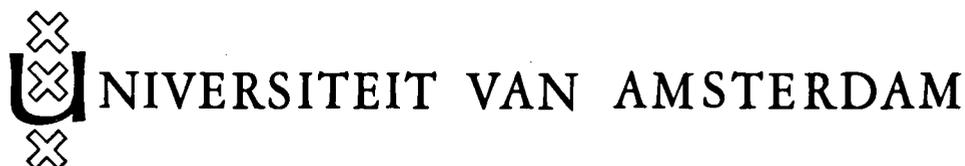


# BULLETIN ZOOLOGISCH MUSEUM



Vol. 7 No. 13 1980

## *ASPIDORAS VIRGULATUS* N. SP., A PLATED CATFISH FROM ESPÍRITO SANTO, BRAZIL

(PISCES, SILURIFORMES, CALLICHTHYIDAE)

H. NIJSSEN & I.J.H. ISBRÜCKER

### ABSTRACT

*Aspidoras virgulatus*, a new species of Neotropical callichthyid catfish, is described and illustrated. It originates from tributaries of Rio Doce, State of Espírito Santo, Brazil.

### INTRODUCTION

*Aspidoras* Von Ihering, 1907, is a genus of small callichthyid catfishes with 14 species, all occurring in Brazil, in the states of Ceará, Maranhão, Goiás, Minas Gerais, Mato Grosso, Bahia, and now also in Espírito Santo.

The genus *Aspidoras* is closely related to *Corydoras* Lacepède, 1803, from which it is easily distinguished by a relatively small frontal fontanel plus a small supraoccipital fossa, whereas *Corydoras* has a single, relatively large, elongate fontanel.

The new species, presently described as *Aspidoras virgulatus*, was found in samples misidentified and recorded by P. de Miranda Ribeiro (1959: 16) as *Corydoras treitlii* Steindachner, 1906, still known only from its type-locality, upper Rio Parnaíba, Est. Maranhão, Brazil.

*Aspidoras virgulatus* n. sp.  
(Figs. 1-2; Table I)

*Corydoras treitlii* (non Steindachner, 1906); P. de Miranda Ribeiro, 1959: 16 (list of specimens; in part).

## Material examined.-

16 specimens, largest 36.1 mm sl.

Brazil: Est. Espírito Santo: MNRJ 5371, holotype, sl 32.7 mm; MNRJ 10547 (ex MNRJ 5371), 3 paratypes, sl 21.9 - 30.2 mm; ZMA 116.218 (ex MNRJ 5371), 1 paratype, sl 30.7 mm, Córrego Chumbado, estrada de Linhares (19° 22'S, 40° 04'W) a São Mateus (18° 44'S, 39° 53'W), município de Linhares, coll. Comissão do Instituto Oswaldo Cruz, 1948. — MNRJ 5370, 1 paratype, sl 27.7 mm, Rio Ouesino, estrada de Linhares a São Mateus, município de Linhares, coll. L. & H. Travassos & J. Teixeira de Freitas. — MNRJ 5143, 5 paratypes, sl 20.7 - 36.1 mm, Ribeirão do Engano, Vale do Itaúna, coll. Com. Inst. Oswaldo Cruz, 1944. — MNRJ 5366, 2 paratypes, sl 30.6 - 33.6 mm; MNRJ 5409, 2 paratypes, sl 28.4 - 33.1 mm; ZMA 116.219 (ex MNRJ 5409), 1 paratype, sl 33.2 mm, Rio Cupido, Sooretama, município de Linhares, coll. L. & H. Travassos & J. Teixeira de Freitas, 1948 (date given for MNRJ 5366 only).

## Description.-

Proportions and counts are given in Table I.

