

**A NEW NEMACHEILINE FISH OF THE GENUS *SCHISTURA* McCLELLAND
(CYPRINIFORMES: BALITORIDAE) FROM MANIPUR, INDIA¹**

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¹Accepted February 2004

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A new species, *Schistura minutus* is described from the Iyei River, a tributary of the Irang River (Barak drainage), in Manipur, India. The species is characterised by its small size, processus dentiformes not prominent and lying open; 14-18 colour bands on body; a distinct cup shaped colour band just behind occiput; upper lip very thin; deep median interruption in lower lip and absence of a notch in the lower jaw and caudal peduncle deeper than its length.

Key words: new nemacheiline fish, *Schistura minutus*, Manipur

INTRODUCTION

Fishes of the genus *Schistura* McClelland are small sized hill stream fishes characterised by having lower lip medially interrupted, but not forming two triangular pads; a black bar (sometimes dissociated) on caudal fin base; dorsal fin with one or two black marks along its base (Kottelat 1990; Vishwanath and Laishram 2001). Six species of *Schistura* have been described from Manipur, namely *S. manipurensis* (Chaudhuri 1912), *S. kangjupkhulensis*, *S. prashadi* and *S. sikmaiensis* (Hora 1921), *S. reticulata* (Vishwanath and Nebeshwar 2004) and *S. khugae* (Vishwanath and Shanta 2004b). Also, Menon (1987) reported the occurrence of *S. peguensis*.

The Iyei River originates in the Tamenglong district of Manipur and flows southwest to join the Irang River, a tributary of Barak River (Brahmaputra drainage). A collection of fishes from the river included 11 specimens of *Schistura*, which do not fit into the hitherto described species of the genus. The fish is described as new here. Counts and measurements followed Kottelat (1990). The holotype and one paratype are deposited in Zoological Survey of India (ZSI) Kolkata and 9 paratypes, in the Manipur University Museum of Fishes (MUMF), Imphal (Manipur).

Schistura minutus sp. nov. (Fig. 1)

Material examined: Holotype: FF3749 ZSI, Kolkata, 35 mm SL, Iyei river, Noney, Tamenglong district, Manipur, M. Shanta Kumar and K. Nebeshwar, 27.xii.2000. **Paratypes:** 1 ex., 32 mm SL, FF3750, 9 exs., 26.2-38.3 mm SL, MUMF 1001-1003, 1005-1006, 1008-1011, Iyei River, Noney, Tamenglong district, Manipur, M. Shanta Kumar and K. Nebeshwar, 27.xii.2000.

Diagnosis: A species with the following combination of characters: small body size; presence of weakly developed processus dentiformes; 14-18 blue black bars on body, mostly in pairs; the basal caudal bar interrupted, represented by two spots; a distinct cup shaped band just behind the occiput; incomplete lateral line; caudal peduncle deeper than its length.

Description: D. iii, 8½; P. i, 8-9; V. i, 6; A. ii, 5½; C. 9+8. A small moderately elongate nemacheiline with body depth almost uniform from the occiput to the base of the caudal fin. Body moderately deep, with 14-18 lateral bars. Ventral profile almost straight from mouth to caudal base, dorsal region of head is highly curved, straight behind dorsal region. Body cylindrical to slightly compressed anteriorly, more compressed in caudal peduncle region. Cheeks slightly inflated, head slightly depressed, snout moderately pointed. Mouth ventral,



Fig. 1: *Schistura minutus* sp. Nov.

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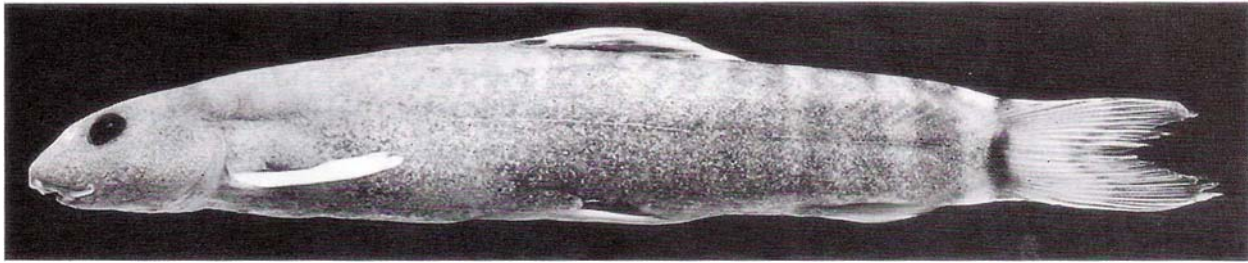


