



Short Communication

Occurrence of an interesting Sweeper fish (Family: Pempheridae) from northern part of east coast of India

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Six vibrant coloured Sweeper fish or pempherid, *Pempheris malabarica* were collected from Digha Mohana of West Bengal and Chandipur fish landing centre of Odisha coast. For the first time this paper reports the family Pempheridae from West Bengal coast and occurrence of species *P. malabarica* in Odisha coast. This paper describes morphometric and also meristic counts of the species from the region for the first time.

[Keywords: New record, Odisha, *Pempheris*, West Bengal]

Introduction

The fishes of the family Pempheridae, residing in marine habitat are of small to medium size, commonly known as sweepers with 85 valid species world wide¹. Divided in two genera, *Pempheris* Cuvier 1829 and *Parapriacanthus* Steindachner 1870, this family is more abundant in marine waters of tropical or subtropical areas, than the temperate seas of Australia, New Zealand, and Japan².

In Indian waters, both the genus *Pempheris* and *Parapriacanthus* are reported with a total of seven species³. Though mainly distributed along all southern states of India and coral reef areas of Lakshadweep and Andaman-Nicobar Islands, the family Pempheridae was not earlier reported from West Bengal coast. Many remarkable works on marine fishes of northern part of east coast of India are well documented: marine and estuarine fishes of Odisha⁴; marine and estuarine fishes of West Bengal⁵⁻⁷; marine fauna of Digha coast in West Bengal⁸⁻¹⁰; Sunderbans¹¹ and fish fauna of Chilika lagoon¹²⁻¹⁴. No species of pempherids was reported earlier from West Bengal. From Odisha coast three species, *P. mangula* Cuvier, 1829, *P. schwenkii* Bleeker, 1855 and *P. vanicolensis* Cuvier, 1831 were previously reported^{15,16}. In this

paper the family Pempheridae is reported for first time from West Bengal coast and species *P. malabarica* in Odisha Coast.

Materials and Methods

During local survey five examples of *P. malabarica* Cuvier 1831 were collected from landing centre of Digha Mohana (21°37'49.01" N; 87°32'47.63" E) and one example of the same species was collected from Chandipur (21°28'27.17" N; 87° 3'18.66" E). All the specimens were caught by fishing trawler operated by local fishermen during their regular fish catch. After collection, the specimens were freshly photographed and then preserved in 10 % formaldehyde. The detail morphometric measurements were taken after bring the samples to the laboratory. All measurements were made with aid of digital caliper. The count of the fin rays and lateral line scales were carried out by Leica S9i digital stereo microscope. The collected specimens were identified by following literature of Randall and Bineesh, 2014^(ref. 2). The specimens were deposited in Marine Aquarium and Regional Centre (MARC). Morphometric data of *P. malabarica* Cuvier 1831 is given in Table 1.

Results

Based on the specimens collected, systematic account of *P. malabarica* Cuvier 1831 is presented hereunder to record its occurrence first time from West Bengal and Odisha coast.

Table 1 — Morphometric data of *Pempheris malabarica* Cuvier 1831 collected from West Bengal and Odisha coast

Characters	<i>P. malabarica</i> Cuvier 1831	
	In standard length	
Body depth	2.2 – 2.4	
Head length	4.4 – 5.0	
Predorsal length	3.4 – 3.6	
Preanal length	2.2 – 2.3	
Eye diameter	7.57 – 8.13	
Caudal peduncle depth	11.8 – 12.8	
Caudal peduncle length	10.6 – 11.6	
	In head length	
Eye diameter	2.2 – 2.3	
Inter orbital length	3.7 – 4.9	
Snout length	4.4 – 5.0	



Fig. 1 — *Pempheris malabarica* Cuvier, 1831 collected from Chandipur fish land centre, MARC/ZSI/3805

Systematic account

Order: Perciformes

Family: Pempheridae

Genus: *Pempheris* Cuvier, 1829

Pempheris malabarica Cuvier, 1831

Materials Examined: MARC/ZSI/F2768, 5 ex. and MARC/ZSI/3805, 1 ex. 127 – 139 mm SL. Collection site: Digha Mohana and Chandipur fish landing centres.

