

ACANTHOCEPOLA ABBREVIATA (VALENCIENNES, 1835), A NEW DISTRIBUTION RECORD FROM PAKISTAN COAST

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ABSTRACT

Acanthocepola abbreviate Valenciennes, 1835 is an uncommon fish from Family Cepolidae, Order Perciformes. Its distribution is common in the China Sea at depths of 20-200 m and for the first time recorded in the Pakistani water. Four specimens ranging size 26 to 37 cm collected from 2017 to 2020 in different dates. The taxonomic aspects and morphological descriptions are given in detail since this species is poorly described previously.

Key words: *Acanthocepola abbreviata*, first record, Pakistan coast.

INTRODUCTION

Order perciformes compressing 40 % of bony fishes which are compressed perch like body shape, mostly marine, dominated the ichthyologic ocean marine life of bony fishes (Nelson, 2006; Bray and Martin, 2018). Family Cepolidae of order perciformes, commonly called band fish or snake fish have extremely comprised elongate tapering body with lanceolate caudal fin; large oblique mouth, maxilla reaching down to latter part of eye, super maxilla is absent; curved cylinder teeth mostly in single row; palatine and vomer teeth absent; cycloid scale; lateral line close to dorsal fin base. 0-4 flexible dorsal spine with 21-89 soft rays; caudal fin having 9-15 branch rays; anal fin having 0-1 spine with 13-102 rays; pelvic fin with one spine and 15 rays situated down to pectoral fin. Species of this family found on all temperate and tropical water mostly on depth over 30 m on mud substrata in borrows build by their own. Band fishes come out during current vertically for feeding and return swimming backward in their burrows. Comprising 66 species of 5 genera including *Acanthocepola*, *Cepola* and *Owstonia* worldwide (Day, 1889; Smith, 1949; Shen, 1993; Hemstra, 1995; Froese and Pauly, 2017). Out of 66 species 45 are recently considered as valid species (Eschmeyer and Fong 2017), 36 reside to subfamily Owstoniinae and 9 to the subfamily Cepolinae. Members of this family found in muddy, sandy and reef habitat in marine water up to 300 meter depth (Nakabo, 2002) but common up to 5-500 meter (Kuiter, 1993).

Genus *Acanthocepola* is known within the subfamily Cepolinae (Nelson *et al.*, 2016). The genus was officially defined in 1874 by Pieter Bleeker a Dutch physician and ichthyologist who appropriated *Cepolakrusensternii*, which had been defined by Coenraad Jacob Temminck and Hermann Schlegel in 1845, as the type species, even though the genus was also monotypic (Eschmeyer *et al.*, 2021). The genus name, *Acanthocepola* is a complex of *acanthus* meaning "spike" and *Cepola* the genus of the family Cepolidae, on the basis of the spike on the corner of the preoperculum (Christopher and Kenneth, 2021).

In Pakistan only one species of this family *Acanthocepola indica* has been reported (Psomadakis *et al.*, 2015.) Now *Acanthocepola abbreviata* Valenciennes, 1835 common name Band fish or yellow spotted band fish is reported first time from Pakistani water. Synonyms *Cepola abbreviata*.

MATERIALS AND METHODS

Four specimens ranging size 260 mm to 370 mm collected from Karachi fish harbor from 2017 to 2020 in different dates caught in bottom trawl net as by catch (Fig.1).

RESULTS

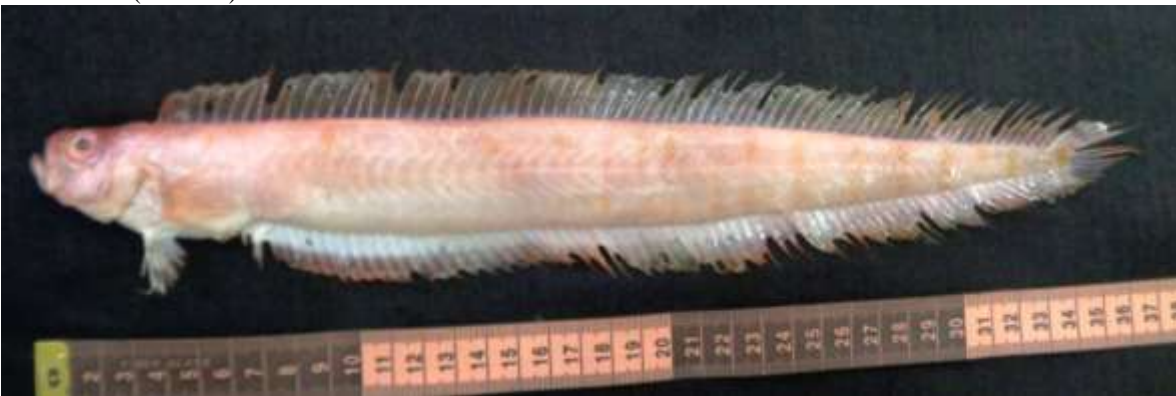
Specimen identified as *Acanthocepola abbreviate* Valenciennes, 1835 with the help of description provided in book coastal fishes of Oman by Jack Randall (1995) and the Field identification guide to the living marine resources of Myanmar by Psomadakis *et al.* (2019). Specimens were preserved in 5 % formalin solution and kept in museum of Marine Fisheries Department, Karachi



08-03-2017 (260 mm)



28-02-2019 (370 mm)



25-10-2019 (362 mm)



02-11-2020 (287 mm)

Fig.1. Pictures of *Acanthocephala abbreviata* found during this study.

Morphometric measurements and meristic character of all four specimens were taken and details provided in following Tables 1-4.

Table 1. Morphometric measurement of *Acanthocepola abbreviata* (4 specimens in mm).