Fig. 2: *Schistura sikmaiensis*

crescent shaped. Upper lip very thin with no incision or furrows. A deep median interruption in lower lip, no median notch in the lower jaw. Processus dentiformes poorly

developed. No suborbital flap in male. Barbels small, but longer than eye diameter, maxillary barbels extend up to middle of orbit. Anterior nostrils pierced in front of a flap like

Table 1: Comparison of morphometric characters of *Schistura minutus* with *S. dubia* and *S. sikmaiensis* (in % of SL) except TL, SL and caudal peduncle depth by length

	<i>S. minutus</i>	<i>S. dubia</i>	<i>S. sikmaiensis</i>	<i>S. sikmaiensis</i>
	Mean (Range)± S.D. (FF 3749, 3750 & MUMF1001-1003, 1005-1006,1008-1011) N=11	Mean (range) ± S.D. (Kottelat 1990)	Mean (Range) ± S.D. (MUMF 1012-1015) N=4	(Kottelat 1990) N=1 neotype
Standard length	(26.2-38.3)	(35.3-58.0)	(37.3-43.4)	58.7
Total length	(31.7-44.7)	(119.4-125.7)	(46.1-53.9)	122.5
Dorsal head length	22.0(20.3-24.5) ±1.1	-	19.5(18.5-20.1) ±0.69	21.1
Lateral head length	24.5(23.2-26.2) ±0.89	26.5(23.8-27.8) ±0.94	23.6(23.3-24.0) ±0.34	24.5
Predorsal length	51.2(49.4-55.0) ±1.57	55.3(53.6-56.4) ±0.80	50.2(49.8-50.7) ±0.41	53.5
Prepelvic length	54.4(51.2-56.4) ±1.51	54.3(52.6-55.9) ±0.86	53.8(53.4-55.0) ±1.13	58.8
Preanus length	72.1 (68.8-75.7) ±2.34	70.2(68.6-72.4) ±0.93	72.3(70.2-73.5) ±1.55	77.9
Preanal length	77.6(74.2-79.9) ±1.78	77.8(76.2-80.4) ±1.07	79.0(78.2-79.9) ±0.75	80.8
Post dorsal length	46.0(42.8-49.3) ±2.29	-	49.7(49.5-50.0) ±0.17	-
Head depth (at eyes)	11.1 (10.3-12.4) ± 0.58	11.1 (10.0-12.1) ±0.60	10.9(10.2-12.0) ±0.78	12.8
Head depth (at nape)	13.7(12.7-14.5) ±0.62	13.2(12.2-14.2) ±0.44	13.1 (12.6-13.6) ±0.44	14.7
Body depth	17.5(16.1-22.9) ±1.9	17.6(15.0-20.5) ±1.24	18.6(18.0-19.5) ±0.73	17.6
Depth of caudal peduncle	12.8(11.5-13.7) ±0.59	13.7(12.7-14.9) ±0.56	12.5(11.9-13.0) ±0.46	12.3
Length of caudal peduncle	11.0(8.4-12.0) ±0.97	13.4(12.1-14.3) ±0.69	14.1 (14.0-14.2) ±0.07	12.6
Caudal peduncle depth by Length	116.6(112.1-125.6)	-	0.86(0.84-0.88) ±0.02	-
Body width (dorsal origin)	13.6(12.5-16.1) ±0.92	13.7(10.5-16.0) ±1.40	15.0(14.7 -15.7) ±0.42	14.0
Body depth (anal origin)	7.9(6.8-8.6) ±0.57	8.5(7.6-9.7) ±0.58	9.6(9.1-10.0) ±0.34	9.0
Height of dorsal fin	15.5(14.5-16.8) ±0.69	14.9(12.9-18.1) ± 1.52	14.2(13.8-14.6) ±0.34	14.0
Dorsal fin base length	15.7(15.0-16.8) ±0.69	-	15.5(14.9-16.6) ±0.74	-
Length of upper caudal lobe	20.6(18.6-22.5) ±1.15	22.0(20.2-25.7) ±1.52	24.1 (23.4-25.2) ±0.41	21.0
Length of lower caudal lobe	21.1 (19.4-21.8) ±0.76	22.9(20.7-25.7) ±1.25	22.3(21.7-22.5) ±0.75	23.0
Length of median caudal ray	15.1 (13.8-17.2) ±1.01	18.7(16.4-20.8) ±1.19	15.2(14.8-16.3) ±0.71	13.5
Height of anal fin	15.9(14.7 -16.6) ±0.65	17.9(16.2-19.4) ±0.89	12.0(11.5-12.6) ±0.48	16.7
Length of anal fin	7.5(6.8-8.9) ±0.59	-	8.0(7.6-8.3) ±0.34	-
Length of pelvic fin	16.0(14.8-17.2) ±0.61	17.2(15.6-19.5) ±1.02	17.8(17.2-18.7) ±0.64	17.2
Length of pectoral fin	18.4(16.7-19.7) ±0.88	19.3(17.2-22.9) ±1.45	20.1 (19.1-21.1) ±0.84	19.3

