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A new species of *Kolpotocheirodon* (Teleostei: Characidae: Cheirodontinae: Compsurini) from Bahia, northeastern Brazil, with a new diagnosis of the genus

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Abstract.—*Kolpotocheirodon figueiredoi,* a new species of the characid subfamily Cheirodontinae, tribe Compsurini, is described from the upper rio Paraguaçu basin, Bahia, Brazil. A new diagnosis for the genus is proposed, based mostly on scanning electron microscope (SEM) analyses of the caudal organ of the new species and that of the single previously known species, *Kolpotocheirodon theloura.* The genus is diagnosed now in part by the presence of a previously undescribed, sexually dimorphic and apparently glandular, structure found in the lower caudal-fin lobe of males. The basal relative position of *Kolpotocheirodon* within the Compsurini, in which all species are inseminating, is further supported by the presence of aquasperm in both species rather than the apomorphic elongate sperm nuclei present in the remaining members of the tribe.

Resumo.—*Kolpotocheirodon figueiredoi* é descrito para a porção superior da bacia do rio Paraguaçu, Bahia, Brasil. Propõem-se uma nova diagnose para o gênero, baseada principalmente na análise de Microscopia Eletrônica de Varredura do órgão caudal da nova espécie e de *Kolpotocheirodon theloura,* a única espécie conhecida anteriormente. O gênero é diagnosticado pela presença de uma estrutura aparentemente glandular e previamente não descrita do lobo ventral da nadadeira caudal dos machos. A posição relativamente basal de *Kolpotocheirodon* em Compsurini, uma tribo de peixes com inseminação de Cheirodontinae, é corroborada pela presença de espermatozóides aproximadamente esféricos (aquasperm) nas duas espécies, ao invés da presença de espermatozóides de núcleo alongado, como observado nos demais membros da tribo.

The genus *Kolpotocheirodon* was recently described by Malabarba & Weitzman (2000), from a single species, *K. theloura,* from the uppermost tributaries of the rio São Francisco and rio Paraná central Brazil. The genus is a member of the tribe Compsurini, subfamily Cheirodontinae (see Malabarba et al., 1998) and was diagnosed primarily by the presence of a unique specialized caudal organ at the proximal region of the ventral caudal-fin lobe of males. This organ consists of hypertrophied elongate dermal flaps attached along the fin rays and a series of relatively flat tabs and papillae

attached along the exposed border of those flaps. These structures were unknown in other inseminating or externally fertilizing species of characids.

At the time the research of Malabarba & Weitzman (2000) was conducted, F. C. T. Lima and colleagues were collecting in the rio Pratinha, a tributary of the rio Paraguaçu, Iraquara, Bahia, Brazil and there they discovered a new cheirodontine species that has a caudal organ similar to that present in *K. theloura*. This new compsurin species is herein described and ecological data and field observations from the type locality are presented.

Data from the description of the new species, examination of a new collection of better-preserved specimens of *K. theloura* than originally available, and scanning electron microscopy (SEM) observations of the caudal-fin structures of these two species allow a reanalysis of the characters diagnosing *Kolpotocheirodon* and redescription of the autapomorphies that distinguish its type species.

Methods and Materials

The systematic methods for making counts and measurements for all specimens studied here are the same as those described and used by Malabarba & Weitzman (1999) and are not re-described here. However, unlike the convention for fin rays wherein the count for the rays for the holotype is given first followed by the range and mean separately for the unbranched and the branched rays, the counts of jaw teeth do not report a single value followed by an indication of variation. Instead, only the range of the counts, for example, maxilla with 2 or 3 teeth, is provided. This is because we are confident only in counts taken from cleared and stained specimens. SEM photographs were taken from specimens fixed in formalin and preserved in 70% ethanol. Before metalization with gold, the fins were passed through 99% ethanol, then acetone, and treated with a critical point dryer.

Institutional abbreviations are as listed in Leviton et al. (1985). Character polarity for the diagnoses of the two *Kolpotocheirodon* species and a revised analysis of *Kolpotocheirodon* monophyly is here established by use of parsimony through a re-analysis of the cheirodontine clade Compsurini that was first diagnosed by Malabarba et al. (1998). This new analysis also includes species of the genera *Saccoderma, Compsura, Macropsobrycon,* and the species *Acinocheirodon melanogramma* ("identified" as "New Genus and Species B" in Malabarba et al, 1998), and *Kolpotocheirodon theloura* (then "identified" as "New Genus and Species A").

Kolpotocheirodon Malabarba & Weitzman

Kolpotocheirodon Malabarba & Weitzman, 2000:270 (type species: *Kolpotocheirodon theloura* Malabarba & Weitzman, 2000:271 by monotypy and original designation).

Comments preliminary to the diagnosis.– The genus *Kolpotocheirodon* was diagnosed in Malabarba et al. (1998) (as New Genus and Species A) and in Malabarba & Weitzman (2000) by the presence of three apomorphic features that occur in its type species. These characters, as described by Malabarba and Weitzman (2000), are a specialized part of a caudal organ located at the proximal region of the ventral caudal-fin lobe of mature males and consist of hypertrophied elongate dermal flaps attached along the fin rays together with a series of relatively flat tabs and papillae attached along the exposed border of these flaps (= character 36 in Malabarba 1998); hooks on the anal-fin rays of mature males distributed along the most posterior unbranched and five anterior branched anal-fin rays (= character 30 in Malabarba, 1998); and the twelfth and thirteenth caudal-fin rays are dorsally concave along their basal halves and have ventrally expanded segments (= character 34, state 2 in Malabarba 1998).

