



Note

Three new records of Apogonids (Order–Perciformes, Suborder – Percoidei) from the Indian seas

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Abstract

A survey of Apogonid fishes off the southwest coast of India from Kollam (Neendakara) to Kanyakumari during the years 1999-2000 recorded 24 species, under four genera. Six species were new records to the Indian seas. Of these, three species have already been published and the other three, viz. *Apogon pseudotaeniatus* Gon, *A. trimaculatus* Cuv. & Val., and *Archamia zosterophora* (Bleeker) are described with their salient morphological features.

A survey conducted (Suresh and Thomas, 2006) during 1999-2000 has indicated the occurrence of 24 species from the coastal waters off Neendakara (Lat. 8°56'24"N, Long. 76°32'35"E) to Cape Comorin (Lat. 8°4'6"N, Long. 77°33'45"E). Out of these, six species were found to be new records from Indian seas. The details of three species have been published (Suresh and Thomas, 2006) and the present paper reports the occurrence of another three species viz., *Apogon pseudotaeniatus* Gon, *A. trimaculatus* Cuv. & Val. and *Archamia zosterophora* (Bleeker). They are described with their salient morphological features, illustrations and geographic distribution.

Materials and methods

The three new species described here were collected from 6 centres such as Neendakara, Vizhinjam, Enayam, Colachel, Muttom and Cape Comorin. The areas of survey, methods of sample collection preservation, measurements and counts taken have been described by Suresh and Thomas (2006).

Results

Three species, two from the genus *Apogon* Lacépède (*A. pseudotaeniatus* Gon and *A. trimaculatus* Cuv. & Val.) and one from the genus *Archamia* Gill, *A. zosterophora* (Bleeker) are described below in detail.

Apogon pseudotaeniatus Gon (Fig. 1)

Apogon pseudotaeniatus Gon, 1986A, 11; Baranes & Golani, 1993, 307; Goren & Dor, 1994, 31; Randall, 1995, 159; Mee, 1996, 106; Carpenter *et al.*, 1997, 151;



Fig.1. *Apogon pseudotaeniatus* Gon

Sadovy & Cornish, 2000, 99; Gon, 2000, 14.

Common name: Double bar cardinalfish

Material: Three specimens, ranging from 85 – 90 mm SL (105-115mm TL), from Vizhinjam.

Meristic counts: D¹VII; D²1+9; AII+8; P15; Lateral line scales 24; Gill rakers 15-16 (15.33), L.tr. 2/6 (Tables 1, 2, 3).

Morphometric measurements: Height 2.43 – 2.57 (2.48), head 2.57 in body. Eye 2.91 – 3.0 (2.94) in head, 1.4 times snout, 1.5 times interorbital.

Diagnostic features: Predorsal profile gently convex, pre-opercle ridge smooth, hind margin finely denticulated but lower margin smooth, mouth little oblique, maxillary reaching to below about mid eye, villiform teeth in bands in each jaw. First dorsal spine minute, less than 1/3 of second which is almost usually less than half of third which is longest and about 1.4 times eye. Spine in second

dorsal about equal to fourth in first dorsal, and longer than fifth spine. Most specimens show a dark cross bar below each of the first and second dorsals and a spot on caudal peduncle. First dorsal dusky, other fins light. This species is closely related to *A. taeniatus*.

General distribution: Indo-West Pacific: Red Sea and Arabian Gulf to the Indo Malayan region, north Japan. (Earlier known from coast of Oman) and it is here recorded from the Arabian Sea.

Apogon trimaculatus Cuvier & Valenciennes (Fig. 2)

Apogon trimaculatus Cuvier and Valenciennes, 1828, 156; Macleay, 1881, 46; Weber & de Beaufort, 1929, 335; Carcasson, 1977, 103; Masuda *et al.*, 1984, 148; Allen & Swainston, 1988, 68; Paxton *et al.*, 1989, 551; Randall *et al.*, 1990, 147; Allen, 1993, 16; Allen, 1997, 108; Kuitert, 1997, 148; Randall *et al.*, 1997, 147; Myers, 1999, 129; Randall & Fraser, 1999, 619; Allen, 1999, 2607; Nakabo, 2000, 761; Randall & Lim, 2000, 614; Allen, 2000, 101; Hutchins, 2001, 32; Nakabo, 2002, 761.

Apogon rhodopterus Bleeker, 1852, 62.

Common name: Three – spot cardinal fish

Material: One specimen, measuring 70mm SL (90mm TL), from Vizhinjam.

Meristic counts: D^IVI; D^{II}I+9; AII+8; P14; Lateral line scales 27; Gill rakers 18, L.tr. 2+1+7 (Tables 1, 2, 3).

Morphometric measurements: Height 3.0, head 2.67 in body. Eye 4.66.