Character	Dates				Mean value
	08-03-2017	28-02-2019	25-10-2019	02-11-2020	
Total length (TL)	260	370	362	287	319.75
Standard length (SL)	240	339	332	251	290.5
Head length (HL)	27	39	36	30	33
Snout length	6	7	7	5	6.25
Eye Diameter	8	10	10	8	9
Distance (snout to dorsal fin)	21	34	34	23	28
Length of dorsal fin	217	312	293	229	262.75
Length (snout to anal fin)	62	64	65	63	63.5
Length of anal fin	181	282	265	198	231.5
Body depth	33	36	36	33	34.5
Length of Pectoral fin	19	22	21	19	20.25
Length of pelvic fin	15	17	20	17	17.25

Table 2. Meristic character of *Acanthocepola abbreviata* (4 specimens).

Character	08-03-2017	28-02-2019	28-10-2019	02-11-2020	Range
Dorsal fin rays	69	75	76	71	69-76
Anal fin rays	68	70	70	70	68-70
Pectoral fin rays	16	16	16	16	16
Caudal fin rays centre	10	10	10	10	10
Pelvic fin ray	5	5	5	5	5

Table 3. Comparison of Morphometric measurement of *Acanthocepola abbreviata* with other previous studies.

Characters	Present study 2022	Day, 1888	Randall, 1995
Head length/SL	8.7		6.3-7.6
Eye Diameter/HL	27.27	33.33	
Body depth/SL	8.4	10.5/ TL	7.5-8.1

Table 4. Comparison of Meristic character of *Acanthocepola abbreviata* with other previous studies.

Characters	Present study 2022	Day, 1888	Randall, 1995	Psomadakis <i>et al.</i> , 2019
Dorsal fin rays	69-76	67-74	69-80	64-75
Anal fin rays	68-70	67-74	70-84	63-76
Pectoral fin rays	16	19	18-19	16
Pelvic fin rays	5	5		
Caudal fin rays	10	13	10	8-10

Description

Dorsal rays (all unbranched) 69-80, anal rays 0-2, 70-84, 18-19 pectoral rays (upper two and mostly lower unbranched); 10 caudal rays branched; lateral line scale around 167; scales including membranous crenulated corner. (3-6 extensions) except outer flange cheek and opercle scaled; preopercular margin found predorsal scale to above; gill rakers 16 upper 30 in lower arch; vertebrate range 57-61; 5 short spines along with preopercle, 3 on ventral edge the largest at corner and one upper; front side of upper jaw curved with no teeth; body height 7.5-8.1 of standard length.; head distance 6.3 -7.6 in standard length. Dorsal anal and caudal fin joined together; base of dorsal fin somewhat anterior to upper ending of gill opening; base of anal fin beneath of 8 dorsal rays and white silvery; dorsal and front area of the head faint orange red; smaller yellow spot then pupil on upper side of body; on center of the body yellow longitudinal spots along a round spot on the base of caudal fin. Dorsal fin crystalline yellow; anal fin white with yellow margin; middle fins with blackish margin mostly visible on anal fin (Fig.2).

Body of Yellow spotted Bandfish is well elongate and compressed; short head with blunt snout; large eyes and high on head; largemouth; pelvic fin origin situated slightly anterior to pectoral fin and 8-10 rays branched. Its body and head are pale pink and reddish dorsally; reddish yellow and whitish basally dorsal and anal fins; no black or red markings on dorsal fin and dark red to black posterior tip of caudal fin (Fig.2).



Fig 2. Pictures of *Acanthocepola abbreviate* with dominating two rows of yellow spots.

Distribution

Acanthocepola abbreviate were found western Pacific to western Indian Ocean from Australia, Papua New Guinea, Viet Nam, Thailand, Indonesia, Philippines, Malaysia, Oman to Iran, mostly between Indian Ocean (East) 77°E - 150°E; 55°S - 24°N to Indian Ocean (West) 30° E - 80° E; 45° S - 30° N.

DISCUSSION

Day (1888) reported this species from sub continental Indian water. Bianchi (1985) did not report any species of this family from Pakistan. Psomadakis *et al.* (2015) reported only one species of this family *A. indica* which is distinguish having a red spot on dorsal fin and more elongate and tapering body Fig.3. All four specimens found during this study identified as *A. abbreviata* on the basis of available literature of Day (1888), Randall (1995) and Psomadakis *et al.* (2019) and compared in Table 3 and 4. In Table 3, head length is larger as compared to Randall study of 1995 because of two large specimens found in this study and specimen 37 cm found on 28-02-2019 is the largest which ever recorded. Species found up to a depth of 30 meter in muddy area lives in large schools; made burrows by every individual; comes on above layer for nourishment particularly on plankton in perpendicular direction (Randall, 1995) it inhabits mud or sand bottoms of coastal waters and caught mostly with bottom trawls.

Psomadakis *et al.* (2019) revised the description of *A. abbreviata* in his field guide of Myanmar. Identities and distribution of several Indo-West Pacific species of *Acanthocepola* are presently inaccurately understood and reported in the scientific literature (P.N. Psomadakis personal communication, 2022) and that the specific identity of the specimen collected in Pakistan follows Psomadakis *et al.* (2019).

Acanthocepola band fishes are found in the Indian and Western Pacific Oceans, from the coast of Eastern Africa east to the Western Central Pacific, north to Japan and south to Australia. They create burrows in flat areas of sand and mud substrates, feeds on zooplankton (Smith-Vaniz, 2001) and pelagic fish egg (Froese and Pauly, 2017). They live as pairs hovering over their burrows, retreating to the burrow when alarmed. Juveniles can be found in small groups (Bray, 2017).

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Fig. 3. Upper is *Acanthocepola indica* with red spot on dorsal fin, lower is *Acanthocepola abbreviate* with no spot on dorsal fin.

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