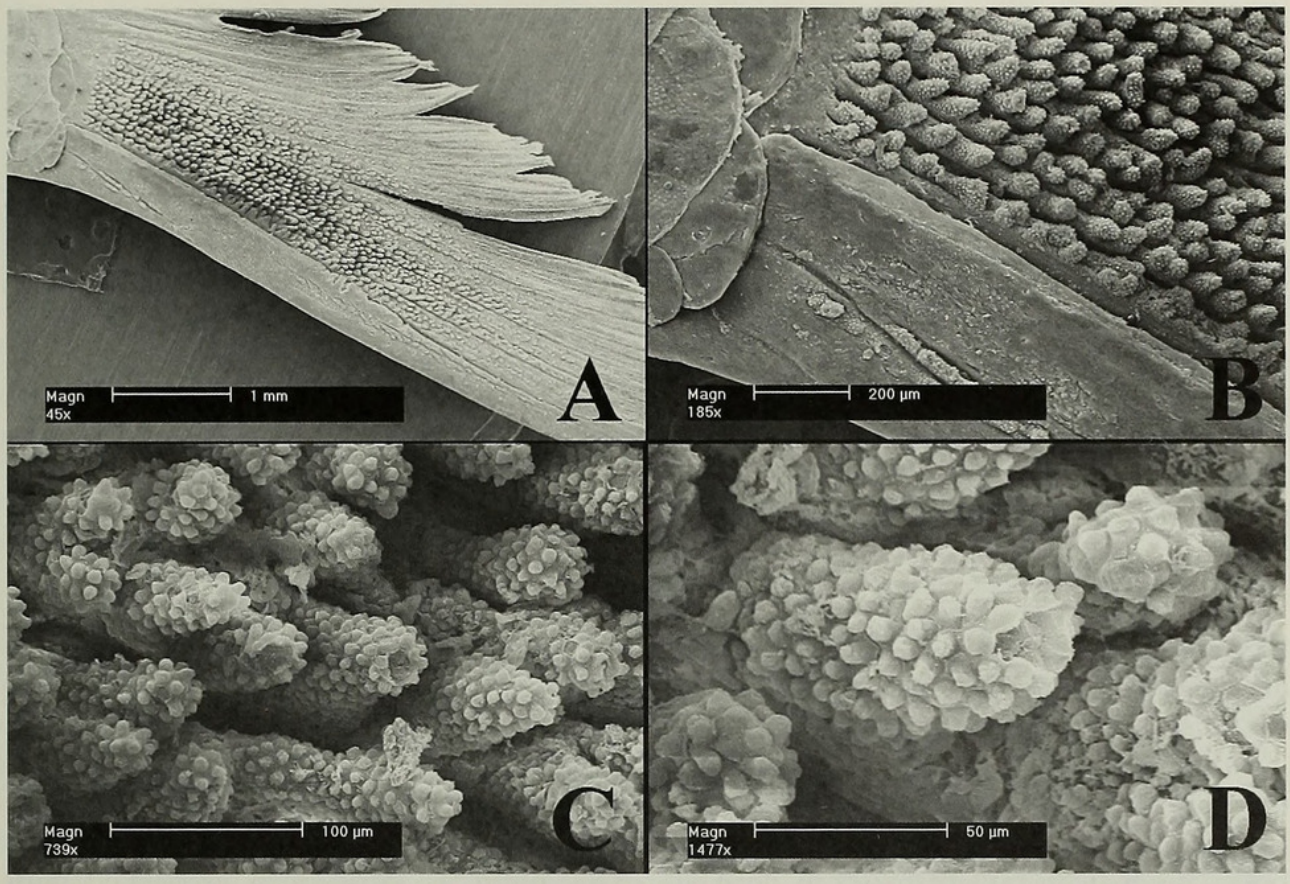

Fig. 1. *SEM* of caudal organ in *Kolpotocheirodon figueiredoi,* male (MZUSP 55219, 25.5 mm SL), from rio Pratinha, Iraquara, Bahia, Brazil. (A) lower caudal-fin lobe; (B) detailed image showing the smooth border of the flap attached along the basal portion of the nineteenth caudal-fin; (C) and (D) detailed images of the pineapple organs of the ventral lobe of the caudal fin.

Diagnosis.—By using SEM the specialized caudal-fin organ described in the previous diagnosis of *Kolpotocheirodon* is now found to be more complex than formerly known. A new caudal organ, previously undescribed, corresponds to a secondary sexually dimorphic organ found exclusively in the ventral lobe of the caudal fin of males of both *Kolpotocheirodon* species. This "pineapple-like" organ is easily recognized by its peculiar shape, somewhat cone shaped or papilla-like, but completely covered by smaller papillae-like bodies or knobs (see Figs. 1, 2). These are distributed among the large papillae of the caudal fin of males of *K. theloura* (see Fig. 3), but form the entire caudal-fin organ in *K. figueiredoi* (see Fig. 1). This organ is found only in adult males of both species, suggesting that it may have a reproductive function, possibly pheromone in nature. This pineapple organ has not been found in other cheirodontines or other characids, and its presence supports a hypothesis of close relationship between the two *Kolpotocheirodon* species.

Both *Kolpotocheirodon* species have a conspicuous small black spot at the midlength of the first branched anal-fin ray of males (Figs. 5, 7 and 8), absent in females (Fig. 6). Such a spot is absent in all other known cheirodontines. It is here considered derived and a synapomorphy for the genus.

Males of *Kolpotocheirodon figueiredoi* and *K. theloura* have the ventral body surface in the area covering the pelvic bone with a dark brown mark, nearly in the shape of an isosceles triangle. This pigment appears to externally delineate an area corresponding to the muscles inserted on the pel-