Characters: D: VI, 9; A: III, 47 – 48; P: 19; V: I, 5; lateral line scales: 69 – 72; GR: 25 – 26. Medium sized fishes with compressed and deep body (Fig. 1). Head profile more convex dorsally. Snout short, eye large compare to head length and without eyelids, interorbital space nearly flat. Mouth terminal with lower jaw longer than upper jaw. Lower jaw possesses bands of small teeth exposed when mouth closed. Tip of lower jaw forming an anterior projecting knob. Opercular spine small and blunt. Dorsal fin with 7th ray longest and fin base shorter than anal fin base; caudal fin slightly forked. Transverse scales above lateral line to origin of dorsal fin is 6 – 7.

Colour: Body orange to red in colouration. Scales on trunk with silvery white rim narrower in dorsal part and broader at ventral part which forming stripe pattern. Dorsal and anal fin generally orange; tip of the dorsal fin and posterior margin of caudal fin black. Anal fin base blackish and pectoral fin base darker.

Distribution: This species is currently distributed in Northern Indian Ocean from Cambodia, India, Indonesia, Oman, Thailand, Singapore, and Sri Lanka². From Indian coast this species is reported from Maharashtra (as *Pempheris adusta*), Kerala, Tamil Nadu². This paper reports this species from Digha (West Bengal) and Chandipur (Odisha), thus the species is having a wide distribution range in Bay of Bengal and also all along the Indian coast.

Discussion

Pempheridae is one of those fish families which share similar morphological characters between most of the species. The earliest work on the genus *Pempheris* from India was done by Patrick Russell¹⁷, who had worked on marine fishes collected from Vishakhapatnam on east coast. A total of 200 species were described and illustrated by him. The *Pempheris* species was put under genus *Sparus* by him and addressed by the native name Mangula Kutti. Cuvier¹⁸ described the new genus *Pempheris* in 5 lines and provided the scientific name of Russell's species as *Pempheris mangula* without providing any characteristic descriptions. Later, Cuvier and Valenciennes¹⁹ described the species *P. malabarica* and *P. mangula* with brief description along with descriptions of other six species of *Pempheris*. The distribution *P. malabarica* is in the Indio-West Pacific region from Oman to Thailand and Cambodia.

P. malabarica is distinguishable from other species of this genus those were reported from India in having 6 – 7 scales above lateral line to base of first dorsal spine; highest anal fin ray (42 – 48); lateral-line scale counts (65 – 75) and gill rakers (24 – 27)². The review of literature indicates there is no report on family Pempheridae from West Bengal coast and of species *Pempheris malabarica* from Odisha coast though earlier reported from Maharashtra and Tamil Nadu coast. This finding now from West Bengal and Odisha state, indicate a possibility that it has a wide distribution throughout the coast of India. Constant invigilation may lead to finding of more Pempheridae from both west and east coast of India.

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Conflict of Interest

Authors don't have any conflict of interest.

Author Contributions

DR & SRM: Collection, preservation, identification and manuscript preparation; and AM: Identification, manuscript preparation and critical analysis.

