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DESCRIPTION OF A NEW SPECIES OF *ABORICHTHYS*, CHAUDHURI FROM NORTH-EAST INDIA (PISCES : CYPRINIFORMES : BALITORIDAE)

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INTRODUCTION

The genus *Aborichthys* was first established by Chaudhuri (1913) with *A. kempi* as the type species. Subsequently, three other species namely *A.elongatus* (Hora, 1921), *A.garoensis* (Hora, 1925) and *A.tikaderi* (Barman, 1984) were described. All the species of *Aborichthys* are restricted so far within North East India with *A.kempi* having its distribution in Myanmar also.

Jayaram (1999) classified 12 genera under subfamily Nemacheilinae from Indian region, namely, *Aborichthys*, *Acanthocobitis*, *Neonemacheilus*, *Nemacheilus*, *Schistura*, *Mesonemacheilus*, *Physoschistura*, *Longischistura*, *Oreonectes*, *Triplophysa*, *Nemachilichthys and Yunnanilus*. Of these *Aborichthys*, *Acanthocobitis*, *Nemacheilus*, *Mesonemacheilus*, *Schistura and Neonemacheilus* are represented in North East India.

While studying the fish collections from Subansiri river, Dhemaji district, Assam, the author came across a single specimen (26.25 mm TL) which at a glance looked like the genus *Schistura* but on detailed study the forward position of vent (Plate I,B,C; Fig. 1A) revealed its identity as genus *Aborichthys*.

Subsequently, another 4 examples (19 -28 mm TL) were collected from Sippi river, Daporijo, Subansiri district, Arunachal Pradesh.

Diagnostic characters of Aborichthys : Body greatly elongated and compressed; vent situated far forwards; nostrils openings with barbel-like outgrowths; head flattened slightly, anterioly rounded; snout conical and broadly rounded; dorsal fin inserted slightly behind pelvic fins; pelvic fins extend beyond anal opening; all fins greatly removed from one another; caudal fin lunate; lateral line incomplete, indistinct.

Diagnostic characters of Schistura : Body elongate, compressed posteriorly; vent situated nearer anal fin; head either depressed or compressed; snout usually blunt; dorsal fin short, inserted ahead or opposite pelvic fin; pelvic fin never crosses anal opening; caudal fin slightly emarginate, forked or truncate, never rounded; lateral line incomplete or complete.

The present specimen does not tally with other known species of the genus *Aborichthys* and hence it is described here as new species, *A. rosammai*. The distinct and prominent characters exhibited by these specimens motivated the author to describe it new to science.

ABBREVIATIONS

TL : Total length
SL : Standard length
HL : Head length
HD : Head depth
HW : Head width
BD : Body depth
EYD : Eye diameter
SN : Snout length
IOR : Inter orbital distance
SN-D : Distance between snout to origin of dorsal fin
D-CB : Distance between origin of dorsal fin to base of caudal fin
SN-V : Distance between snout to vent
V-CB : Distance between vent to base of caudal fin
LD : Length of dorsal fin
LPC : Length of pectoral fin
LPV : Length of pelvic fin
LA : Length of anal fin
CL : Length of caudal fin
SN-PV : Distance between tip of snout to origin of pelvic fin
PC-PV : Distance between origin of pectoral and pelvic fins
PV-A : Distance between origin of pelvic and anal fins
A-CB : Distance between origin of anal fin and base of caudal fin
CPL : Length of caudal peduncle
LHCP : Least height of caudal peduncle
V/F/ERS : Vertebrate/Fish/Eastern Regional Station

MATERIAL AND METHODS

The specimens are preserved in 5% formaldehyde. Morphological measurements were done with a slide caliper. Twenty two morphological characters have been taken into consideration for all the known species. Morphological data for 4 species namely, *kempi*, *elongatus*, *garoensis* and *tikaderi* have been taken from description of type species and comparative chart has also been incorporated (measurements converted into percentage from the original data). Measurements are expressed in percentage in relation to standard length. The mean value are shown in parenthesis (Table 2).