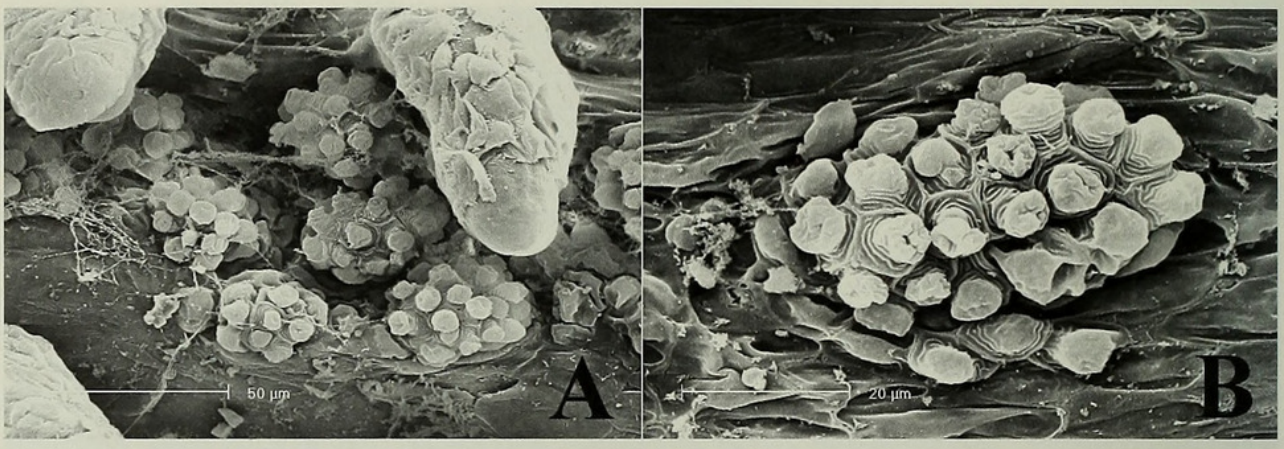

Fig. 2. Detailed *SEM* images of the pineapple organs found between the papillae of the ventral lobe of the caudal-fin ray of males in *Kolpotocheirodon theloura.* MNRJ 18081, SL 26.2 mm, from lagoa Perta Pé, rio São Francisco drainage, Palmital, Minas Gerais, Brazil. (A) bar = 50 µm; (B) bar = 20 µm.

vic bone (Fig. 8). Such a spot is absent in all other cheirodontines, and constitutes a synapomorphy for the two species.

Malabarba & Weitzman (2000) described the presence of well-developed hooks along the last unbranched and five anterior branched anal-fin rays of males as derived, and diagnostic for *Kolpotocheirodon* (= character 30 in Malabarba 1998). The new specimens available of *K. theloura,* MNRJ 18081, have the last unbranched and five to seven anterior branched anal-fin rays of males bearing hooks (5 branched rays in 7 specimens, 6 in 23 specimens, and 7 in 3 specimens). Males of *K. figueiredoi* have the last unbranched and five to six anterior branched anal-fin rays of males bearing hooks (5 branched rays in 6 specimens, 6 in 6 specimens; 8 in one specimen). The anal-fin region bearing hooks also contains modified soft tissues, absent in the remaining portion of the fin. Although showing more variability than previously described, the condition found in both *Kolpotocheirodon* species is different from that found in other compsurins, which have hooks along a larger number of anal-fin rays. We found that only in *Saccoderma* species among compsurins are anal-fin hooks restricted to the anterior anal-fin rays, in the last unbranched and four anterior branched rays. By parsimony both conditions are considered derived and autapomorphic for each genus. Note: Menezes et al. (in press) and Weitzman et al. (in press) have described and discussed glandular soft tissue in the anal fins of sexually active male characids of many kinds including glandulocaudines, and some non-glandulocaudines. This tissue is most often associated with anal-fin hooks, but in one species a glandular organ was found.

Kolpotocheirodon theloura
Malabarba & Weitzman
Fig. 7

Kolpotocheirodon theloura Malabarba & Weitzman, 2000:271–281 (description; relationships); 272, fig. 1 (holotype); 273–4, fig. 2–3 (paratypes); 275, fig. 4 (caudal-fin hooks); 276, fig. 5 (ventral caudal-fin lobe); 277, fig. 6 (anal-fin hooks); 278, fig. 7 (premaxillary and maxillary teeth), fig. 8 (pelvic-fin hooks).

Material examined: All specimens listed in Malabarba & Weitzman (1999), plus MNRJ 18081, 135 spms. (10 examined, SL 24.3–27.4 mm), Brazil, Minas Gerais, Palmital, lagoa Perta Pé, rio São Francisco drainage.

Diagnosis.—Kolpotocheirodon theloura is diagnosed from the new *Kolpotocheirodon* species and other characid fishes by the following autapomorphies: As described in Malabarba & Weitzman (2000), *K. theloura*