Measurements (in mm) and counts of the holotype (female): sl (standard length) 32.7, bd (body depth at origin of dorsal-fin spine) 10.0, bw (body width at origin of pectoral-fin spine) 9.0, lds (length dorsal-fin spine) 5.6, lps (length pectoral-fin spine) 7.0, hl (head length) 9.7, sn (snout length) 5.0, lbo (length bony orbit) 2.6, wi (least interorbital width) 4.1, ca (width coracoid area, between anterior ventrolateral body scutes) 5.1, dcp (least depth caudal peduncle) 4.5, anterior (frontal) fontanel roundish/oval (Fig. 2b) 2.0, posterior (supra-occipital) fossa present (Fig. 2b); D (dorsal fin) with a spine and 7 branched rays, last ray split to its base; P<sub>1</sub> (pelvic fin) with one unbranched and 5 branched rays; A (anal fin) with 2 unbranched and 5 branched rays, last ray split to its base; P<sub>2</sub> (pectoral fin) with a spine and 9 branched rays; C (principal caudal-fin rays) 7/7, the outer unbranched; dbs (dorsolateral body scutes) 24; vbs (ventrolateral body scutes) 22; pas (preadipose scutes) 4. Two pairs of rictal barbels, the longer reaching gill opening ventrally. One pair of short mental barbels.

Medial border of pectoral-fin spine strongly serrated (Fig. 2a). Skin of intercoracoid naked. From the posterior side of the orbital rim a series of about four granular ridges run up on the skull along the rim to the nostrils, almost reaching anterior tip of the frontals. Dorsal and pectoral-fin spines distinctly shorter than adjacent rays. Snout in front of nostrils naked except for the presence of a relatively small number of minute, isolated odontodes.

Anus with a small, acute posterior papilla. Nuchal scutes almost meeting each other along dorsal midline, although this midline is covered with skin. Part of second dorsolateral body scute is ventrally covered by an additional median body scute which reaches upper part of cleithrum. Five additional scutelets adjacent to and around last dorsolateral body scute, and three scutelets posterior to last ventrolateral body scute.

Colour in alcohol: Holotype (Fig. 1). Basic body colour yellowish tan; white skin covering ventral area.

A prominent, brown, longitudinal stripe runs on junctions of dorso- and ventrolateral body scutes from the fifth dorsolateral body scute, almost reaching caudal-fin base. Within this stripe a small, darker, oblique line runs along the posterior margin of each scute. Irregular brown pigment around dorsal-fin base, predorsal scute, and adipose-fin base.

A less prominent longitudinal stripe on fifth through thirteenth dorsolateral body scute, about halfway the height between dorsal fin and dorsal border of the midlateral stripe. Posteriorly, this stripe is interrupted by a poorly pigmented area on almost two scutes.

Large ill-defined, dark-brown blotches on first (nuchal) to third dorsolateral body scute; fourth dorsolateral body scute rather pale. Dark brown pigment in naked area adjacent to head and in front of the midlateral body scute. A series of small brown blotches, decreasing in size posteriorly, on first to fourth ventrolateral body scute, just below midlateral stripe. On second to sixteenth ventrolateral body scute (from near distal tip of pectoral-fin spine to base of first and second branched anal-fin ray) runs a third longitudinal stripe; the intensity

of pigmentation is intermediate between that of the other two longitudinal stripes.

Dorsum and sides of ossified areas of head with irregular brown pigmentation forming small, dark blotches. Skin covering anterior fontanel with brown pigment along margin. Basic colour of unossified parts of snout whitish. Brown pigment forms an irregular pattern of lines. Upper lip and base of rictal and mental barbels scarcely pigmented.

Dorsal-fin spine, first two rays and the membrane between them, rather faintly brown pigmented, forming a stripe to the tip. Adjacent rays with isolated, small, conspicuous brown dots, forming three irregular, oblique rows. Very faint pigment on adipose-fin. Base of caudal fin almost devoid of pigment. About six series of small brown dots form irregular, vertical lines on caudal-fin rays. Anal fin with about three irregular oblique rows of dots from second unbranched ray to most of the branched rays. Pelvic fins hyaline. Pectoral fins hyaline, except for some fine, faint greyish-brown on spine and adjacent rays.

Paratypes: Five male paratypes (sl 24.7 - 33.2 mm) have bristles (enlarged odontodes) on their cheeks. This sexual dimorphism is also known in males of *Corydoras barbatus* (Quoy & Gaimard, 1824), *C. macropterus* Regan, 1913, and in *C. bondi coppenamensis* Nijssen, 1970. Various species of Loricariidae also have - often prominently - enlarged odontodes in males.

