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Taxonomic account of Marcia's Anthias, *Pseudanthias marcia* Randall & Hoover, 1993 (Serranidae: Anthiinae), a new record from India

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Abstract

The anthiid fish collected by a trawl unit operating between Munambam and Quilon (8^0 55' N -10^0 09'N lat. and 76^0 04'-76^0 31' E long.), along the Kerala coast in June 2008 was identified as *Pseudanthias marcia* Randall & Hoover, 1993, (Family Serranidae). *P. marcia* is a small fish, highly colourful, sexually dimorphic, dichromatic and hermaphroditic in behaviour. Though reported earlier from the Oman waters, the present record confirms its distribution in the Arabian Sea up to the southwest coast of India. Detailed description of the species and a comparative statement with types is given since it forms a new record from the Indian coastal waters.

Keywords: *Pseudanthias marcia*, Serranidae, ornamental fish

Introduction

Family Serranidae belonging to Order Perciformes comprises of over 450 species of fish in 64 genera and includes the seabasses, groupers and the fairy basslets. The smallest serranids belong to the subfamily Anthiinae and range in size from just over 2 inches to about 9 inches (Heemstra and Randall, 1999). Subfamily Anthiinae is a taxonomically confusing group consisting of fishes often found associated with coral reefs or rugged bottoms in the tropical and subtropical seas at depths of 10-200m (Randall and Pyle, 2001). The Indo–Pacific genus *Pseudanthias* ("*false anthias*" in Greek) or "Jewels of the reef" as they are commonly called was originally described by Bleeker (1871) and includes 62 species of fish popular among aquarium keepers and sport divers. Species of this genus are among the most colourful of fishes with body colour of red, pink, orange, yellow, violet and lavender predominating. Very few species are geographically limited, and most can be found at several locales in both the Indian Ocean and Pacific Oceans. Schooling and social behaviour of *Pseudanthias* have been described by Randall and Pyle (2001). Males are recognized by their slightly larger size, more brilliant colours, more elaborate fins and slightly extended upper lip while females are smaller in size and lesser coloured. All *Pseudanthias* species are said to be protogynous; many are both dichromatic and dimorphic (Randall and Pyle, 2001).

Most of the species of *Pseudanthias* described so far are all from the Indo - Pacific, mostly from scuba–diving depths. Randall and Hoover (1993) recorded one *Pseudanthias* species from the coastal waters of Oman. Four species of *Pseudanthias* have been reported from India - *P. squamipinnis* (Minicoy); *P. pulcherrimus* (Madras); *P. conspicuous* (Arabian Sea, off Diu) and *Pseudanthias taeniatus* (as *Anthias taeniatus* from Visakhapatnam); the present record adds to the list of *Pseudanthias* reported from India.

Materials and methods

In June 2008, two fairy basslets of total length 102 mm and 101 mm and weight 45 g were obtained in a trawler unit operating between Munambam and Quilon (08^0 55′ N -10^0 09′N lat.

and 76^0 04′-76^0 31′ E long.). The specimens were examined fresh for colour patterns and external characteristics. Morphometric and meristic measurements were made with a digital caliper following Hubbs and Lagler (1949) with slight modifications. Length given is as percent standard length measured from snout tip to tip of caudal fin (excluding the fin extension in males). Caudal concavity is the horizontal distance from verticals at the tips of the shortest and longest caudal rays. Total length, standard length, head length and body depth are abbreviated as TL, SL, HL and BD respectively. The present specimens collected have been deposited in the Marine Biodiversity Museum of CMFRI, Kochi, India (GB.31.139.44.35).

Results and Discussion

The external colour pattern, morphometric and meristic data confirmed that the specimens belonged to the Family Serranidae, Subfamily Anthiinae, genus *Pseudanthias* Bleeker 1871 and species *marcia* Randall & Hoover, 1993.

Pseudanthias marcia Randall & Hoover, 1993 *Pseudanthias marcia* Randall & Hoover, 1993:47, figs. 1-5, off Rahah Bay, southwestern coast of Oman (type locality); Randall 1995: 123; Randall & Pyle 2001:34; Manilo & Bogorodsky 2003:104.

Material examined: (GB.31.139.44.35) (2 nos.), male TL102mm (Fig. 1a) female TL 101 mm (Fig. 1b); holotype BMNH 1993.7.22.1; paratype USNM 320765 (Fig. 1c, 1d). Holotype details were provided by Dr. Randall.

