

Trichomycterus macrophthalmus (Teleostei: Siluriformes: Trichomycteridae), a new species of catfish from the Paraíba do Sul river basin, southeastern Brazil

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> Abstract

Trichomycterus macrophthalmus, new species is described from the upper Paraíba do Sul river basin, southeastern Brazil. It differs from all species of *Trichomycterus* from southeastern Brazil by possessing nine pleural ribs. *Trichomycterus macrophthalmus* is similar to *T. travassosi* from the same basin by both owning short nasal barbel, but the new species can be easily distinguished from it by head width, eye size, and colour pattern. The new species belongs to the *T. travassosi* species complex by displaying transverse dark marks on the dorsum.

> Resumo

Trichomycterus macrophthalmus, espécie nova, da bacia do alto rio Paraíba do Sul, sudeste do Brasil é descrita. Ela difere de todas as espécies de *Trichomycterus* do sudeste do Brasil por possuir nove costelas. *Trichomycterus macrophthalmus* é similar a *T. travassosi* da mesma bacia, por ambos possuírem barbilhão nasal curto, mas pode ser facilmente distinguida de *T. travassosi* pela largura da cabeça, tamanho do olho, e padrão de colorido. A nova espécie pertence ao complexo de espécies *T. travassosi* por apresentar marcas transversais escuras no dorso.

> Key words

Catfishes, Siluriformes, Trichomycteridae, *Trichomycterus*, new species, southeastern Brazil, taxonomy.

Introduction

Trichomycterus VALENCIENNES, the most speciose genus of the family Trichomycteridae, currently comprises about 140 species (BARBOSA & COSTA, 2011), most of them described in the last three decades (COSTA, 1992; BARBOSA & COSTA, 2003a, b; BARBOSA & COSTA, 2008; BARBOSA & COSTA, 2010a, b; BARBOSA & COSTA, 2011; ALENCAR & COSTA, 2004; BOCKMANN, CASATTI & DE PINNA, 2004; LIMA & COSTA, 2004). This genus occurs in the river basins of Middle and South America, including the Andes, at about 4,000 meters of altitude (ARRATIA, 1998; PINNA, 1998), showing remarkable diversity in the headwaters of river basins of southeastern and southern Brazil. The species here described was collected in the upper drainage of the

Paraíba do Sul river basin, and seems to be closely related to *T. travassosi* endemic to the same basin.

Material and methods

Measurements and counts follow BARBOSA & COSTA (2003b). Measurements are presented as percentages of standard length (SL), except for subunits of head, which are presented as percentage of head length (HL). Counts of procurent caudal-fin rays, vertebrae, branchiostegal rays, teeth and odontodes were made only

in cleared and stained specimens (c&s) prepared according to TAYLOR & VAN DYKE (1985). Abbreviation for institution is: UFRJ, Universidade Federal do Rio de Janeiro, Rio de Janeiro. The method for species delimitation follows the methodology proposed by DAVIS & NIXON (1992) formally identified as population aggregation analysis, which is based on the presence of unique combination of non-overlapping character states. Comparative material is listed in BARBOSA & COSTA (2008) and BARBOSA & COSTA (2010a).

Trichomycterus macrophthalmus, new species

Fig. 1; Table 1

Holotype. UFRJ 6003, 51.0 mm SL; Brazil: Estado do Rio de Janeiro: Município de Rio Claro: small stream, tributary of Piraí river, between the village of Rio Claro and Lídice, Paraíba do Sul river basin, approximately 22°40' S, 44°02' W; collected by W.J.E.M. COSTA, B.B. COSTA & C.P. BOVE, 11 January 2003.

Paratypes. UFRJ 5683, 6 ex., 42.2–60.0 mm SL; UFRJ 5675, 3 ex. (c&s), 43.5–54.5 mm SL; all collected with holotype.

Diagnosis. *Trichomycterus macrophthalmus* differs from all species of southeastern Brazil by possessing nine pleural ribs (vs. 10–17). Similar to *T. travassosi* and distinguished from all other species of southeastern Brazil by having shorter nasal barbel, its tip reaching eye (vs. between middle of the distance eye-opercular patch of odontodes and pectoral-fin base). Distinguished from *T. travassosi* by having larger eye (13.2–14.6% of head length, vs. 8.5–10.7 %) and dorsal and lateral midline spots coalesced to form transverse bars (vs. lateral midline spots not confluent to dorsal spots).

Description. Morphometric data are given in Table 1. Dorsal-fin origin in vertical through centrum of 15th or 16th vertebra. Anal-fin origin in vertical through posterior portion of dorsal-fin base, and through centrum of 21st vertebra. Pectoral fin about triangular, lateral and posterior edges slightly convex. First pectoral-fin ray terminating in short filament, about 10 % or less of pectoral-fin length. Pelvic fin slightly shorter than anal fin, covering urogenital opening, tip not reaching anal fin, in vertical through middle of dorsal-fin base; pelvic-fin bases separated; pelvic-fin origin in vertical through centrum of 13th or 14th vertebra. Caudal fin truncate. Dorsal-fin rays 11; anal-fin rays 9; pectoral-fin rays 8; pelvic-fin rays 5; caudal-fin principal rays 13, dorsal procurrent rays 24, ventral procurrent rays 11–12. Total vertebrae 35–36; pleural ribs 9. Upper



Fig. 1. *Trichomycterus macrophthalmus*, UFRJ 6003, live holotype, 51.0 mm SL; Brazil: Rio de Janeiro: Rio Claro. Photo by W.J.E.M. COSTA.

