in most species of the genus this dimorphism is little evident (Britto *et al.*, 2016). In addition, the elongation of the dorsal fin (and in fewer species, the pectoral fins) in males is known for some *Corydoras* species, as *Corydoras geoffroy* Lacépède, *C. gryphus* Tencatt, Britto & Pavanelli, *C. longipinnis* Knaack, and *C. tukano* Britto & Lima (Nijssen, 1970; Britto & Lima, 2003; Tencatt *et al.*, 2014, 2016), although the elongated elements could be distinct (spines or unbranched rays) depending on the species. Color pattern dimorphism is rare and so far reported for just a few *Corydoras* species, i.e., *Corydoras bilineatus* Knaack (Knaack, 2002: 53–54), *C. elegans* Steindachner (Nijssen & Isbrücker, 1986: 50), *C. pantanalensis* Knaack (Fuller & Evers 2005: 199–200), and *C. undulatus* Regan (Bono *et al.*, 2019: 12). *Corydoras rikbaktsa* possesses an uncommon sexual dimorphism among Corydoradinae, which is the presence, in mature males, of numerous well-developed odontodes on the head, pectoral girdle, and pectoral spines (see item Sexual dimorphism, above). Sexual dimorphism in the development of odontodes is apparently rare among corydoradines, with only two known examples. *Scleromystax barbatus* is well-known by the presence, in mature males, of a patch of well-developed odontodes along the sides of the head, a feature that in fact originated its specific name. This condition is also shared with its congener *S. macropterus*, although less conspicuously developed. The sexual dimorphism in *C. rikbaktsa* is obviously distinct from the one found in *S. barbatus* and *S. macropterus* because odontodes are not clumped in a specific area of the head. Tencatt *et al.* (2016) mentioned that mature males of *C. paleatus* (Jenyns) and *C. froehlichii* Tencatt, Britto & Pavanelli possess odontodes more well-developed than females, although without specifying if they are present over the whole body or in a specific region. The examination of *C. paleatus* specimens revealed a slightly distinct dimorphism from the one present in *C. rikbaktsa*, in which males of the former presents numerous scattered odontodes over the infraorbitals, preopercle and frontal bone, mainly on the margins of the bones.

Comparative material examined. *Corydoras atropersonatus*: ANSP 167686, 25, 21.7–30.9 mm SL; ANSP 167680, 50, 12.9–33.0 mm SL; ZUEC 16922, 5, 16.0–32.2 mm SL; NRM 28586, 542, 15.8–35.3 mm SL; NRM 28590, 170, 17.8–35.3 mm SL: all from Peru, Loreto, Río Nanay. *Corydoras griseus*: ZUEC 6556, 5, 31.7–35.1 mm SL; ZUEC 7840, 1, 34.7 mm SL; ZUEC 13474, 1, 33.2 mm SL; all from Guyana, Potaro-Siparuni, Kuribrong River. *Corydoras paleatus*: MNRJ 27966, 152, 2cs, MNRJ 27968, 14; all from Brazil, Paraná, rio Iguaçú basin. *Corydoras sychri*: USNM 284431, 1, 39.2 mm SL: Peru, Loreto, Río Nanay.

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