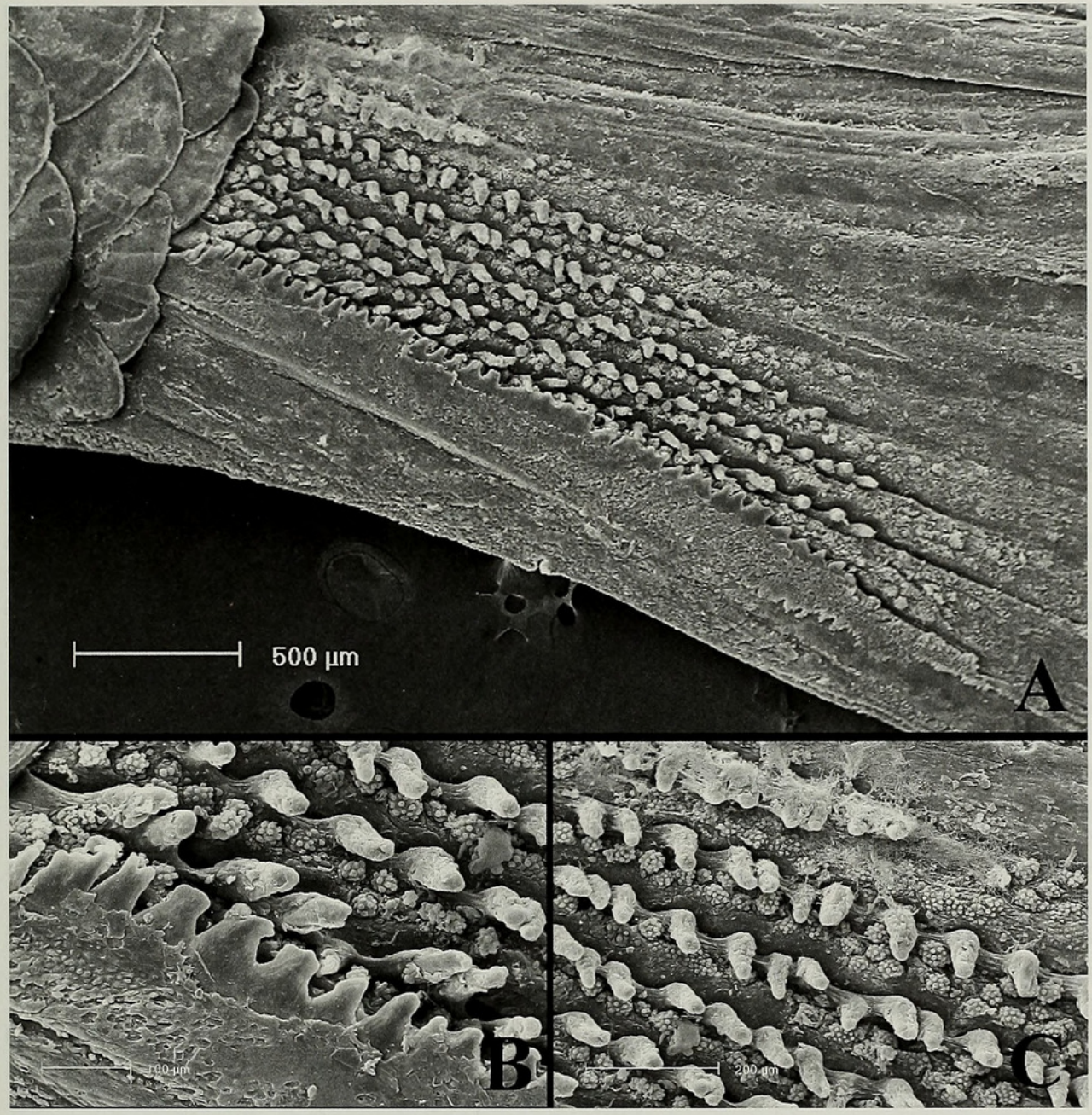

Fig. 3. *SEM* images of caudal organ in *Kolpotocheirodon theloura,* male, MNRJ 18081, SL 26.2 mm, from lagoa Perta Pé, rio São Francisco drainage, Palmital, Minas Gerais, Brazil. (A) lower caudal-fin lobe, bar = 600 µm ; (B) detailed image of the flap attached along the basal portion of the nineteenth caudal-fin ray with a series of relatively flat tabs along its exposed border, bar = 100 µm; (C) detailed image of the flaps attached to the eighteenth through thirteenth or fourteenth fin-rays with a single series of papillae along its exposed border, bar = 200 µm.

has hypertrophied elongate dermal flaps attached along the fin rays of the ventral caudal-fin lobe of males (= character 36 in Malabarba 1998). The flap attached along the basal portion of the nineteenth caudal-fin ray has a series of relatively flat tabs along its exposed border (Fig. 3). The flaps attached to the eighteenth through thirteenth or fourteenth fin-rays are relatively short, narrow and bear papillae in a single series along its exposed border (Fig. 3A, C). These modified flaps of the caudal organ are not exclusive to males in *K. theloura,* being also found in females, although less developed (Fig. 4). Modified flaps are also observed in the dorsal fin of males of *K.*

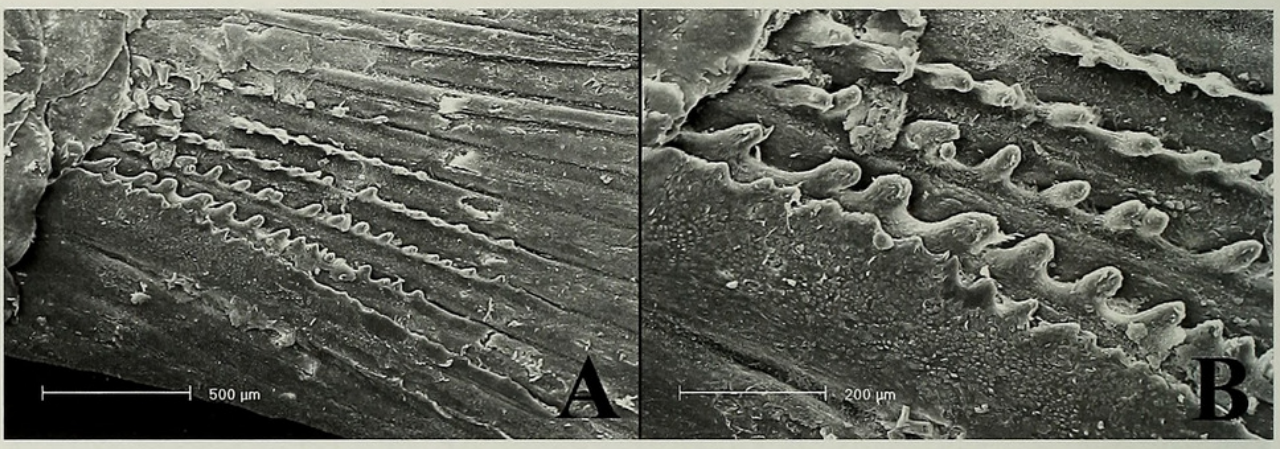

Fig. 4. Detailed *SEM* images of the flaps bearing papillae along the basal portion of the ventral lobe of the caudal-fin ray in *Kolpotocheirodon theloura,* female, MNRJ 18081, SL 26.5 mm, from lagoa Perta Pé, rio São Francisco drainage, Palmital, Minas Gerais, Brazil. (A) bar = 500 µm; (B)bar = 200 µm.

theloura (Fig. 9). These modified flaps are independent of the sexually dimorphic pineapple-like organs described as a synapomorphy for *Kolpotocheirodon* and are absent in *K. figueiredoi.* The modified flaps constitute an autapomorphy of *K. theloura.*

As described in Malabarba & Weitzman (2000), the twelfth and thirteenth caudal-fin rays of *K. theloura* are curved, dorsally concave along their basal halves, and with ventrally expanded segments (= character 34, state 2 in Malabarba, 1998). This feature was not observed in *K. figueiredoi* and is considered autapomorphic for the type species, *K. theloura.*

Kolpotocheirodon theloura has 3–5 very small vertical bars crossing lateral body stripe between pseudotympanum and area ventral to dorsal fin (Fig. 7). Such bars are absent in the new *Kolpotocheirodon* species and in other compsurins and represent an autapomorphy for *K. theloura.*

Kolpotocheirodon figueiredoi
new species
Figs. 5, 6

Holotype.–MZUSP 70037, 1 male, 30.5 mm SL, Brazil, Bahia, Iraquara, rio Pratinha, Fazenda Pratinha (12°21′13″S; 41°32′57″W), 17–21 Dec 1998; P. Gerhard, F. C. T. Lima, F. Di Dário and L. S. Rocha.