References

- 1 Fricke R, Eschmeyer W N & Fong J D, Species of fishes by family/subfamily, Online version dated 7th September, 2022. Accessed at <http://research.calacademy.org/research/ichthyology/catalog/SpeciesByFamily.asp>, 15 September, 2022
- 2 Randall J E & Bineesh K K, Review of the fishes of the genus *Pempheris* (Perciformes: Pempheridae) of India, with description of a new species and a neotype for *P. mangula* Cuvier, *J Ocean Sci Found*, 10 (2014) 20–40.
- 3 Gopi K C & Mishra S S, Diversity of marine fish of India, In: *Marine Faunal Diversity of India: Taxonomy Ecology and Conservation*, edited by Venkataraman K & Sivaperuman C, (Academic Press, Elsevier Inc., USA), 2015, pp. 171–193.
- 4 Barman R P, Mishra S S, Kar S, Mukherjee P & Saren S C, Marine and estuarine fish fauna of Orissa, *Rec Zool Surv India, Occ Paper*, 260 (2007) 1–186.
- 5 Talwar P K, Mukerjee P, Saha D, Paul S N & Kar S, Marine and estuarine fishes, State Fauna Series 3: Fauna of West Bengal, *Zool Surv India*, Part-2, (1992) 243–342.
- 6 Das P, De S P, Bhowmik R M, Pandit P K, Sengupta R, *et al.*, Piscine diversity of West Bengal, *Fish Chimes*, 27 (5) (2007) 15–28.
- 7 Sanyal A K, Alfred J R B, Venkatraman K, Tiwari S K & Mitra S, *Status of biodiversity of West Bengal*, (Published by the Director, Zool Surv India, Kolkata), 2012, 1-969+35 plates.
- 8 Talukdar S, Chatterjee T K & Ramakrishna, On two new records of fish, *Pterois volitans* ad *Alutera monoceros* from Digha Coast, West Bengal, *Proc 83rd Sci Congr, Patiala*, (1996) p. 37 (Abstract).
- 9 Chatterjee T K, Ramakrishna, Talukdar S & Mukherjee A K, Fish and fisheries of Digha coast of West Bengal, *Rec Zool Surv India, Occ Paper*, 188 (2000) 1–87.
- 10 Yennawar P, Mohapatra A, Ray D & Tudu P, Ichthyofauna of Digha coast, India, In: *Marine Faunal Diversity in India. Taxonomy, Ecology and Conservation*, edited by Venkataraman K & Sivaperuman C, (Elsevier Publ., Amsterdam), 2015, pp. 235–248.
- 11 Khan R A, Fish faunal resources of Sunderban estuarine system with special reference to the biology of some commercially important species, *Rec Zool Surv India*, Occ paper No. 209, 2003, 1–107 + 3 plates.
- 12 Mohapatra A, Mohanty R K, Mohanty S K, Bhatta K S & Das N R, Fisheries enhancement and biodiversity assessment of fish prawn and mud crab in Chilika lagoon through hydrological intervention, *Wetlands Ecol Manage*, 15 (2007) 229–252.
- 13 Mohapatra A, Mohanty S K & Mishra S S, Fish and shellfish fauna of Chilika lagoon: an updated checklist, In: *Marine faunal diversity in India*, (Academic Press), 2015, pp. 195–224.
- 14 Mohanty S K, Mishra S S, Khan M, Mohanty R K, Mohapatra A, *et al.*, Ichthyofaunal diversity of Chilika Lake, Odisha, India: an inventory, assessment of biodiversity status and comprehensive systematic checklist (1916-2014), *Check List*, 11 (6) (2015) 1–19.
- 15 Seth J K & Sahoo S, First record of *Pempheris vanicolensis* Cuvier, 1831 from the Odisha coast, India, *Int J Adv Life Sci*, 6 (3) (2013) 259–260.
- 16 Barik T K, Swain S N, Sahu B, Tripathy B & Acharya U R, First Occurrence of *Pempheris schwenkii* and *Pempheris mangula* (Perciformes: Pempheridae) from marine waters of Odisha coast, Bay of Bengal, India, *Iran J Ichthyol*, 7 (2) (2020) 197–201.
- 17 Russell P, *Descriptions and figures of two hundred fishes: collected at Vizagapatam on the coast of Coromandel*, (G. and W. Nicol, London), 1803, vii + 85.
- 18 Cuvier G, *Le Règne Animal*, 2nd edn, (Chez Deterville, Paris), 1829, xv + 406.
- 19 Cuvier G & Valenciennes A, *Histoire Naturelle des Poissons*, (Chez F. G. Levrault, Paris), 7 (1831) xix + 551.