

## First record of *Centroberyx rubricaudus* (Liu and Shen, 1985) (Beryciforms: Berycidae) from Indian waters (Andaman Islands)

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Present study reports the first record of occurrence of the Red alfonso, *Centroberyx rubricaudus* in the Indian waters (Andaman Islands). This fish has been reported earlier only from the southern coast of Taiwan. A single specimen measuring 215 mm TL was collected from a vessel operated in the Bay of Bengal (Bamboo Flat) of India during March 2010. The specimen has been compared with the earlier reports and the other similar species.

[**Keywords:** *Centroberyx rubricaudus*, Andaman, Berycidae.]

### Introduction

The systematics of the family Berycidae (Order Beryciforms) has been incompletely studied and is still under confusion<sup>1</sup>. In an earlier revision<sup>2</sup>, four genera *Beryx* Cuvier, *Centroberyx* Gill, *Trachichthodes* Gilchrist, and *Austroberyx* McCulloch were included in family Berycidae. But according to later workers<sup>3</sup>, there are only two genera *Beryx* and *Holopteryx*, among the synonyms of which *Centroberyx*, *Trachichthodes*, and *Austroberyx*, accepted by Jordan as valid. Further studies<sup>4,6</sup> concluded that family Berycidae includes two genera, *Beryx* and *Centroberyx*, considering *Trachichthodes* and *Austroberyx* as synonyms. This was agreed upon by the latest revision<sup>1</sup>.

According to latest works<sup>7</sup> family Berycidae comprises of two genera *Beryx* and *Centroberyx* with ten species (*Beryx decadactylus*, *B. splendens*, *B. mollis*, *Centroberyx affinis*, *C. australis*, *C. druzhinini*, *C. gerrard*, *C. lineatus*, *C. spinosus* and *C. rubricaudus*). Genus *Beryx* with *Beryx decadactylus*, *B. splendens* and *B. mollis* and genus *Centroberyx* with the remaining seven species with habitat on the shelf and upper slope to a depth of 700 m. Three species (*C. lineatus*, *C. affinis*, and *C. gerrardi*) are distributed in the Indo-Pacific and three are known only from Indian Ocean (*C. spinosus* on the South African shelf, *C. druzhinini* on the Saya de Malha Bank and *C. australis* on southern Australia<sup>8</sup>) and remaining one *C. rubricaudus* in Northwest Pacific- endemic to Taiwan<sup>9</sup>. Present

report of *C. rubricaudus* is the first record from the East coast of India and the first from Andaman Islands and indicates a marked extension of the distribution from its type locality.

### Materials and Methods

On 28 March 2010, a single specimen of *C. rubricaudus* (Fig. 1), 215 mm TL was collected from a vessel operated on the East coast of India (Bamboo Flat, Andaman Islands) (Fig. 2). This is the first report of the species from Indian waters. The morphometric and meristic characters of the specimen was studied as per standard format<sup>10</sup>. The results were compared with that of the first record<sup>9</sup> and other species of genera *Centroberyx*. The specimen has been preserved in 2% formalin and deposited in National Biodiversity Referral Museum at CMFRI.

### Results

*Centroberyx rubricaudus* Liu and Shen, 1985

*Centroberyx* sp. Masuda, Araga and Yoshino 1975: 192-193.

*Centroberyx druzhinini* (non Buskhin) Masuda, Araga, Amoaka, Uyeno and Yoshino 1984: 104, pl. 94.

*Centroberyx rubricaudus* Liu and Shen, 1985:1-7, Figs 1-2.

Diagnosis: A species of *Centroberyx* with lateral line scales and 16 anal fin rays; scales above lateral line to origin of dorsal fin - 8; scales below lateral line to origin of anal fin - 18; scales rows in cheek - 5.



Fig. 1—*Centroberyx rubricaudus* Liu and Shen, 1985.



Fig. 2—Bamboo Flat, Andaman Island, India.