Diagnosis: Dorsal X, 16-17, 11-13th ray longest; anal III, 6-7, (all dorsal and anal rays branched), pectoral rays 18, pelvic I, 5, principal caudal rays 8 + 7, gill rakers 12 + 29; single continuous dorsal fin with no notch between the spinous and ray part. Fleshy protuberance seen in front of the upper lip in female only, vomerine teeth in a subtriangular patch; dorsal spines and rays progressively longer, the last ray 6.6 in SL. Posterior portion of soft dorsal and anal fin angular in shape. Caudal fin of males slightly emarginate on the top with the end of the upper lobe filamentous, the tip 2.8 in SL (Fig.1. e); caudal fin in females deeply emarginated with the outer tips pointed (Fig.1. f). The paratype BMNH 1993.7.22.1 was examined by Patrick Campbell, Curator, BMNH and details provided (Table 1).

Colour of males: Body pinkish-violet with a violet streak from upper jaw extending below eye to pectoral fin origin; lower part of head yellow. A yellow patch with two trailing lines extending to caudal seen below soft dorsal. Scale centres on lower half of body yellow and beyond; scale centres on anterior part of body magenta. Area below the head and abdomen yellowish. Dorsal, pectoral and anal fin pinkish with the interdorsal membrane light pink; outer tip of soft dorsal filaments (11th-

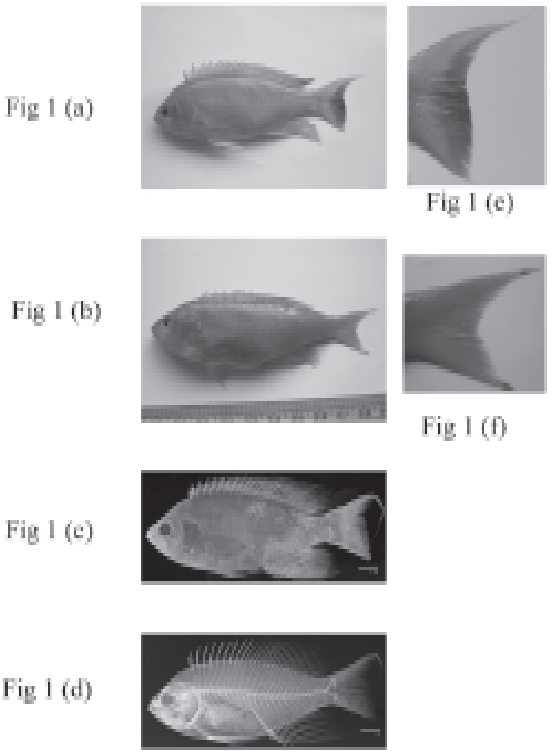

Fig 1 (a) *Pseudanthias marcia* - male SL: 87.4 mm
(b) *Pseudanthias marcia* - female TL: 76.8 mm
(c) USNM 320765 *Pseudanthias marcia* paratype (male) photo SL :100.8 mm
(d) USNM 320765 *Pseudanthias marcia* paratype (male) X -ray SL: 100.8 mm
(e) Caudal fin in male *P. marcia*
(f) Caudal fin in female *P. marcia*

Table 1. Comparative data on the proportional measurements of types and present specimens of *Pseudanthias marcia* expressed as percentage of standard length

	Holotype		**Paratypes**					**Present sample**	
	BPBM 35457	BPBM 35455	BPBM 35456	BPBM 35456	BMNH 1993.7.22.1 (1)	RUSI 525	USNM 320765	(GB.31.139.44.35)	
Character/ Locality	Oman	Oman	Oman					(Kochi, India)	
Sex	male	juvenile	female	male	male	male	male	male	female
Standard length (mm)	98.7	34.0	54.7	98.0	98.8	99.6	100.8	87.4	76.8
Body depth (before dorsal)	39.9	33.0	34.2	39.6	40.0	39.3	40.2	35.8	33.3
Body width	17.1	15.9	16.8	16.3	17.4	17.3	17.6	16.7	16.2
Head length	33.2	35.0	33.0	32.4	33.5	33.1	33.3	31.0	30.9
Snout length	8.3	8.0	7.4	8.2	8.3	8.4	8.4	6.1	5.1
Orbit diameter	6.2	10.3	7.3	6.3	6.4	6.8	6.3	7.0	7.1
Inter orbital width	7.9	7.4	7.5	7.8	7.9	8.3	7.6	8.2	7.8
Upper jaw length	14.9	15.0	14.7	14.5	15.1	15.0	15.3	11.5	12.6
Lower jaw length	*	*	*	*	*	*	*	8.9	9.4
Caudal peduncle depth	15.1	13.3	13.1	14.7	15.0	14.9	15.0	15.0	12.9
Caudal peduncle length	20.4	19.7	20.9	20.8	20.6	21.3	20.2	15.7	15.1
Predorsal length	29.4	30.3	30.5	28.5	29.3	29.4	20.3	26.8	29.2
Preanal length	64.9	61.8	61.3	63.5	62.2	62.9	65.0	64.6	70.6
Prepelvic length	36.5	34.3	34.2	34.2	35.4	34.3	36.6	32.58	34.6
Dorsal finbase	63.3	62.7	63.4	63.0	62.8	64.9	62.9	60.5	60.0
First dorsal spine	6.5	8.8	6.0	6.1	6.4	6.8	7.1	8.1	7.9
Tenth dorsal spine	12.7	14.8	11.3	12.3	12.9	13.3	13.1	12.9	11.8
Longest dorsal ray	26.5	19.8	19.0	27.6	30.1	26.4	28.8	24.6	17.2
Anal fin base	20.3	20.0	19.4	19.7	20.3	20.8	19.9	19.0	16.2
First anal spine	6.3	8.3	6.5	6.3	6.6	6.6	6.8	6.83	5.77
Second anal spine	12.2	14.3	12.2	12.7	12.9	12.7	13.0	11.3	10.71
Third anal spine	14.2	14.4	13.2	14.3	14.1	13.9	14.5	12.8	12.6
Longest anal ray	36.4	21.3	21.0	34.0	35.0	34.6	34.5	36.2	21.2
Longest caudal ray	54.6	40.6	33.2	57.8	40.0	54.0	51.0	48.2	29.8
Caudal concavity	33.4	18.2	15.7	37.0	19.4	34.8	32.3	17.02	15.1
Pectoral fin length	25.4	32.4	28.3	26.5	27.2	25.2	27.4	21.9	26.5
Pelvic spine length	15.1	18.4	14.2	14.9	14.8	15.0	15.5	22.1	22.4
Pelvic fin length	41.8	27.6	25.9	42.8	51.8	51.0	43.6	41.3	32.4