Measurements of different morphological characters of Holotype and Paratypes are shown in Table 1.

Aborichthys rosammai sp. nov.
(Plate I & II, A, B, C; Fig. 1 A, B)

Material examined : *Holotype* : 1 example, 26.25 mm TL, Regd.no.V/F/ERS/2129, Locality : Pabomukh, Subansiri river, Dhemaji district, Assam (alt. 32 mts.) (Latitude : 27^0 34´, Longitude : 94^0 14´´) , Collector : R. Mathew and party, Date of collection : 03.02.2006.

Paratype : 4 examples, 19-28 mm TL, Regd. no. V/F/ERS/2497, Locality : Sippi river near Daporijo, Subansiri district, Arunachal Pradesh (alt. 251 mts.) (Latitude : 28^0 04´, Longitude : 94^0 09´´) Collector : R. Mathew and party, Date of collection : 05.06.2007.

Description : D.ii.7 ½ , P. i.10 , V.i.6 , A. ii.5 , C. 16-18

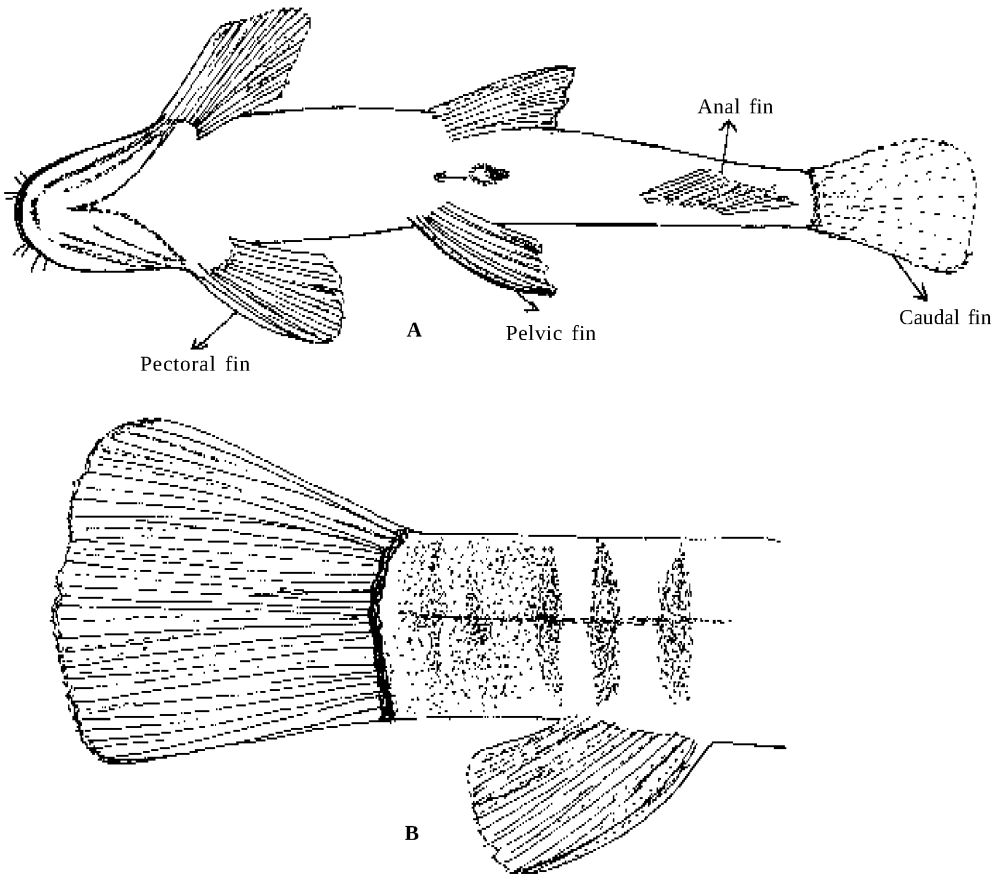

Fig. 1. Diagrammatic representation of (A) Ventral view of *Aborichthys resammai* sp. nov. showing position of anus and different fins, (B) shape of caudal fin with band at base of the fin.