An ovoid, compressed fish with large blunt head; large prominent eyes; caudal fin deeply forked, with rounded thin lobes; colour reddish orange. Description: Dorsal fin VI, 13; anal fin IV, 16; Pectoral rays 13; pelvic fin I, 7; lateral line complete, with tubular scales - 60; scales above lateral line to origin of dorsal fin - 8; scales below lateral line to origin of anal fin - 18; scales rows in cheek - 5; circumpenduncular scales 16; diagonal rows of small scales on cheek - 5; prepelvic scales - 19; scales between pelvic and anal fin enlarged; predorsal scales - 34; no scales on basal part of fins; caudal fin rays 11+10; gill-rakers slender 7+17. Body elongated, ovoid, moderately compressed; body depth 2.2 times in SL; head large, flat, on dorsal side head depth more than body depth, its length 2.5 times in SL. Eyes big, prominent, no spines on orbit; eye diameter 2.7 in HL; snout short, 5.3 in HL, blunt with slight serrations. Mouth medium, oblique, opening at an angle of 45°; maxillary reaching below middle of the eye; upper jaw slender with a deep notch; lower jaw 2.4 times in HL, slightly thickened and slightly projected beyond upper jaw. Maxillary with a band of villiform, palatine and vomer with fine teeth. Operculum with single undeveloped flat spine, pre-operculum serrated with a slight elongated lobe at the lower free end. Single dorsal fin without notch; inserted nearly at the center of the body, its base bigger than the anal base; sixth dorsal spines longest, 2.4 times in HL; first spine shortest, 4.6 times in sixth dorsal spine; first soft ray longest, longer than dorsal spine, 2.1 times in HL; spines in fins long, slender and sharp; fourth anal

spine longest, its length 1.2 times in sixth dorsal spine and 3.0 in HL; first anal ray longest 2.7 in HL; pelvic fin long and elongated, nearly reaching the origin of the anal base; enlarged scales between pelvic and anal fins. Body scales ctenoid; lateral line scales not extending onto caudal fin; caudal peduncle moderately elongated; caudal fin deeply forked, end of the two lobes rounded at its tip; at the both ends of the origin of caudal base 3 to 4 short spines present.

*Body proportions (as percent SL):* Head length 39.96; head width 42.78; head depth 27.27; body depth I 44.57; body depth II 39.86; eye diameter 14.68; inter orbital 9.46; pre orbital length 9.19; post orbital length 17.37; lower jaw length 16.31; upper jaw length 22; chin depth 3.9; pre dorsal I length 47.72; pre pelvic length 45.21; pre pectoral length 39.59; pre anal length 64.18. Fin length- pectoral 28.29; pelvic 22.53; dorsal I 17.92; anal 16.12; caudal 36.88. Fin base- pectoral 6.20; pelvic 5.42; dorsal I 32.93; anal 31.45.

*Body proportions (as percent HL):* Head width 107.05; head depth 68.08; snout length 18.68; eye diameter 36.73; inter orbital 23.68; pre orbital length 22.99; post orbital length 43.47; lower jaw length 40.81; upper jaw length 55.06; chin depth 9.76.

*Colour:* Body pale red dorsally and silvery white below; nape, pre orbit and mouth orange to red; dorsal and the caudal fins bright red in color; pectoral, pelvic and anal fins reddish with red to white inter-fin membranes; when preserved in formalin the colour of the fish changes to brownish white.

Table 1—Comparative statement of counts and measurements of holotype and paratypes with present specimen.

1.	Counts/proportions	Holotype	Paratypes	Present specimen
2.	Total length	191.8 mm	198.8-207.4 mm	214.88 mm
3.	Standard length	144.5 mm	139.5-147 mm	152.22 mm
4.	Dorsal fin	VI, 13	VI, 13	VI, 13
5.	Anal fin	IV, I6	IV, I6	IV, I6
6.	Pectoral fin	13	12-13	13
7.	Ventral fin	I, 7	I, 7	I, 7
8.	Caudal fin	V+19+V	V+19+V	V+21+V
9.	Lateral line	59	60-64	60
10.	Scales above lateral line	8 ½	8 ½ - 9 ½	8
11.	Scales below lateral line	17 ½	17 ½ - 18 ½	18
12.	Gill rakers	7 + 17	7 + 17	7 + 17
13.	In Standard length			
14.	Head length	2.59	2.62-2.69	2.50
15.	Great depth	2.40	2.28-2.38	2.24
16.	Height of head	2.49	2.33-2.43	2.33
17.	Snout tip to D. origin	2.49	2.26-2.41	2.09
18.	Snout tip to A. origin	1.85	1.65-1.72	1.55
19.	Snout tip to V. origin	2.83	2.43-2.74	2.22
20.	Longest of D. spine	5.55	5.39-6.01	6.23
21.	Longest of D. ray	4.93	4.52-5.05	5.46
22.	Dorsal base	2.83	2.70-2.84	3.00
23.	Longest A. spine	7.29	6.95-7.66	7.53
24.	Longest A. ray	6.94	6.05-7.08	6.75
25.	Anal base	3.66	3.12-3.22	3.17
26.	Longest Pect. ray	3.76	3.65-4.04	3.53
27.	Longest V. spine	5.97	5.14-6.12	5.89
28.	Longest V. ray	4.80	4.13-4.81	
29.	In Head length			4.43
30.	Snout	5.56	4.81-5.78	5.35
31.	Interorbital	4.03	3.69-3.89	4.22
32.	Length of C.P.	3.05	3.05-3.37	3.34
33.	Longest caudal ray	1.04	0.99-1.0	1.08

*Habitat:* Recorded from the rocky coralline area of Andaman.