All specimens examined have a small papilla just beyond the anus. In the bristled specimens and in three other specimens (sl 27.7 - 29.7 mm) this papilla has the shape of an arrow. On the basis of this shape we recognize these 8 specimens as males. The holotype and five larger paratypes (sl 30.6 - 36.1 mm) are females, having an acute papilla like the two remaining juveniles (sl 20.7 - 21.9 mm). Trends in the range of variability of some body proportions (sl, bw, lds, lps, sn, lbo, wi, dcp) tend to support this sex determination (see Table I). This trend was, however, not found in the coracoid width, where we anticipated a broader area in females. The relative size and the shape of the anterior fontanel varies considerably, and is not correlated with age. In the smallest paratype,

this fontanel is 1.9 mm long, in the largest paratype 1.4 mm, whereas it is 1.0 mm in a paratype of 33.2 mm sl. The longest fontanel was found in specimens of 28.1, 31.1 and 32.7 mm sl. It is round, oval, pearshaped, or elongate in shape. In one specimen we found a slender commissural bar. The posterior fossa is usually visible, though not conspicuous in larger specimens.

One of the paratypes has in the lower lobe of the caudal fin one branched ray less (5) than the others. The only noteworthy variation exists in the number of pectoral-fin rays: 7 in one, 8 in five, 9 in six specimens. Two specimens have 8 on one side and 9 on the other side. Frequency of the number of scutes is: dbs/vbs 24/21 in one specimen, 24/22 in four, 25/21 in one, 25/22 in five, 25/23 in three, and 26/23 in one specimen. Pas is 3 in five, 4 in nine, and 5 in one specimen.

Variability of colour pattern: The midlateral stripe is usually solid and conspicuous. It is irregular posteriorly in one of the better preserved paratypes. The five paratypes in MNRJ 5143 are stained with brown, their pigmentation quite faded. Some of these paratypes have a midlateral stripe with 4 or 5 large, elongate blotches, considerably darker than the remaining pigment (reminding of the colour pattern in *Aspidoras spilotus*, cf. Nijssen & Isbrücker, 1976: 124, fig. 14). In one of these paratypes the midlateral and ventral stripes are connected through a brown vertical bar.

Both the dorsal and ventral stripe are variable in length. The dorsal stripe is often interrupted, especially posteriorly. Some specimens show more than one interruption (rather reminding of a series of elongate blotches). In one paratype nine gradually smaller spots are visible just below the midlateral stripe, from first to ninth ventrolateral body scute.

Pigmentation on scutes anterior to fourth dorsolateral body scute usually prominent and variable. Snout with even, faint pigment or with dense, marble-like markings. Most specimens with a dark line from the sides of upper lip to orbital rim. Fins with a basically similar colour pattern, although varying in intensity and number of spots. The spots in the proximal half of the upper caudal

fin lobe are in some paratypes more prominent than in the lower lobe; in others it is the other way around, whereas some specimens show the same pattern in both lobes. Adipose fin often with a small, conspicuous brown spot.

Bristles of the male: In females, the unossified snout bears a limited number of minute, isolated odontodes, covered by mucous tissue. The odontodes on the bony parts of the snout are larger. In five out of the eight males, long, hair-like odontodes produce from small beds of mucous tissue. Although not clearly visible in most specimens, it is likely that they arise from small roundish dermal ossifications. The odontodes on the unossified parts of the snout are found in isolated patches, which are up to 10 in number, and arranged into a regular, horizontal series running from the preoperculum to near the sides of the upper lip. In some specimens, similarly enlarged odontodes are evenly distributed on preoperculum, suborbital, and anteroventral part of the operculum. The remaining odontodes (on snout and head) are somewhat longer in males than in females, and are embedded in thicker mucous tissue.

#### Etymology.-

*Aspidoras virgulatus*'s specific name is Latin, meaning striped, alluding to the distinctive trilineate colour pattern of the body.

#### Discussion.-

Recently (1976), we published a review of the genus *Aspidoras* Von Ihering, 1907. Thirteen species were recognized, all from Brazil.