Paratypes.—All specimens collected with the holotype: MCP 22345, 3 males,

Fig. 5. *Kolpotocheirodon figueiredoi,* new species, holotype, male, MZUSP 70037, SL 30.5 mm; rio Pratinha, Iraquara, Bahia, Brazil.

Fig. 6. *Kolpotocheirodon figueiredoi,* new species, paratype, female, MZUSP 55219, SL 30.0 mm; rio Pratinha, Iraquara, Bahia, Brazil.

25.1–30.5 mm SL, 2 females, 24.0–24.8 mm SL. MZUSP 55219, (26) 14 males, 24.2–28.2 mm SL, 8 females, 24.0–31.0 mm SL; (1 male 28.2 mm SL and 1 female 26.9 mm SL Alizarin red s and Alcian blue stained specimens cleared with trypsin; 1 male 26.2 mm SL and 1 female 26.4 mm SL sectioned for histology; 1 male 25.5 mm SL sectioned for TEM study).

Diagnosis.—Kolpotocheirodon figueiredoi lacks all autapomorphies described above for *K. theloura,* but has no unambiguous autapomorphies for its diagnosis. The following characters have alternative states between *K. figueiredoi* and *K. theloura,* but these also occur alternatively among other compsurin species. Nevertheless they are most parsimoniously accepted either as autapomorphic for *K. figueiredoi* or apomorphic for *K. theloura.*

Whereas males of *K. figueiredoi* have no hooks on the caudal-fin rays, while males of *K. theloura* have the twelfth to the fourteenth or fifteenth principal caudal-fin rays bearing 4–6 retrorse hooks on each side in a row along their dorsal divisions (Mala-

Fig. 7. *Kolpotocheirodon theloura,* male, MNRJ 18081, SL 25.0 mm; lagoa Perta Pé, rio Palmital, Minas Gerais, Brazil.

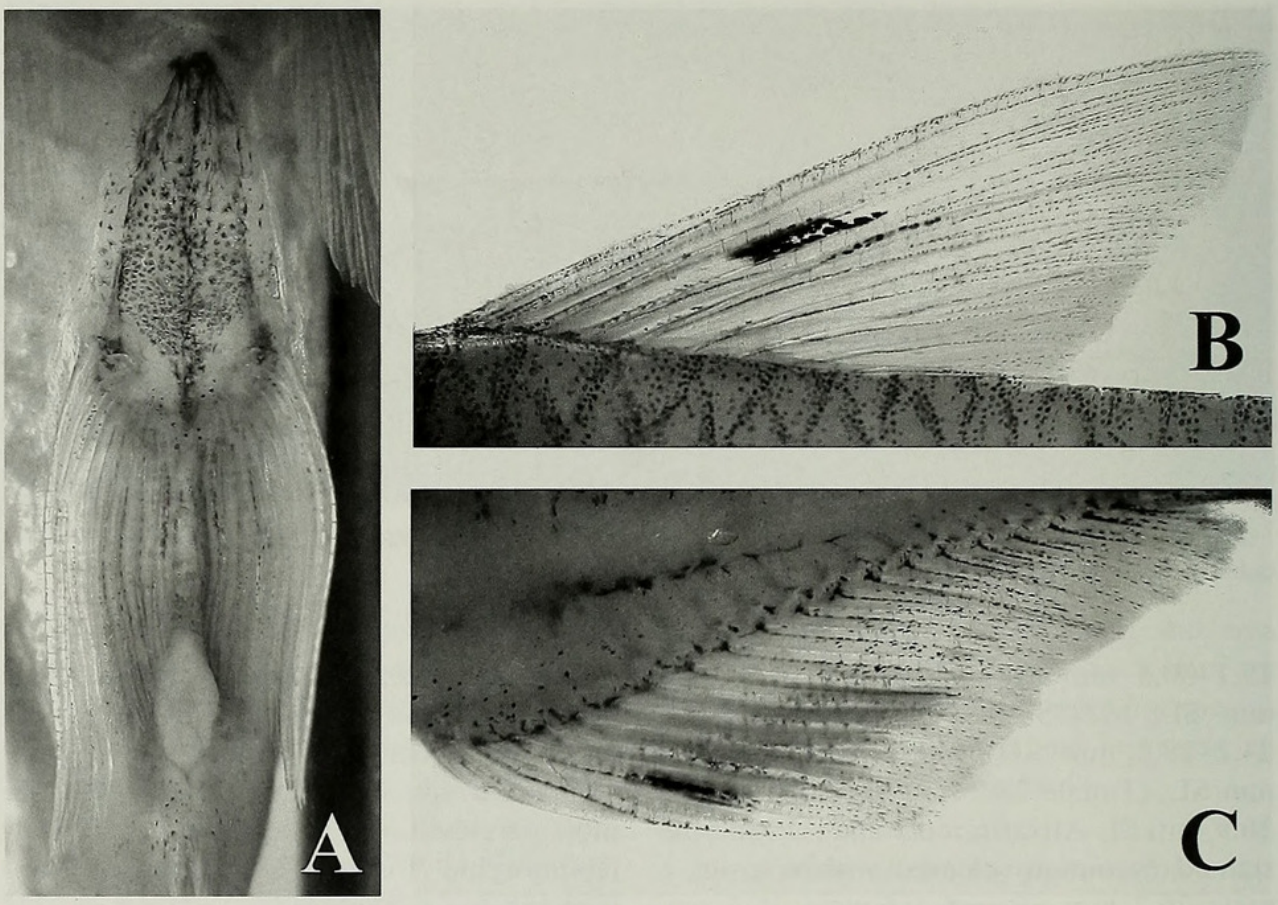

Fig. 8. *Kolpotocheirodon. figueiredoi* male, MCP23455, SL 30.5 mm. (A) Ventral body surface in the area covering the pelvic bone showing a dark brown mark, nearly isosceles triangle shape, apparently externally delineating the area corresponding to the muscles inserted in the pelvic bone. (B) and (C) Left lateral view of the dorsal (B) and anal fins (C), showing the dark spots of those fins.