Table-1 : Measurements of different morphological characters of *A. rosammai* sp. nov. in relation of Standard length (in mm)

Sl. No.	Characters	Holotype	Paratypes (4 exs.)			
			1	2	3	4
1	Total length	26.25	28.00	23.00	24.00	19.00
2	Standard length	21.54	24.00	19.00	20.00	15.00
3	Head length	4.47	4.80	4.75	5.00	3.75
4	Head width	6.15	6.00	6.33	6.66	5.00
5	Head depth	8.72	8.00	9.50	10.00	7.50
6	Eye diameter	19.58	24.00	19.00	20.00	15.00
7	Inter-orbital distance	10.77	24.00	19.00	20.00	15.00
8	Snout length	10.77	12.00	9.50	10.00	7.50
9	Body depth	6.64	6.00	6.33	6.66	5.00
10	Predorsal distance	1.90	1.84	1.90	2.00	1.87
11	Prepectoral distance	4.30	4.00	3.80	4.00	3.75
12	Prepelvic distance	1.95	1.84	1.90	1.81	1.66
13	Preanal distance	1.28	1.26	1.26	1.33	1.36
14	Length of Dorsal fin	5.38	8.00	6.33	6.66	7.50
15	Length of Dorsal fin base	7.18	8.00	9.50	10.00	7.50
16	Length of Pectoral fin	5.24	6.00	6.33	6.66	5.00
17	Length of Pelvic fin	6.03	8.00	6.33	6.66	5.00
18	Length of Anal fin	6.22	6.00	6.33	6.66	7.50
19	Length of Anal fin base	10.77	12.00	12.66	13.33	15.00
20	Length of Caudal fin	4.57	6.00	4.75	5.00	5.00
21	Length of Caudal peduncle	5.38	6.00	6.33	6.66	7.50
22	Depth of Caudal peduncle	7.66	8.00	9.50	10.00	7.50
23	Distance between Pectoral and Pelvic fin	3.65	4.42	3.80	4.00	3.75
24	Distance between Pelvic and Anal fin	3.59	4.80	4.75	4.00	5.00
25	Distance between Snout to Vent	1.68	1.60	1.72	1.66	1.66
26	Distance between Vent to base of Caudal fin	2.42	2.40	2.71	2.50	2.50
27	Distance between Dorsal fin and base of Caudal fin	2.15	3.00	3.16	2.85	2.50
28	Distance between Anal fin and base of Caudal fin	5.38	6.00	6.33	6.66	7.50
29	Distance between Pelvic fin to vent	14.36	24.00	19.00	20.00	15.00
30	Distance between vent to base of Anal fin	5.38	6.00	6.33	6.66	7.50

Table-2 : Comparative chart of characters in different species of *Aborichthys*
All the measurements are in relation to Standard length (in percentage)