*Distribution in world:* Reported from Taiwan<sup>9</sup> and South China<sup>14</sup>.

### Discussion

The present record matches well with the earlier description from Taiwan waters<sup>9,11</sup>. Slight variations were noted in the pre-pelvic and pre-pectoral length; this could probably be due to the difference in the geographical location. However *C. druzhinini*, which was considered as synonym of *C. rubricaudus* differs from the present species in fewer gill rakers, deeper body, longer head and dorsal base, point of

the origin of pelvic fin and body shape. The dorsal and anal fin of *C. rubricaudus* is longer than that of *C. druzhinini*. The caudal fin lobes in *C. druzhinini* are pointed while in *C. rubricaudus* caudal fin lobes are rounded at its tip. The pelvic fin is inserted more anteriorly than that of dorsal fin. The other species in this genera *Centroberyx affinis*, *C. australis*, *C. druzhinini*, *C. gerrard*, *C. lineatus*, *C. spinosus* are distinguished from the present specimen by having lesser number of lateral line scales and anal rays (Table 2). The meristic and morphometric values of the present specimen are will agreed with the holotype and paratypes<sup>9</sup> (Table 1). Hence, this report is an extended distribution of the species and a new record from the Indian waters.

Table 2—Comparative statement of counts and measurements of *Centroberyx affinis*, *C. australis*, *C. druzhinini*, *C. gerrard*, *C. lineatus*, *C. spinosus* and *C. rubricaudus* with present specimen.

Characters	<i>C. affinis</i>	<i>C. australis</i>	<i>C. druzhinini</i>	<i>C. gerrardi</i>	<i>C. lineatus</i>	<i>C. spinosus</i>	<i>C. rubricaudus</i>	Present specimen	
Meristic Characters									
D	VI-VII, 12-13	VI, 13-14	VI, 13	VI, 12-13	VI, 14	V-VI, 14-15	VI, 13	VI, 13	
A	IV, 12	IV, 12-13	IV, 15-16	IV, 14	IV, 14	IV, 14-16	IV, 16	IV, 16	
P	13-14	-	13	13	14	13	13 (12-13)	13	
V	I, 7	-	I, 7	I, 7	I, 7	I, 7	I, 7	I, 7	
LL Scales	41-44	-	53-62	36-39	45-51	43-47	59 (60-64)	60-61	
Gr	-	-	(8-9) + 1 + (16-20)	-	-	(10-11) + (20-22)	7 + 17	7 + 17	
Morphometric Characters									
	as % TL	as % TL	as % TL	as % TL	as % TL	as % TL	as % TL	as % TL	as % SL
Standard length	78.9	-	76.1	79.9	70.7	84.4	75.5	70.8	-
Fork length	83.8	-	81.8	85.6	75.5	92.0	79.3	78.7	-
Pre-anal length	47.3	-	44.4	46.6	38.7	48.3	47.7	45.4	64.1
Pre-dorsal length	32.4	-	34.0	34.6	27.3	34.4	34.5	33.8	47.7
Pre-pelvic length	26.9	-	26.7	30.9	25.2	32.6	24.4	32	45.2
Pre-pectoral length	26.7	-	25.4	26.8	23.2	32.2	24.4	28	39.5
Body depth	32.4	-	33.8	31.6	27	40.2	33.7	31.5	44.5
Head length (HL)	25.0	-	26.9	25.5	22.3	29.8	26.1	28.3	39.9
Eye diameter	27.1	-	34.3	32.6	36.5	34.2	37.1**	36.7**	14.6
Pre-orbital length	23.3	-	19.6	18.8	19.0	23.0	19.9**	22.9**	9.1
Dorsal fin length	37.2-40.6*	-	34.3-34.4*	38.3*	37.5*	38.4-39.5*	-	12.7	17.9
Anal fin length	26.7-27.0*	-	27.6-28.4*	27.6*	31.2*	31.8-32.1*	-	11.4	16.12
Pectoral fin length	23.3-24.8*	-	23.8-26.7*	27.0*	30.0*	22.1-27.0*	-	20	28.2
Pelvic fin length	17.5-18.9*	-	20.7-21.2*	24.1*	20.0*	17.9-19.0*	-	15.9	22.5

- data not available \* as % SL \*\* as % HL

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