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Short Communication

First report of *Champsodon capensis* Regan, 1908 (Champsodontidae) from East coast of India

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The gaper *Champsodon capensis* Regan, 1908 is reported for the first time from the east coast of India on the basis of 3 specimens (55 – 72 mm standard length) collected from Deshpran fishing harbor, West Bengal. Identification of the species is confirmed by ventral scale patterns on chin, breast, and abdomen. Earlier, this species was reported only from Andaman-Nicobar waters of India and the present finding report further range extension of the species to the northern part of the Bay of Bengal. This paper provides a detailed description of the species along with the comparison with other *Champsodon* species.

[**Keywords**: Bay of Bengal, Deep sea fish, Gaper, New record]

Introduction

The members of family Champsodontidae are commonly known as gaper or crocodile toothed fishes. These small mesopelagic fishes are characterized by slightly compressed body, large head, oblique mouth with long slender needle like teeth; maxilla extends beyond the eyes; two dorsal fin and pelvic fin larger than pectoral fin; compressed elongated body covered by small, non-overlapping and rough scales; two horizontal lateral lines connected by vertical rows of sensory papillae[1-3]. These schooling fishes are generally found in deep waters of Indo-Pacific region from the surface up to 1000 m depth[4]. The family Champsodontidae comprises of 13 species in one genus *Champsodon* Günther, 1867 throughout the world[4-6]. From the Indian waters, six species of this family were reported *viz*. *Champsodon nudivittis*, *C. vorax*, *C. snyderi*, *C. longipinnis*, *C. capensis* and *C. sagittus*[3]. Literature indicates there is no report of *C. capensis* from the East coast of India[7-12]. From the Indian coast *C. capensis* is reported only from the Andaman and Nicobar Islands of India[13]. Thus, the present paper is the first report of *C. capensis* from east coast of India. This paper also reports the family Champsodontidae from West Bengal coast for the first time.

Materials and Methods

Three examples of *Champsodon capensis* Regan, 1908 (Fig. 1), measuring 55–72 mm Standard Length (SL) were collected from Deshpran fishing harbour, West Bengal, India on 24th April, 2019. These had been collected in a trawl net by fishermen in northern Bay of Bengal, about 78 km off the coast (21°06.55' N, 87°58.68' E), within the Exclusive Economic Zone of India, at a depth of 146 m. Measurements and counts follow Nemeth[4]. Measurements were carried out with a digital caliper with a resolution of 0.1 mm; vertical rows of sensory papillae on head observed with Leica SZ51. After identification, fresh photograph was taken and specimens were deposited in the National Zoological Collection of Estuarine Biology Regional Centre, Zoological Survey of India, Gopalpur-on-Sea with registration details as EBRC/ZSI/F12058.

Results

Champsodon capensis Regan, 1908

Champsodon capensis Regan, 1908: 244, pl. 27, fig. 2 (original description, four syntypes, lectotype hereby designated BMNH 1903.1.29.6).

Characters: D: V+ I, 19; A: 1, 18; P: 14; GR: 11+ 1; Vertebrae: 32.

Small size fishes with large head and narrow body (Fig. 1). Maxilla extends beyond posterior margin of eyes, a distinct notch preset on premaxilla (Fig. 2a). Chin without scale and spotted with melanophore (Fig. 2b). Seven-eight pairs of parallel longitudinal papillae present between bony ridges on dorsal surface of head from snout to the interorbital space (Fig. 2c). Sensory papillae as vertical rows between horizontal lateral lines not closely surrounded by scales. Breast completely covered with scales (Fig. 2d), triangular scale patch present between pectoral and pelvic fin base and extending posteriorly along sides as thin line (Fig. 2e), belly scaled from anterior to the anus (Fig. 2f). Teeth present on premaxillae, dentaries, vomer; upper jaw with two distinct rows of depressible teeth, inner row slightly longer than outer row; lower jaw with three rows of teeth. Morphometric data of