Characters	*A. garoensis*		*A. tikaderi*		*A. kempi*		*A. elongatus*		*Abrichthys n.sp.*	
SL	**85.80-89.50**		**100.0-110.0**		**53.50-71.30**		**60.70-74.00**		**15.0-24.0**	
CL	17.69-18.30	**(17.96)**	17.00-18.50	**(17.83)**	18.52-21.74	**(20.38)**	16.97-1757	**(17.27)**	19.42-21.86	**(20.64)**
HL	15.50-16.20	**(15.76)**	16.36-17.31	**(16.89)**	18.70-22.06	**(20.16)**	18.12-18.38	**(18.25)**	22.12-22.33	**(22.22)**
BD	10.05-10.49	**(10.28)**	12.50-13.00	**(12.74)**	11.96-15.14	**(13.72)**	13.24-14.50	**(13.87)**	15.04-16.86	**(15.95)**
EYD	2.23-2.23	**(2.27)**	1.82-2.00	**(1.91)**	2.58-3.74	**(3.26)**	2.43-3.62	**(3.03)**	5.10-5.27	**(5.18)**
SN	7.23-7.39	**(7.33)**	7.00-6.69	**(7.32)**	7.78-9.35	**(8.61)**	8.11-8.24	**(8.18)**	9.28-10.54	**(9.91)**
IOR	3.50-4.48	**(4.08)**	4.55-4.81	**(4.72)**	3.53-6.17	**(4.64)**	4.05-4.61	**(4.33)**	5.27-9.28	**(7.27)**
HD	8.16-8.60	**(8.39)**	8.18-9.04	**(8.74)**	9.26-11.21	**(10.18)**	9.46-11.58	**(10.00)**	11.46-11.58	**(11.52)**
HW	12.07-12.35	**(12.17)**	10.91-11.35	**(11.15)**	12.09-14.95	**(13.90)**	9.46-12.85	**(11.16)**	16.24-16.86	**(16.55)**
CPL	21.56-23.46	**(22.62)**	22.00-23.64	**(22.91)**	15.03-19.07	**(16.68)**	18.12-20.00	**(19.06)**	15.19-18.57	**(16.88)**
LHCP	9.52-9.83	**(9.67)**	11.00-11.82	**(11.45)**	11.11-14.95	**(13.10)**	12.03-12.84	**(12.44)**	11.58-13.04	**(12.31)**
SN-V	49.50-49.60	**(49.54)**	48.00-48.18	**(48.09)**	50.07-58.15	**(54.08)**	58.51-61.94	**(60.23)**	59.37-60.09	**(59.73)**
V-CB	50.28-50.47	**(50.38)**	51.00-54.55	**(52.49)**	41.85-47.97	**(44.52)**	37.89-41.62	**(39.76)**	39.62-41.59	**(40.60)**
SN-D	43.67-44.25	**(43.88)**	43.27-44.55	**(43.94)**	46.13-53.33	**(49.59)**	50.68-51.40	**(51.04)**	52.50-52.53	**(52.51)**
D-CB	55.64-56.66	**(56.08)**	55.45-57.69	**(56.71)**	41.33-51.64	**(48.76)**	48.92-49.42	**(49.17)**	34.97-46.42	**(40.69)**
SN-PV	39.66-40.44	**(40.14)**	40.00-42.31	**(41.10)**	41.82-48.15	**(45.70)**	49.42-57.16	**(53.29)**	51.06-55.44	**(53.25)**
LD	11.19-12.85	**(12.04)**	11.54-12.00	**(11.79)**	13.85-15.33	**(14.61)**	12.16-13.51	**(12.84)**	14.15-18.57	**(16.36)**
LA	9.32-11.51	**(10.15)**	10.00-10.91	**(10.50)**	12.48-14.95	**(13.33)**	9.19-11.53	**(10.36)**	15.19-16.06	**(15.62)**
LPV	11.76-13.05	**(12.55)**	10.91-12.00	**(11.48)**	14.02-16.82	**(15.30)**	12.84-14.83	**(13.84)**	15.82-16.57	**(16.19)**
LPC	12.65-13.75	**(13.27)**	11.82-12.50	**(12.17)**	15.38-17.76	**(16.91)**	15.14-15.16	**(15.15)**	16.86-19.08	**(17.97)**
PC-PV	25.76-26.34	**(26.12)**	24.55-26.92	**(25.82)**	24.60-30.56	**(28.15)**	31.76-32.62	**(32.19)**	26.76-27.39	**(27.07)**
PV-A	30.30-31.28	**(30.72)**	18.84-33.64	**(30.83)**	28.97-30.20	**(29.43)**	26.36-26.49	**(26.43)**	21.72-27.85	**(24.78)**
A-CB	27.74-29.39	**(28.49)**	26.92-30.00	**(28.31)**	23.33-27.68	**(25.29)**	24.05-25.00	**(24.53)**	15.19-18.57	**(16.88)**