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Tube, nostrils nearer to eye than to snout tip. Eyes small. Axillary pelvic lobe present. Pelvic fin origin under last simple or first branched dorsal fin rays. Distal margin of the fin slightly convex. Caudal fin emarginate.

Small ventral and dorsal adipose crests on caudal peduncle which is 1.16(1.12-1.25) times higher than long. Largest specimen recorded is 38.3 mm SL. Incomplete lateral line with 23-55 pores, extending up to the region between the pelvic and anal fin origins. Cephalic lateral line system with 7 supraorbital, 4+11 infraorbital, 9 preoperculo-mandibular and 3 supratemporal pores. The abdominal region is greatly inflated in gravid female due to presence of large sized eggs. The body depth and body width show great variation.

Proportional measurements (in percentage): Body depth 17.5 (16.1-22.9); dorsal head length 22.0 (20.3-24.5); predorsal length 51.2 (49.4-55.0); dorsal fin height 15.5 (14.5-16.8); dorsal fin base length 15.7 (15.0-16.8); pectoral fin length 18.4 (16.7-19.7); ventral fin length 16.0 (14.8-17.2); anal fin height 15.9 (14.7-16.6); anal fin base length 7.5 (6.8-8.9); caudal fin length 20.4 (18.5-22.1); caudal peduncle length 11.0 (8.4-12.0); depth of caudal peduncle 12.8 (11.5-13.7); preventral length 54.4(51.2-56.4); preanus length 72.1 (68.8-75.7); preanal length 77.6 (74.2-79.9); and body width (Dorsal origin) 13.6 (12.58-16.1) of SL. Head width (at opercula) 69.4 (64.7-71.7);

head height at occiput 62.2 (59.1-66.6); snout length 44.6 (42.8-46.5); eye diameter 25.6 (21.1-27.5); interorbital space 31.7 (28.5-36.2); dorsal fin base length 71.7 (67.6-75.9); pectoral fin length 84.6 (80.2-92.2) and anal fin length 34.6 (32.7-36.6) of HL. Caudal peduncle depth 116.6 (112.1-125.6) % of its length.

Sexual dimorphism: Not known.

Colour: Body light brown with 14-18 black bars extending from back up to about ¾ of body. Bars wider than interspaces, most of them in paired form. Predorsal bars are many, as wide as interspaces, thinner and less well marked than those behind the dorsal fin; not interconnected with their counterparts dorsally in small specimens. A dark spot at the base of the last simple rays to second branched dorsal fin rays. Bar at caudal base interrupted and represented by two spots. 3 transverse bands on the head, one each on internarial, interorbital and on the occiput area. A dark spot on the occiput. A longitudinal band from the nasal opening to the tip of the snout.

Distribution: INDIA: Manipur: Iyei River, Noney, Tamenglong district (Brahmaputra drainage).

Etymology: The species is named after its small size.

Discussion: The species is similar to *Schistura dubia* Kottelat (1990) from Mae Nam Yom basin, Phrae Province, Thailand in having adipose crest and incomplete lateral line.

Table 2: Comparison of morphometric characters of *Schistura minutus* sp. novo with *S. dubia* and *S. sikmaiensis* (in % of HL)