hypurals plates separated, both approximately equal in width. Head triangular in dorsal view. Maxilla slightly longer than premaxilla. Some teeth of outer row incisor, remaining teeth conical. Tip of nasal barbel reaching middle of eye. Tip of maxillary barbel reaching median portion of interopercular patch of odontodes. Tip of rictal barbel reaching anterior edge of interopercular patch of odontodes. Interopercular odontodes 28–36; opercular patch of odontodes broad, with 13–18 odontodes; odontodes conical; opercular odontodes wider than interopercular odontodes. Medial margin of autopalatine slightly concave; posterior process of autopalatine about equal in length to autopalatine without posterior process. Lacrimal about one fourth supraorbital length; median portion of supraorbital weakly widened, sometimes with distinct minute process posteroventrally directed. Metapterygoid moderate in size, without distinct processes. Anterodorsal surface of hyomandibula with deep V-shaped concavity. Single median third supraorbital pore. Anterior section of infraorbital canal present.

Colouration. Side of body and dorsum greenish golden on anterior portion, light golden on posterior portion, with transverse dark brown bars crossing dorsum and laterally extending to lateral midline; small rounded dark brown spots below lateral midline; venter yellowish white. Head dark brown, except infraorbital region light yellowish brown, and ventral surface white; opercular and interopercular patches of odontodes light yellow; nasal barbel grey, maxillary and rictal barbels golden. Iris light yellow. All fins with subdistal portion of rays golden. Dorsal and caudal fins pale yellow with small dark brown dots on basal portion. Anal fin pale yellow. Pectoral fin orangish yellow with brown spots on basal region; pectoral fin filament golden. Pelvic fin yellow with light golden anterior margin.

Distribution. Known only from the type locality, a small stream tributary to upper Piraí river, Araras hill, upper Paraíba do Sul river basin, southeastern Brazil (Fig. 2).

Table 1. Morphometric data of *Trichomycterus macrophthalmus*. H = Holotype.

	UFRJ	UFRJ	UFRJ	UFRJ	UFRJ	UFRJ	UFRJ	UFRJ
	6003	5683	5683	5683	5683	5683	5675	5683
	H	Paratypes						
Standard length (mm)	51.0	60.0	48.2	46.4	46.1	44.5	43.5	42.2
Percentage of standart length								
Body depth	17.4	15.3	17.8	14.6	17.4	14.5	15.1	15.1
Caudal peduncle depth	10.9	9.1	11.5	11.9	10.6	10.3	12.4	10.7
Body width	11.6	9.8	11.2	10.9	10.5	9.1	10.0	11.7
Caudal peduncle depth	1.9	1.6	1.7	1.7	1.7	1.4	2.1	1.6
Dorsal-fin base length	12.3	11.8	14.1	11.8	14.2	12.4	12.1	12.3
Anal-fin base length	8.2	10.3	8.4	9.9	9.6	9.8	9.2	11.0
Pelvic-fin length	10.3	10.0	10.4	9.9	10.0	10.3	10.2	10.1
Distance between pelvic-fin bases	2.8	1.9	2.1	2.6	2.9	2.3	1.8	2.3
Pectoral-fin length	14.9	14.1	15.4	14.2	16.1	15.1	16.9	16.3
Predorsal length	54.8	54.1	56.4	55.2	56.5	54.5	56.1	56.5
Prepelvic length	51.4	49.8	52.4	52.0	51.4	50.6	49.7	50.9
Head length	18.6	19.0	19.5	20.0	19.4	20.7	20.7	20.0
Percentage of head length								
Head depth	46.6	46.8	49.6	49.5	46.7	45.2	48.3	45.1
Head width	94.8	92.1	94.7	94.8	92.2	90.2	90.6	90.9
Interorbital width	28.3	26.8	29.5	26.3	27.4	26.7	26.1	30.3
Preorbital length	45.4	41.7	46.6	45.4	41.9	42.4	46.2	47.7
Eye diameter	14.6	13.3	14.0	13.2	13.4	14.1	14.6	14.3

**Fig. 2.** Stream tributary of Pirai river (Brazil: Rio de Janeiro: Rio Claro), type locality of *T. macrophthalmus*. Photo by W.J.E.M. COSTA.

Habitat notes. Collected in sympatry to *T. claudiae* (BARBOSA & COSTA, 2010a; Fig. 13). All specimens found actively swimming at daylight, in shallow places (20–40 cm deep) with fast flowing water, usually on gravel substratum, sometimes partially burrowed in the sand.

Etymology. From the Greek *makrós* (large) and *ophthalmós* (eye), an uncommon condition among species of *Trichomycterus*.

Discussion

Trichomycterus is a complex genus, defined by the exclusion of derived characters found in other Trichomycterinae genera (BARBOSA & COSTA, 2010a). In addition to the great diversity, very brief earlier descriptions, it is worth to mention the presence of some species complexes. BARBOSA & COSTA (2010a) diagnosed the species complex *T. brasiliensis*, based on the distribution of odontodes on the opercular plate, including twelve species. *Trichomycterus macrophthalmus* seems to belong to the *T. travassosi* species complex by having colour pattern consisting of transverse dark bars crossing the dorsum. This complex comprises six species: *T. albinotatus*, *T. auroguttatus*,

T. florensis, *T. macrophthalmus*, *T. travassosi*, *T. zonatus*. *Trichomycterus macrophthalmus* differs from all the species above, as the only species having only nine ribs.

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