Body somewhat cylindrical, it's depth 5.00-6.64 times in standard length. Dorsal and ventral profile of the body is almost parallel. Head slightly depressed, it's depth 7.50-10.00, breadth 5.00-6.66, length 3.75-5.00 times in standard length. Eyes large, placed slightly nearer to snout, dorso-lateral in position; it's diameter 4.00-5.00 times in head length. Snout rounded, 2.40-2.50 times in head length. Nostrils placed almost midway between eye and tip of snout , with short barbel like projection. Mouth slightly behind tip of snout, lower lip interrupted in middle. Barbels 3 pairs, all of equal length, longer than eye diameter. Length of dorsal fin 5.38-8.00, pectoral fin 5.00-6.66, pelvic fin 5.00-8.00, anal fin 6.00-7.50 and caudal fin 4.57-6.00 times in standard length. Predorsal distance 1.84-2.00, prepectoral distance 3.75-4.30, prepelvic distance 1.66-1.95 and preanal distance 1.26-1.36 times in standard length. Vent situated far forward towards pelvic fin, distinctly nearer base of caudal fin than tip of snout. The distance between snout to vent 1.60-1.72 and vent to base of caudal fin 2.40-2.71 times in standard length. Length of caudal peduncle 5.38-7.50 and height of caudal peduncle 7.50-10.00 times in standard length. Lateral line complete. The dorsal fin placed slightly behind or opposite to pelvic fins, its origin slightly nearer to base of caudal fin than to tip of snout. Longest ray of dorsal almost equal to body depth immediately below it. Anal fin nearer to base of caudal fin than to commencement of pelvic fins. Length of pectoral fins slightly shorter than head length (1.17-1.33 times). The distance between origin of pectoral and pelvic fins (3.42-4.00 times in standard length) shorter than the distance between pelvic and anal fins (3.59-5.00 times in standard length). Caudal fin more or less truncate; slightly rounded near edge (Plate II, C; Fig. 1B); its length slightly shorter than the head length. Caudal peduncle short, 1.00-1.50 times as long as high.

Colour : Dorsal surface of head greyish, body with 10-11 bands. In caudal peduncle region bands coalesced. A dark band at the base of caudal fin (Fig. 1 B). All the fins are dull white.

Etymology : The species has been named after the collector Smti.Rosamma Mathew

KEY TO THE SPECIES OF THE GENUS *ABORICHTHYS*

1. a) Vent situated equidistant between tip of snout and base of caudal fin or slightly nearer to snout 2
   b) Vent situated distinctly nearer to base of caudal fin than tip of snout 3
2. a) Depth of body 9.5-9.9 in standard length, eye diameter 6.6-7.2 in head length; 30-35 bands ..... *garoensis*
   b) Depth of body 7.7-8.0 in standard length, eye diameter 8.5-9.0 in head length, 15-20 bands ..... *tikaderi*
3. a) Body marked with several black bands; caudal fin rounded and marked with crescentic black rings; a black spot at upper end of base of caudal fin 4
   b) Body marked with 10-11 bands; caudal fin almost truncate without any coloured bands; a black band at the base of caudal fin ..... *rosammai* n.sp.

4. a) Body marked with broad black rings alternating with Narrow yellowish bands , indistinct in anterior half; barbels as long as eye diameter ..... *elongatus*

   b) Body marked with oblique black stripes indistinct in posterior third of body; barbels much longer than eye diameter ..... *kempi*

DISCUSSION

To quote Hora (1925), "there is no doubt that fishes of the genus *Aborichthys* are evolved from those of the genus *Nemachilus* chiefly by the change in the position of the vent". This is very much true for the present species. Except for the position of vent the present species is morphologically very much similar to genus *Schistura*. The diagnostic characters of *Aborichthys* such as 'greatly elongated body, all fins greatly removed from one another, lunate caudal fin, a black spot at upper end of base of caudal fin' - all these characters are lacking in the present species.