barba & Weitzman, 2000: fig. 4). The presence of hooks on the caudal fin is known for several compsurins, including *Acinocheirodon melanogramma* (hooks on caudal-fin rays 13–14, rarely on ray 15), *Saccoderma hastata* (hooks on caudal-fin rays 13–18), "*Odontostilbe*" *dialeptura* (hooks on caudal-fin rays 12–16), and *Macropsobrycon uruguayanae* (hooks on caudal-fin rays 12–14, plus several spinelets along the proximal half of caudal-fin rays 14 to 18). However, hooks are absent in *Compsura heterura, Compsura gorgonae,* and "*Odontostilbe*" *mitoptera.* Malabarba & Weitzman (1999, 2000) pointed out that although these hooks are present on the ventral lobe of the caudal fin in all these species, they do not all occur on the same caudal-fin rays in all species and are of different shapes. A previous analysis of character distribution (Malabarba et al., 1998) indicated the presence of caudal-fin hooks as a synapomorphy for the compsurin cheirodontines, and its absence a secondary reversal in some of its species. The inclusion of a new species bearing no hooks in the most basal genus of the tribe allows either the recognition of the presence of hooks as a synapomorphy for the tribe Compsurini with a reversal in *K. figueiredoi,* or the recognition of independent acquisitions of hooks in *K. theloura* and in the clade including the remaining compsurins. The first hypothesis is preferred, since it better conforms with the putative homology of caudal-fin hooks among compsurins (de Pinna 1991).

Males of *K. figueiredoi* have a conspicuous small black spot in the soft tissue between midlength of first and second, and second and third branched dorsal-fin rays

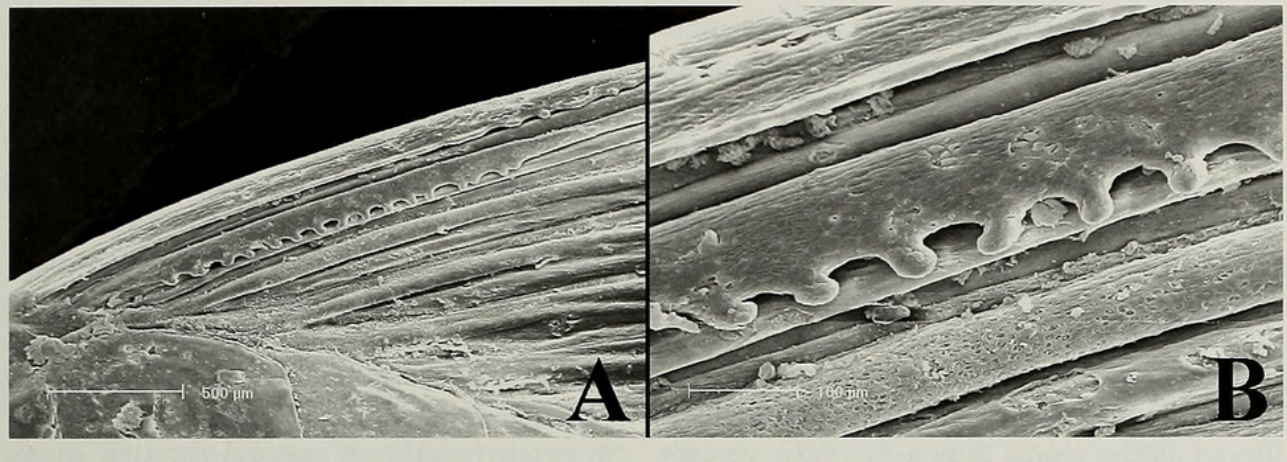

Fig. 9. Detailed *SEM* images of the flaps bearing papillae along the anterior dorsal-fin ray in *Kolpotocheirodon theloura,* male, MNRJ 18081, SL 26.2 mm, from lagoa Perta Pé, rio São Francisco drainage, Palmital, Minas Gerais, Brazil. (A) bar = 500 µm; and (B) bar = 100 µm.

(Figs. 5, 8). This is absent (Fig. 7) in *K. theloura* (= character 65 in Malabarba 1998). Among compsurins, a similar spot is observed in species of *Compsura, Macropsobrycon* and *Acinocheirodon,* but is absent in species of *Saccoderma,* This spot was previously proposed as a synapomorphy for a clade including the last four genera cited above. Again, the inclusion of a new species in the most basal genus of the tribe allows both the recognition of the presence of the dorsal black spot as a synapomorphy for the tribe Compsurini with a reversal in *K. theloura,* or the recognition of independent acquisitions of the dorsal black spot in *K. figueiredoi* and in the clade including remaining compsurins. The first hypothesis is preferred because it better conforms to the putative homology of the dorsal black spot among compsurins.

A further character distinguishing *K. figueiredoi* is its caudal-peduncle/caudal-fin

Table 1.—Morphometrics of *Kolpotocheirodon figueiredoi,* new species. Standard length is expressed in mm; measurements through head length are percentages of standard length; the last four entries are percentages of head length. Range includes the holotype, MZUSP 70037, and paratypes MCP 22345, MZUSP 55219.

