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First record of Indian golden barred butterfly fish, *Roa jayakari* (Norman, 1939), (Pisces: Chaetodontidae) from Visakhapatnam coastal waters, east coast of India

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Abstract

The Indian golden barred butterfly fish *Roa jayakari* (Norman, 1939) was recorded for the first time along the Visakhapatnam coastal waters, East coast of India. A detailed description of the species is given here with illustrations. Two specimens were collected from deep water trawl catches from Visakhapatnam fishing harbor during the month of March 2012. Current manuscript deals with species description, morphometric and meristic characters, distribution, habitat and ecology.

Keywords: *Roa jayakari* (Norman, 1939), first record, Visakhapatnam, East Coast of India

1. Introduction

The Chaetodontidae (Butterflyfishes) are a widespread, diverse family of marine percoids with representative on virtually all coral reef systems and in all tropical and subtropical waters of all oceans^[1-3]. A diverse family of marine fishes that by virtue of their bright color patterns have attracted a great deal of scientific and popular attention; the most widely followed taxonomy of the family was erected by^[4].

They live in depths 1-200 m, and are not found far from shore except as post larvae in the peculiar stage. Most species associated with coral reefs, and coral polyps are a common item in their diet. Ten genera with about 120 species; four genera and 24 species in our area, the species of this small butterfly fish genus are normally confined to moderate depths, usually in excess of 100 m and to report to almost 300m^[1, 5, 6, 3]. Using classical systematic methods, he recognized 114 species in 10 genera, nine of which are not subdivided further. Their bright and conspicuous color patterns have attracted much attention, generating a wealth of information about their behavior and ecology^[7, 8]. Taxonomic diversity, species composition, distribution, conservation and abundance of rocky shore intertidal fishes in the Visakhapatnam^[9] and many new and first reports from cardinal fish *Ostorhinchus fleurieu* (Lacepede, 1802) from middle east coast of India^[10], flat toad fish *Colletteichthys dussumieri* from North Andhra Pradesh^[11].

2. Materials and Methods

The first occurrence of this species was encountered among the other species in random samples of *Roa jayakari* (Norman, 1939) collected during the month of March 2012 from deep water trawl catches at the fish landing centre in Visakhapatnam (Fig.1). Body measurements and meristic data were taken in fresh condition. Standard length (SL) was measured from the tip of the snout to caudal fin base. In presenting the meristic data and body measurements (latter expressed as percentage of SL or HL: head length). Colour was noted in fresh condition. This is the first occurrence of the golden barred butterfly fishes in Visakhapatnam coastal waters. The species is rare in the catches off Visakhapatnam. Specimens were Identified using taxonomic keys^[4, 1, 5, 6, 3, 12, 13].

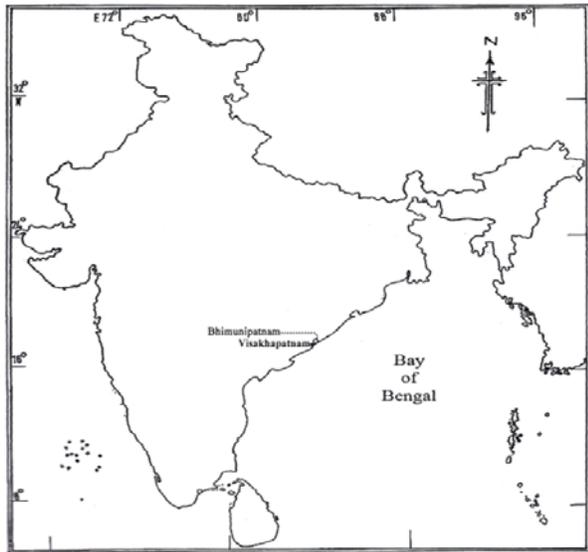


Fig 1: Map of the study area in the Visakhapatnam coast, India

3. Results and Discussion

Systematic account:

Class: Actinopterygii

Order: Perciformes

Family: Chaetodontidae

Genus: *Roa*

Species: *jayakari* (Norman, 1939)

Common name: Indian golden barred butterfly fish

Local Telugu name: Paina



Fig 2: *Roa jayakari* (Norman, 1939)

Description

Roa jayakari Norman, 1939, John Murray Report, VII: 63, Fig. 2.

Dorsal fin X-XI, 22; anal fin III, 17; ventral fin I,5 pectoral 14; caudal, 17; Total gill rakers 13; lateral line scales 39-40; Ltr 7+1+17. (Table 2).

Body very deep, 79.03- 80 % in SL, and strongly compressed; mouth small, pointed; jaws slightly equal; none on vomer, small villiform teeth present; profile of head steep; eyes are large, the length 47.6-48.9% in SL, snout moderately long; eye

diameter equal length of snout, 27.5-29.1% in HL, inter orbital narrow, 20.83-22.5% in HL, caudal peduncle moderately deep, its depth 10.7-12.2% in SL; (Measurements table given in Table. 1) preopercular angular in shape; lower profile slightly round with slightly serrated.