*Aspidoras virgulatus* differs from all other species in its colour pattern. In addition, the serration of the medial border of the pectoral-fin spine is stronger in *A. virgulatus* than in the other species of *Aspidoras* except for *A. pauciradiatus* (Weitzman & Nijssen, 1970). The proportions and counts of *Aspidoras virgula-*

*tus* were compared with those given in graphs in Nijssen & Isbrücker (1976, figs. 17-19), illustrating the same characters of the 13 other species of *Aspidoras*. *A. virgulatus* tends to have a longer pectoral-fin spine (lps 3.9 - 4.9 against 4.0 - 8.9) and a longer head (hl 3.2 - 3.4 against 3.3 - 4.0) than all other species of *Aspidoras*.

#### Sympatric occurrence.-

*A. virgulatus* was collected with *Corydoras prionotos* Nijssen & Isbrücker, 1980. This sample (MNRJ 5409) originally consisted of 4 specimens, identified as *Corydoras treitlii* by P. de Miranda Ribeiro (1959: 16). Three of these specimens are now paratypes of *Aspidoras virgulatus*, the fourth (recatalogued as MNRJ 10543) is a *Corydoras prionotos*.

#### ACKNOWLEDGEMENTS

We are much indebted to Dr. A. Leitão de Carvalho, Museu Nacional, Universidade Federal do Rio de Janeiro, Rio de Janeiro (MNRJ), who loaned the specimens herein described, and permitted exchange of 2 paratypes.

Mr. L.A. van der Laan, Institute of Taxonomic Zoology, Amsterdam (ZMA) made Fig. 1 and Mr. J. Zaagman (ZMA) polished our sketches for Fig. 2.

#### REFERENCES

- MIRANDA RIBEIRO, P. DE, 1959. Catálogo dos peixes do Museu Nacional. III. Callichthyidae Gill, 1872.- Publicações avuls. Mus. nac. Rio de Janeiro, 27: 1-16.  
 NIJSSEN, H. & I.J.H. ISBRÜCKER, 1976. The South American plated catfish genus *Aspidoras* R. von Ihering, 1907, with descriptions of nine new species from Brazil (Pisces, Siluriformes, Callichthyidae).- Bijdr. Dierk., 46 (1): 107 - 131.

Table I. Proportions and counts of A) holotype, B) 5 female paratypes, C) 8 male paratypes, D) 2 juvenile paratypes, and A-D) total ranges of variation in proportions and counts in all 16 specimens of *Aspidoras virgulatus* n. sp.

specimen(s)	A holotype	B 5 ♀♀	C 8 ♂♂	D 2 juv.	A - D 16 (total)
sl (mm)	32.7	30.6-36.1	24.7-33.2	20.7-21.9	20.7-36.1
sl/bd	3.3	3.1- 3.5	3.2- 3.4	3.3- 3.5	3.1- 3.5
sl/bw	3.6	3.5- 3.8	3.7- 3.9	3.5- 3.7	3.5- 3.9
sl/las	5.8	5.3- 6.2	4.8- 5.9	5.2- 6.4	4.8- 6.2
sl/lps	4.7	4.4- 4.8	3.9- 4.3	4.6- 4.9	3.9- 4.9
sl/hl	3.4	3.2- 3.4	3.2- 3.4	3.2- 3.3	3.2- 3.4
hl/sn	1.9	1.8- 1.9	1.9- 2.0	2.0	1.8- 2.0
hl/lbo	3.7	3.8- 4.2	3.3- 3.8	3.4	3.3- 4.2
hl/wi	2.4	2.4- 2.6	2.2- 2.3	2.2	2.2- 2.6
hl/ca	1.9	1.8- 2.5	1.8- 2.5	1.6- 2.0	1.6- 2.5
hl/dep	2.2	2.1- 2.3	1.9- 2.2	1.8- 1.9	1.8- 2.3
fontanel (mm)	2.0	1.4- 2.0	1.0- 2.0	1.5- 1.9	1.0- 2.0
P <sub>2</sub>	I, 9	I, 8-9	I, 7-9	I, 9(N=1)	I, 7-9(N=15)
dfs/vbs	24/22	24-26/22-23	24-25/21-22	25/23	24-26/21-23
pas	4	3-5	3-4	4	3-5



Fig. 1. *Aspidoras virgulatus* n. sp., holotype, sl 32.7 mm.