	Holotype male	n	Males				n	Females			
			Low	High	$\bar{x}$	*SD*		Low	High	$\bar{x}$	*SD*
Standard length (mm)	30.5	13	25.5	30.5	27.0		10	23.8	31.0	26.4	
Snout to anal-fin origin	59.7	13	57.3	63.0	60.0	1.30	10	61.6	65.8	63.7	1.35
Snout to dorsal-fin origin	50.5	13	45.7	52.9	49.5	1.80	10	48.1	52.4	49.7	1.35
Snout to pelvic-fin origin	42.0	13	42.0	46.7	44.5	1.51	10	45.3	48.3	47.3	1.17
Dorsal-fin base length	13.1	13	12.1	15.6	13.6	1.20	10	11.9	14.3	13.2	0.72
Anal-fin base length	25.9	13	24.5	29.0	26.8	1.27	10	23.5	26.8	25.4	1.08
Caudal peduncle length	15.1	13	12.5	15.5	14.1	0.90	10	11.1	15.4	13.6	1.25
Caudal peduncle depth	13.8	13	13.6	16.1	14.8	0.76	10	11.3	13.8	12.5	0.83
Depth at dorsal-fin origin	31.1	13	31.1	35.7	33.5	1.13	10	33.6	39.4	35.4	1.86
Dorsal-fin height	29.8	12	26.1	29.8	28.0	1.36	9	25.2	27.5	26.4	0.83
Pelvic-fin length	19.0	13	16.7	19.3	18.2	0.71	10	13.4	16.3	14.6	0.79
Pectoral-fin length	19.3	13	17.5	20.1	18.8	0.77	8	15.7	19.2	17.4	1.40
Bony head length	23.3	13	23.3	25.2	24.6	0.59	10	23.0	25.0	24.1	0.72
Snout length	21.1	13	20.3	23.8	22.0	1.10	10	19.4	23.3	21.8	1.35
Upper jaw length	31.0	13	25.4	31.0	27.7	1.47	10	22.7	30.2	27.9	2.13
Horizontal eye diameter	38.0	13	33.3	38.5	36.2	1.39	10	34.8	39.7	37.3	1.68
Least interorbital width	29.6	13	26.1	31.1	28.9	1.31	10	25.4	29.5	28.1	1.32

spot (Figs. 5, 6) that is more or less rectangular in shape and horizontally elongate. It never reaches the dorsal and ventral borders of the caudal peduncle. The same spot is vertically elongate, lozenge-shaped and reaches the dorsal and ventral borders of the caudal peduncle in *K. theloura* (Fig. 7).

Description.—Morphometric data summarized in Table 1. Body elongate and compressed, greatest depth at dorsal-fin origin. Predorsal profile slightly convex. Profile of body along dorsal-fin base posteroventrally inclined, nearly straight from base of posterior dorsal-fin ray to adipose fin. Ventral body profile convex from tip of lower jaw to pelvic-fin origin. Muscles covering pelvic bone strongly prominent in ventral body profile, especially in males. Area between pelvic- and anal-fin origins slightly concave in females and notably concave in males, with a pair of concavities, separated from each other by a small median keel visible only when pelvic fins moved out of way. These concavities lodge pelvic fins when later retracted. Ventral profile along anal-fin base slightly concave in females. In males same profile, slightly convex in region of anterior lobe and slightly convex along remaining posterior fin portion. Dorsal and ventral profiles of caudal peduncle nearly straight in females. Dorsal and especially ventral surfaces of caudal peduncle of males convex, with an internal translucent cavity, covered by caudal peduncle scales.

Head small. Snout shorter than eye diameter. Mouth terminal. Maxilla short, positioned at an angle of approximately 45 degrees relative to long body axis. Posterior tip of maxilla reaching vertical that passes through anterior border of eye.

Premaxilla with 4 teeth, each having 9 small evenly spaced cusps all about equal in size. Cutting edge arched. Maxilla with 2 or 3 teeth similar in form to those of premaxilla, with 7–9 cusps. Cutting edge slightly arched to almost straight. Dentary bone with 4 or 5 large teeth each with 7 cusps; followed by 2 or 3 smaller teeth with 7 or fewer cusps. Teeth posterior to second tooth asymmetrical with most lateral cusps situated towards tooth base and most medial cusp more distally located. Cusps small and regular and approximately equal in size. Cutting edge slightly arched to almost straight.

Dorsal-fin rays, ii, 9, $n = 22$ (ii, 8 in one specimen). First unbranched ray less than half-length of second. Dorsal-fin origin approximately at midlength of body. Adipose-fin origin nearly at vertical through insertion of posteriormost anal-fin ray.

Anal-fin rays, iii, 18, (iii-iv $X = 3.5$, 16–19, $X = 17.5$, $n = 22$). Anal-fin origin slightly posterior to vertical passing through base of posteriormost dorsal-fin ray in females and at a vertical passing through base of two last dorsal-fin rays in males. Distal border of anal fin concave in females, with anterior 5–6 branched rays very long, forming prominent anterior lobe. Distal border of anal fin of males convex in the anterior lobe, decreasing in length gradually and forming a posterior concave border. Anal-fin rays of males with slender, elongate retrorse hooks on longest unbranched ray, and anterior first 5 or 6 branched rays (scattered hooks present in branched rays 7 and 8 in one specimen). Hooks inserted at posterolateral border of fin rays, bent over lateral surface of fin ray and anteriorly directed. Hooks located on posterior ray branches, less numerous on anterior ray branches. One, rarely two, bilateral pair of bony hooks per ray segment.

Pectoral-fin rays, i, 9 (i, 8–9, $X = 8.6$, $n = 22$). Distal ends of longest rays not reaching pelvic-fin origin in females; reaching or not in males. Pelvic-fin rays, i, 7 (I,7 in all specimens, $n = 22$). Pelvic-fin origin anterior to vertical passing through dorsal-fin origin. Distal tip of pelvic fin passing anal-fin origin in males, but not in females. Male pelvic fins bearing elongate ventromedial retrorse hooks along branched rays 2 to 8.

Principal caudal-fin rays 10/10 (10/9, but 10/10 and 9/9, in one specimen each, $n =$

21). Lower caudal-fin lobe of males covered with series of papillae from 12th or 13th ray to 18th or 19th principal caudal-fin rays. Papillae most numerous near caudal-fin base, extending in some specimens to near tip of lower caudal-fin lobe. Hooks or hypertrophied dorsal fin-ray flaps absent. Dorsal fin-rays 9–10, and ventral procurrent caudal-fin rays 8–10, in two cleared and stained specimens.