	<i>S. minutus</i> (FF 3749, 3750 & MUMF 1001-1003,1005-1006, 1008 -1011) N=11	<i>S. dubia</i> (Kottelat 1990)	<i>S. sikmaiensis</i> (MUMF 1012-1015) N=4
	Mean (range)±S.D.	Mean (range)±S.D.	Mean (range) ±S.D.
Lateral head length	(107.0-114.1)	(108-129)	(116.0-126.3)
Head depth (at eye)	50.7(47.8-55.7)±2.65	49(43-56)±3.5	56.1(54.1-60.0) ±2.61
Head depth (at nape)	62.2(59.1-66.6) ±2.32	59(54-66)±:3.1	67.3(64.7-69.7)±2.09
Body depth	80.1(73.8-112.8)±11.02	78(71-94)±6.4	95.4(90.7-97.3)±3.16
Snout length	44.6(42.8-46.5)±1.29	45(40-52)±2.8	42.6(40.7-44.7)±1.98
Head width (at nares)	51.7(47.4-55.1)±3.04	50(41-77)±8.5	53.6(50.5-56.5)±2.78
Maximum head width	69.4(64.7-71.7)±2.12	72(55-87) ±6.9	77.7(75.0-82.2)±3.15
Gape width	29.4(27.2-32.9)±2.00	—	32.3(28.9-34.2)±2.47
Internarial space	24.2(21.5-28.1)±2.05	—	24.0(22.3-26.3)±1.64
Eye diameter	25.6(21.1-27.5) ±1.9	22(16-27)±2.3	20.8(19.7-21.3)±0.73
Interorbital space	31.7(28.5-36.2)±1.93	33(30-39)±1.9	35.8(34.1-38.1)±1.70
Height dorsal fin	70.8(67.0-75.3)±2.42	67(58-85)±7.6	72.8(70.5-76.3) ±2.74
Dorsal fin base length	71.7(67.6-75.9)±2.92	—	79.5(122.3-128.9)±2.99
Length of anal fin	34.6(32.7-36.6)±1.36	—	41.4(38.8-44.7) ±2.59
Length of pectoral	84.6(80.2-92.2) ±4.13	86(71-108) ±7.7	103.5(96.0-109.2) ±5.52

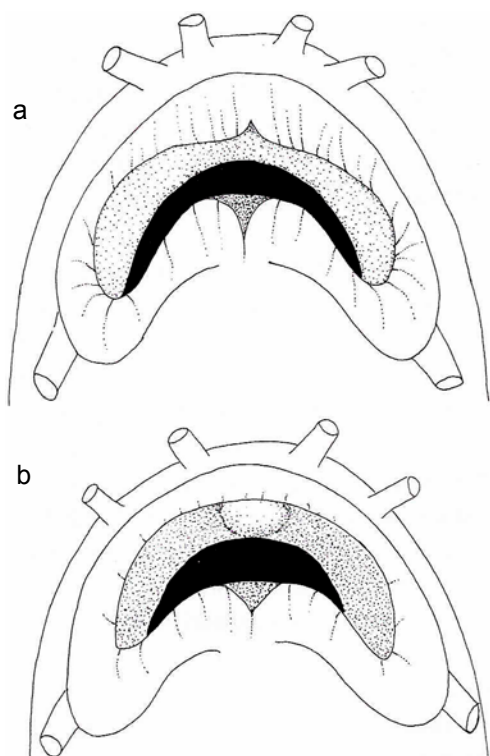


Fig. 3: Mouth of *Schistura* sp. showing absence and weakly developed processus dentiformes
a. *Schistura sikmaiensis*. b. *S. minutus*

The new species, however, can easily be distinguished from *S. dubia* in having deeper caudal peduncle (deeper than long vs. longer than depth); more bars on body (14-18 vs. 8-11); less branched pectoral rays (8-9 vs. 10-11); less branched ventral rays (6 vs. 8); in not having notch on the lower jaw and shorter predorsal length 51.2 (49.4-55.0) vs. 55.3 (53.6-56.4).

Schistura minutus also differs from *S. sikmaiensis* (Fig. 2) in presence of weakly developed processus dentiformes (Fig. 3b) vs. absent (Fig. 3a); caudal fin emarginated vs. forked; lateral line incomplete vs. complete with 100-110 pierced scales; upper lip without incision (Fig. 3b) vs. median incision (Fig. 3a) and numerous furrows.

Vishwanath and Nebeshwar (2004) gave new species status *S. reticulata* to Menon's (1987) *Noemacheilus vinciguerrae* from Chindwin basin, Manipur, India.

Vishwanath and Shanta's (2004a) *S. macrocephalus* is a junior homonym of *S. macrocephalus* (Kottelat 2000). To remove the homonymy, Vishwanath and Shanta (2004b) have proposed *S. khugae* as the new name.

ACKNOWLEDGEMENTS

We are grateful to Indian Council of Agricultural Research, New Delhi for financial assistance through NATP-Germplasm Inventory, Evaluation and Gene Banking of Freshwater Fishes in Mission Mode Project and to I. Linthoi Devi for her help in drawing the diagrams.

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