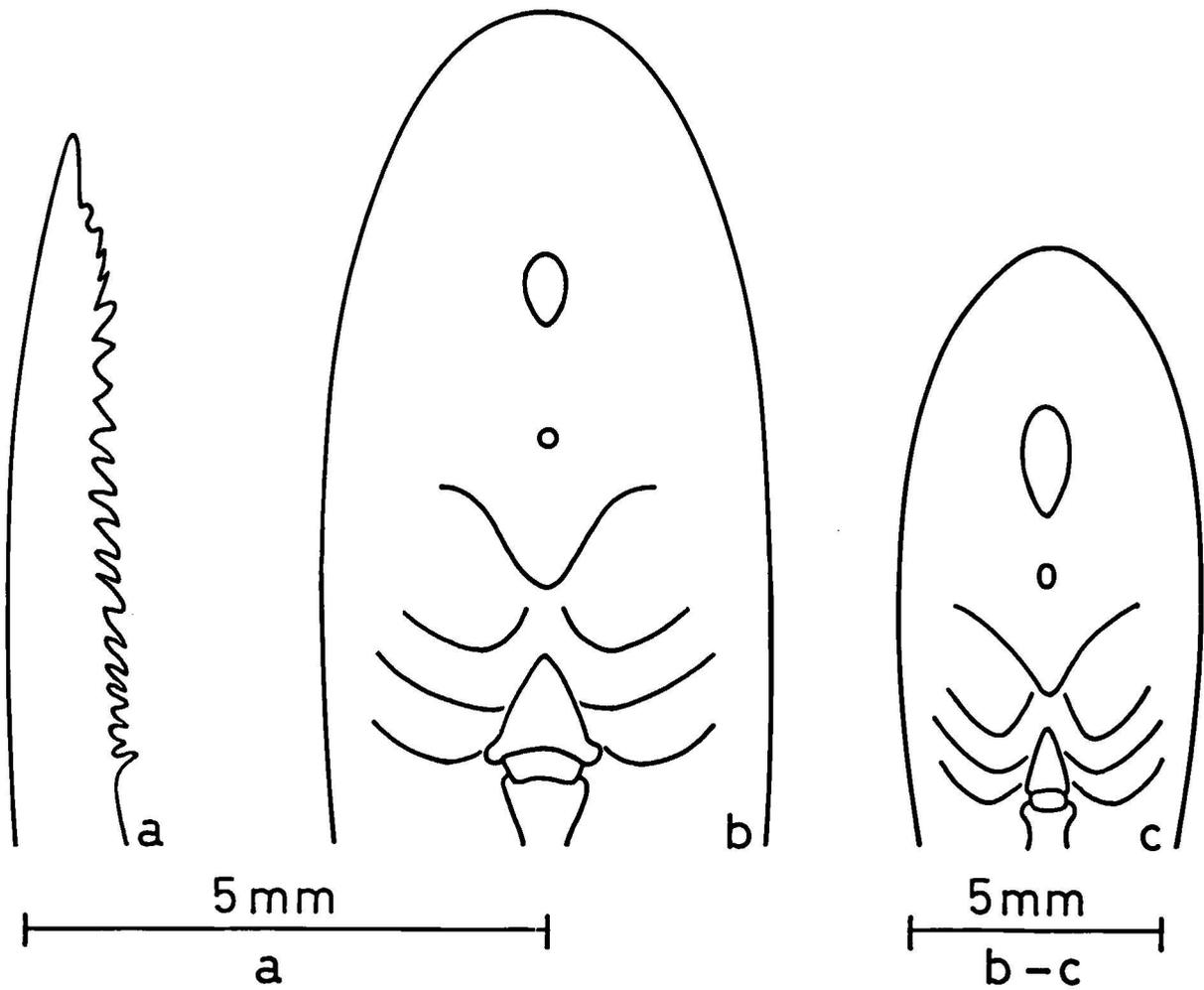


Fig. 2. *Aspidoras virgulatus* n. sp., a) profile of left pectoral spine of the holotype; b-c) size and shape of the fontanels in b) holotype, and c) paratype of 20.7 mm sl.

Dr. H. Nijssen  
I.J.H. Isbrücker, M.Sc.Biol.  
Instituut voor Taxonomische Zoölogie  
(Zoölogisch Museum)  
Universiteit van Amsterdam  
Postbus 20125  
1000 HC Amsterdam  
The Netherlands

received : 25.III.1980.  
mailing date : 18.VII.1980.