Out of the 22 morphological characters (shown in Table-2), the present specimens are showing differences in at least 12 -14 characters with other known species.

In morphometrics the species is closer to *kempi* but differences have been noticed in body depth (15.95% versus 13.72% mean value), head width (16.55% versus 13.90%), eye diameter (5.18% versus 3.26% mean value), inter orbital space (7.27% versus 4.64% mean value), length of dorsal (16.36% versus 14.61% mean value), anal (15.62% versus 13.33% mean value) and pectoral fins (17.97% versus 16.91% mean value), distance between tip of snout to vent (59.73% versus 54.08% mean value), between snout to base of dorsal fin (52.51% versus 49.59% mean value), between snout to base of pelvic fin (53.25% versus 45.70% mean value), which are more in *A. rosammai* but distance between origin of pelvic to anal fin (24.78% versus 29.43% mean value), vent to base of caudal fin (40.60% versus 44.52% mean value), dorsal fin to base of caudal fin (40.69% versus 48.76% mean value) origin of anal to base of caudal fin (16.88% versus 25.29% mean value) are less in *A. rosammai* (Histogram I).

The present species shows some similarity with *elongatus* in least height of caudal peduncle (12.31% versus 12.44% mean value),distance between tip of snout to vent (59.73% versus 60.23% mean value), vent to base of caudal fin (40.6% versus 39.76% mean value), snout to base of pelvic fin (53.25% versus 53.29% mean value) but differ in length of caudal fin (20.64% versus 17.27% mean value), head length (22.22% versus 18.25% mean value), body depth (15.95% versus 13.87% mean value), eye diameter (5.18% versus 3.03% mean value), snout length (9.91% versus 8.18% mean value), inter orbital distance 7.27% versus 4.33% mean value), head depth (11.52% versus 10.00% mean value), length of dorsal fin (16.36% versus 12.84% mean value), anal fin (15.62% versus 10.36% mean value), pelvic fin (16.19% versus 13.84% mean value), pectoral fin (17.97% versus 15.15% mean value) which are more in *A. rosammai.* In measurements like length of caudal peduncle (16.88% versus 19.06% mean value), distance between dorsal fin to base of caudal fin (40.69% versus 49.17% mean value), pectoral to pelvic fin (27.07% versus 32.19% mean value) and anal fin to base of caudal fin (19.68% versus 24.53% mean value) are less in *rosammai* (Histogram II).

With *garoensis* and *tikaderi* it shares some similarity only in distance between origin of pectoral and pelvic fins (27.07% in *rosammai*, 26.12% in *garoensis* and 25.82% in *tikaderi*). In other characters much differences have been noticed which have been shown in Table I and Histogram III & IV.

Hora (1925) opined that *A.elongatus* is the primitive form under this genus where vent is nearer to tip of caudal fin (snout-vent distance 58.51-61.94% and vent-base of caudal fin 37.89-41.62% in SL) and colour bands in the body somewhat similar as in the Indian species of *Schistura*. Subsequently, he placed *kempi* (snout-vent distance 50.07-58.15% and vent-base of caudal fin 41.85-47.97%) and *garoensis* (snout-vent distance 49.50-49.60% and vent-base of caudal fin 50.28-50.47%) based on movement of vent towards snout. In *tikaderi*, vent is more forward than *garoensis* (snout -vent distance 48.0-48.18% and vent-base of caudal fin 51.00-54.55%).

In the present species, position of vent (snout-vent distance 59.37-60.09% and vent-base of caudal fin 39.62-41.59%) is somewhat similar to *elongatus* but on the basis of body shape, presence of band at base of caudal fin and shape of the caudal fin it can be concluded that the present species is more primitive than *elongatus*.

ABSTRACT

A new species *Aborichthys rosammai* is described from North-East India. Other known species under the genus are *kempi*, *elongatus*, *garoensis and tikaderi.* The new species has been compared with all the known species to confirm for its separate identity. The genus is so far restricted to North East India with only *A. kempi* having its distribution in Myanmar also.

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