*not available

13th) longer and dark pink in colour; pelvic whitish. Caudal peduncle pinkish on the dorsal part, ventral part magenta in colour. Outer margin of caudal reddish with the area broader on the lower rounded part.

Colour of females: Body and fins orange red in colour, with a distinct violet streak from lower part of eye to base of pectoral fin; edges of scales of the body magenta with their centres yellow; outer tip of the inter dorsal fin membrane deep pink; lower part of the operculum light yellow in colour. Caudal fin deeply emarginated with tips bright red.

Description: Small, deep bodied fish with single continuous dorsal fin; soft dorsal base less than the longest soft dorsal ray. Body moderately deep, fusiform, male body depth 2.7 times in standard length (SL); female body depth 3.1 times

in SL; head depth 2.3 times in SL; sub orbital 16.2 times in HL, post orbital 1.8 times in HL; eye diameter 4.4 in HL, interorbital distance 3.8 in HL, strongly convex; slight concavity above eye in female, rising to a convex profile after eye upto origin of first dorsal fin.

Mouth terminal, moderately large, oblique, upper jaw ending to below beyond middle of eye, length 2.6 in head length (HL), lower jaw 3.4 in HL, slightly longer than upper jaw, supra maxilla absent. Preopercle serrated, opercle with three flat spines with the middle one largest. Gill rakers long, 29 on lower and 12 on upper limb. A pair of well separated, prominent, slightly curved caniniform teeth present in the front of the upper jaw, projecting out of the mouth in front of the lower jaw in closed condition, head scaled. Tongue triangular and sharply pointed. Two nostrils present in front of eye. Head and body with ctenoid scales except for an area around lips. Scales absent on the basal areas of dorsal and anal spines; scales present below the inter-membrane areas of the soft dorsal and on caudal fin base and pectoral fin base. Lateral line origin from behind opercle rising to below the base of fifth dorsal spine, the line more curved in female. Lateral line with 48 pored scales; 6 scale rows above lateral line and 18 below; scales around caudal peduncle 17.

Dorsal fin origin slightly in front of the free end of the opercle, spines progressively longer, the first 3.8 in HL, the tenth 2.4 in HL, first dorsal ray 1.9 in HL in males and 2.7 in females. Soft dorsal longer in males (1.9 -1.4 in HL) compared to 1.6 -2.7 in HL in females. Caudal fin deeply emarginated in females, caudal peduncle deep contained 2.6 times in body depth (BD). The upper end of caudal fin highly elongated and filamentous in male. Pelvic fin thoracic, its length 0.8 times in HL in males and 1.4 times in HL in females.

Distribution: *Pseudanthias* dominates reefs throughout the Indo-Pacific region. Very few species are geographically limited. Apart from Oman on the southwest coast off Rahah Bay (16^0 57′ N lat. 54^0 49′ 12′′E long.), the present report on *P. marcia* shows the distribution up to Kerala, on the southwest coast of India.

P. marcia differs from its congeners mainly in the nature of the filamentous caudal fin in males, the deep concave tail in females and body colour pattern. The meristic and morphometric measurements of the present specimen match well with that of the type and paratype specimens as given in Table (1). Sexual dimorphism and sexual dichromatism observed by Katyama (1960) is clearly visible in the specimens examined.

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