Scales cycloid, moderately large. Lateral-line pores incomplete, perforated scales 7, (5–9, $X = 7.4$, $n = 20$). Scales in lateral series 34, (32–36, $X = 33.7$, n = 19). Scale rows between dorsal-fin origin and lateral line 5, (5–6, $X = 5.2$, $n = 20$). Scale rows between lateral line and pelvic-fin origin 4, (4–5, $X = 4.1$, $n = 20$). Predorsal scales, when in regular series 11 (10–12, $X = 10.8$, $n = 18$).

Supraneurals, 4; precaudal vertebrae, 16; caudal vertebrae, 17–18 (in two cleared and stained specimens).

Color in alcohol.—(See Figs. 5, 6, 8). Head dark brownish dorsally with a silvery color in opercle and infraorbital area, where guanine not destroyed by fixative. Body pale brownish yellow; dorsolateral scales delineated in their borders with dark chromatophores. Black lateral body stripe evident, pale anterior to dorsal-fin origin, progressively wider and conspicuous posteriorly in larger specimens. Humeral spot absent. A conspicuous caudal spot centered at posterior termination of caudal peduncle, rectangle-shaped and extending to base of middle caudal-fin rays; caudal spot never reaching ventral and dorsal borders of caudal peduncle. Dorsal fin of males with a conspicuous small black spot in soft tissue between approximately mid length of first and second, and second and third branched dorsal-fin rays; dorsal fin of females without distinct marks. Anal fin of males with a concentration of dark chromatophores along midlength of first branched anal-fin ray, forming a small and conspicuous spot in adult male specimens; absent in females. An inconspicuous dark line present along anal-fin base in both sexes, plus a small dark line on body nearly parallel to longitudinal lateral body stripe in males and parallel to anal-fin base in females. Pectoral and pelvic fins hyaline. Ventral body surface in area covering pelvic bone of males with a dark brown mark nearly shaped like an isosceles triangle, apparently delineating external area corresponding to muscles originating from pelvic bone. Ventral midline between pelvic-fin insertion and anal-fin origin of males with a pair of thin lateral black lines, seen only when pelvic fin extended. A dark mark present on lower internal border of orbits, visible only when eyes depressed.

Color in life.—Described from color slides of a male taken in the field by Pedro Gerhard. Head dark brownish dorsally; opercle and infraorbital area silvery. Body light brownish yellow; dorsolateral scales slightly delineated with dark chromatophores; belly silvery. Lateral body stripe evident, silvery, pale anterior to dorsal-fin origin. Humeral area unpigmented, but a dark area visible due to presence of a pseudotympanum. As described in preserved specimens, a conspicuous caudal spot centered at posterior termination of caudal peduncle, rectangle-shaped, and extending to base of middle caudal-fin rays; never reaching ventral and dorsal borders of caudal peduncle. Caudal spot in colorful specimens bordered dorsally and ventrally by two yellow spots. Small black spot on dorsal fin of males, located approximately at mid length of first and second, and second and third branched dorsal-fin rays, bordered dorsally by yellow pigmentation. Anal-fin spot of males located along mid length of first branched anal-fin ray, anteriorly bordered with yellow pigmentation. A small dark line along anal-fin base and a small dark line on body nearly parallel to longitudinal lateral body stripe visible above anterior lobe of anal fin. Pectoral and pelvic fins hyaline. Presence of marks on ventral body surface not visible in available photos.

Sexual dimorphism.—Males are easily

recognized by their color pattern, displaying two conspicuous small black spots on the dorsal and anal fins (see Fig. 5), and a triangular dark brown mark on the ventral body surface of the pelvic bones (see Fig. 8), absent in females (See Fig. 6). Sexes are also differentiated by the relative position of the pelvic and anal fins, both located more anteriorly in males than in females; by the larger caudal peduncle depth in males, having an expanded portion in its ventral and dorsal profiles; and by the larger pelvic-fin lengths of males (see Table 1 for all these measurements).

Distribution.—Known only from the type locality, the rio Pratinha, Bahia, Brazil. The rio Pratinha is a tributary of the rio Santo Antônio, itself a tributary of the rio Paraguaçu, a coastal drainage of eastern Brazil.

Habitat and natural history notes.—For a complete description of the site of collection of *K. figueiredoi,* the rio Pratinha, see Lima & Gerhard (2001: 112–113). In the rio Pratinha, *K. figueiredoi* was observed and collected only in those portions with a moderate water current. The species was most commonly collected in a riffle at a narrow stretch of rio Pratinha. Specimens were observed at midwater, swimming against the current, probably feeding on food items drifting downstream. During one occasion, one individual of this species was seen picking with its mouth on a large boulder in a cave entrance. The ecological preferences of *K. figueiredoi* may be remarkable, given the fact that at least some other species of the Cheirodontinae, for example *Cheirodon interruptus* (Jenyns) and *Cheirodon ibicuhiensis* Eigenmann, prefer lentic waters such as lagoons or pools in slow-moving water courses in coastal streams of Rio Grande do Sul, Brazil, personal observation.

Etymology.—We take great pleasure in naming this species in honor of José Lima de Figueiredo, a Brazilian ichthyologist at the Museu de Zoologia da Universidade de São Paulo.

Discussion.—The two *Kolpotocheirodon* species are included in the tribe Compsurini (Malabarba et al. 1998) by sharing two unambiguous synapomorphies with the members of that tribe: they are inseminating (Character 70 in Malabarba et al. 1998), and the anal-fin hooks are positioned along the posterolateral border of the anal-fin rays and bent more or less anteriorly over the lateral surface of the anal-fin ray to which each is attached (Character 26 in Malabarba et al. 1998). The presence of hooks and their distribution in the caudal fin were also previously employed for the diagnosis of the tribe, but are absent in *K. figueiredoi.* Alternative hypotheses explaining this are discussed above under the diagnosis of this species. *Kolpotocheirodon theloura* was the only species of the Compsurini known to have aquasperm (a nearly spherical or spherical sperm nucleus), a condition also found in the new *Kolpotocheirodon figueiredoi.* All other species of the Compsurini so far investigated have elongate sperm nuclei (see Burns et al. 1997:434, fig. 1B–H & 1998:242, fig. 11).

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