Origin of dorsal fin high above posterior end of head, fin continuous, the fin base long, its spinous section deeply incised and the base mostly horizontal, curving gradually downward from last few spines to caudal peduncle with soft portion of the fin; and the posterior margin of the fin vertical, base length of spinous and soft portion equal; dorsal spines moderately strong and stout; spines long and broadly compressed near the base, fourth spine longest; anal fin with three spines, first one shorter than second and third; second spine longest, stouter than first and third spines; anal fin directly below soft portion of dorsal fin, mirroring its shape; ventral fin with robust and strong spine and soft rays; pectoral fin pointed extend up to soft anal fin; ventral soft rays extending up to anal spines.

Body and head covered with large ctenoid scales, gradually becoming smaller on nape and snout, extending far onto the median fin, ventral fin with an auxillary scale, laterl line with tubed scales, rising at steep angle from origin with about 20-22 scales in an almost straight line, gradually downward, subsequent curve of soft dorsal fin, ending on caudal peduncle; soft parts of dorsal and anal with scaly sheath.

Table 1: Morphometric data of two species of *Roa jayakari* (Norman, 1939), represented in the catches off Visakhapatnam

	<i>jayakari</i> , n= 2
Standard Length	49-84, mm SL
	Min – Max
As percentage of standard length	
Total Length	125-126.5
Body depth	75.51-76.19
Head length	47.61-48.97
Pre dorsal distance	44.89-54.23
Pre pectoral distance	46.93-48.80
Pre pelvic distance	44.89-46.42
Pre anal distance	69.04-69.38
Dorsal fin base	65.30-66.66
Pectoral fin base	8.33-10.20
Anal fin base	32.65-33.33
4 th Dorsal spine height	30.95-32.65
Soft dorsal height	20.23-22.44
2 nd anal spine height	22.61-26.53
Soft anal height	19.04-22.44
Pectoral length	27.38-28.57
Pelvic spine length	25-26.53
Soft pelvic length	28.57-30.61
As percentage of head length	
Head depth	90-91.66
Head width	33.33-35
Eye diameter	27.5-29.16
Pre orbital distance	20.83-22.5
Post orbital distance	41.66-42.5
Inter orbital	20.83-22.5
Upper jaw length	20.83-22.5
Lower jaw length	15-16.66
Maxillary width	7.5-8.33
Snout length	27.5-29.16

Table 2: Meristic characters of *Roa jayakari* Norman, 1939 as compared by different authors

Authors	D	A	P	C	V	Total gill rakers	Lls	Ltr
Fish base (2015)	XI, 22-24	III, 17-18	-	-	-	-	-	-
Present data (2015)	X-XI, 22	III,17	14	17	I,5	13	39-40	7/1/17

Colour

Body coloration comprising three light brown bars with golden tinge, first band slender and extended from anterior tip of dorsal fin, along orbit, second band broadest and extending from fourth to fifth dorsal spines down to belly, third band extending from seventh to eleven dorsal spines and anterior dorsal rays down to soft anal fin; a prominent ocular band from origin of dorsal to lower margin of preoperculum and a narrower median band from occipital region to snout; soft portion of pelvic fin black; an ocellus is present in between the two to seven soft dorsal fin, is round, encircled in white and merged with the sub marginal white edge on the dorsal termed. The snout is suffused on the upper lip region in brown; pelvis blackish; soft anal dark at base; caudal light grayish in color.

4. Geographical distribution

Red Sea, Gulf of Aden, Gulf of Oman, southern Arabian coast, and west coast of India ^[4].

5. Habitat and Ecology

Little is known about the natural history of this species. Populations are found in deep rocky areas, and feed mostly on benthic invertebrates ^[1].

6. Remarks

Roa jayakari (Norman, 1939) differs from its only two congeners *Roa australis* Kuitert, 2004 and *Roa excelsa* (Jordan, 1921) in the shape of the black ocellus on the dorsal fin (elongated in the latter two species ^[14]). Additionally, *R. jayakari* shares the character “white-edged round black ocellus on the soft portion on the dorsal fin” with *Roa modesta* Temminck and Schlegel, 1844 and differs from it in having straight profile of the spinous portion of dorsal fin and the lack of black edged bars. However ^[12] reassigned the latter species to the genus *Chaetodon* due to moderately long 3rd–5th dorsal fin spines. *Roa jayakari* (Norman, 1939) has been reported previously the Arabian Sea ^[15]. In view of the above, this species is a new record for the east coast of India, suggesting its range extension. This species listed as International Union for Conservation of Nature ^[16] (Least Concern) threatened species.

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