Diagnostic features: Mouth oblique, dorsal profile

sloping gently from dorsal to snout, maxillary reaching almost to below middle of eye. Two vertical rows of scales on pre-operculum, its ridge denticulated. The lower orbital rim is also with strong denticulations. Conical teeth in several rows in jaws. Origin of first dorsal fin some what behind that of ventrals. First spine small, second one much stronger than the others and longer than the third one. Spine of second dorsal equal to third one of first dorsal. First anal spine minute and second one equal to that of second dorsal spine. Caudal incised, the lobes rounded. Pectorals and ventrals sub equal, as long as head. Colour: Reddish brown. An indistinct dark brown transverse band from origin of first dorsal to half way ventrals, second one from end of second dorsal to lateral line and a dark small spot at the base of caudal peduncle. Dorsals and caudal more or less dusky, other fins hyaline.

General distribution: West - Central Pacific: Australia, Japan, Malayasia to Samoa, north to Ryukyu Is., south to Rowley Shoals; throughout Micronesia. It is here recorded from the Arabian Sea.



Fig.2. *Apogon trimaculatus* Cuv. & Val.

Table 1. Total number of gill rakers in 3 species of apogonids

Species	No.	Number of gill rakers										Mean
		15	16	17	18	19	20	21	22	23	24	
<i>A. pseudotaeniatus</i>	3	2	1	-	-	-	-	-	-	-	-	15
<i>A. trimaculatus</i>	1	-	-	-	1	-	-	-	-	-	-	18
<i>A. zosterophora</i>	17	-	-	-	-	-	-	-	-	6	11	24

Table 2. Total number of pectoral fin rays in 3 species of apogonids

Species	No.	Number of pectoral fin rays		Mean
		14	15	
<i>A. pseudotaeniatus</i>	3	-	3	15
<i>A. trimaculatus</i>	1	1	-	14
<i>A. zosterophora</i>	17	17	-	14

Archamia zosterophora (Bleeker) (Fig. 3)

Apogon zosterophorus Bleeker, 1856, 36; Macleay, 1882, 103; Weber & de Beaufort, 1929, 346.

Archamia zosterophora Fowler, 1928, 28; Weber, 1913, 236; Carcasson, 1977, 101; Masuda *et al.*, 1984, 149; Paxton *et al.*, 1989, 552; Randall *et al.*, 1990, 149; Chen & Shao, 1993, 783; Allen, 1993, 16; Allen, 1997, 106; Randall *et al.*, 1997, 149; Myers, 1999, 130; Randall

Table 3. Range of variations in the number of lateral line scales in 3 species of apogonids

Species	No.	Number of lateral line scales					Mean
		23	24	25	26	27	
<i>A. pseudotaeniatus</i>	3	-	3	-	-	-	24
<i>A. trimaculatus</i>	1	-	-	-	-	1	27
<i>A. zosterophora</i>	17	8	9	-	-	-	24

Fig.3. *Archamia zosterophora* (Bleeker)

& Satapoomin, 1999, 1; Allen, 1999, 2607; Nakabo, 2000, 758; Randall & Lim, 2000, 614; Allen, 2000, 101; Motomura *et al.*, 2001, 5; Hutchins, 2001, 32; Nakabo, 2002, 758.

Common name: Black belted cardinal fish

Material: Seventeen specimens, ranging from 45-55 mm SL (57-70mm TL), from Vizhinjam.

Meristic counts: D¹VI; D²I+9; AII+16; P14; Lateral line scales 23-24 (23.52); Gill rakers 23-24 (23.65); L.tr. 1 ½ +1+7 ½ (Table 1, 2, 3)).

Morphometric measurements: Height 2.77 – 3.31 (2.97), head 2.75 – 3.33 (3.08) in body. Eye 2.20 – 4.0 (3.31) in head.

Diagnostic features: Mouth oblique, maxillary reaching to below middle of eye. Jaws equal, teeth in a few rows, some on vomer and palatines. Lower border of preoperculum serrated, first dorsal spine about half length of second which is equal to second spine and shorter than third dorsal spine, ventrals shorter, pectorals as long as head. Caudal incised, colour rosy red. Head and body covered with small black spots (melanophores). A black spot at the base of caudal present.

General distribution: West Pacific: Moluccas and Philippines to the Solomon Is. south to New Caledonia, Palau and Yap in Micronesia, it is a new record to Arabian Sea.

Discussion

Coral reefs are considered rich in apogonid fishes.

Suresh and Thomas (2006) while describing three new records of cardinalfishes have pointed out their importance as ornamental fishes. The total number of apogonid species from the Great Barrier Reef of Australia is 36 while that from various islands of Lakshadweep Archipelago is 22 (Jones & Kumaran, 1980). The present survey revealed that the southwest coast of India, though not a coral reef environment, harbours a rich and varied biota of apogonids with a total of 24 species (Suresh, 2004). More studies in this line are required to assess the biodiversity wealth of apogonids, not only of the southwest coast but also of the southeast coast.

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