Fig. 1 — *Champsodon capensis* Regan, 1908 from east coast of India

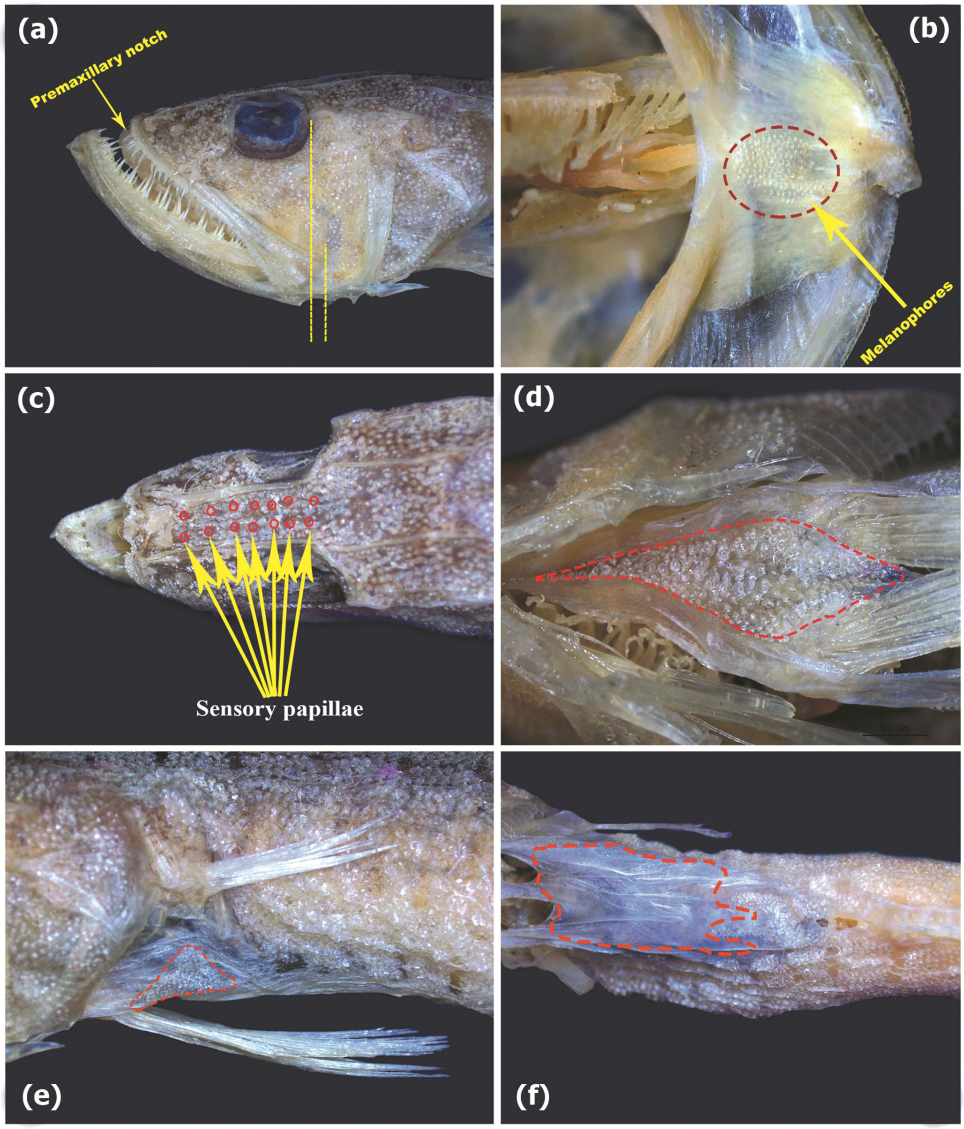

Fig. 2 — Various diagnostic characters of *C. capensis* Regan, 1098 under microscope: a) Maxilla extends beyond posterior margin of eyes, a distinct notch preset on premaxilla; b) Chin with melanophore; c) Seven pairs of parallel longitudinal papillae on dorsal surface of head from snout to the interorbital space; d) Breast completely covered with scales; e) Triangular scale patch present between pectoral and pelvic fin base; and f) Belly scaled anterior to anus with marked scaleless area

Table 1 — Comparison between Morphometric and meristic characteristics of *C. capensis* specimens, northeastern Mediterranean Sea (Dalyan *et al.*[14]) and east coast of India present study

Characters	Dalyan *et al.*[14] (n: 24)	Preset study (n: 3)
Standard length (mm)	56 – 124	55 – 72
Head length (mm)	15 – 34	17 – 22
Eye diameter (mm)	2 – 6	3.9 – 4.7
Snout length (mm)	4 – 9	5 – 5.2
Body depth (mm)	9 – 22	9.4 – 18.5
Interorbital width (mm)	2 – 6	2.9 – 3.6
Pelvic fin length (mm)	8 – 25	7.8 – 19.25
Predorsal length (mm)	17 – 41	18.02 – 37.42
Proportion in standard length		
Head length	3.43 – 3.9	3.27 – 3.4
Body depth	5.18 – 7.55	5.55 – 6.92
Predorsal length	3.02 – 3.46	2.99 – 3.28
Pelvic fin length	4.31 – 13.13	4.01 – 11.32
Proportion in head length		
Eye diameter	4.33 – 7.5	4.4 – 5
Snout length	3.22 – 4.29	4 – 4.2
Pelvic fin length	1.15 – 3.63	1.46 – 2.03

Champsodon capensis Regan, 1908 is presented in Table 1.

Colour: Dorsal part of body dark brown, ventrally pale. Dorsal and anal fin pale with few melanophores. Caudal fin dark and dark brown blotch on its base. Chin and operculum dark.

Distribution: The species is reported from the Indian Ocean: Suez Canal and Red Sea[4], Mediterranean Sea[14], Kenya to Eastern Cape, South Africa, Seychelles and Mauritius, India[15]. From Indian coast this species is reported only from Andaman and Nicobar Island[3].

Discussion

From Indian coastal waters, six species of Champsodontidae were reported *viz*. *Champsodon nudivittis*, *C. vorax*, *C. snyderi*, *C. longipinnis*, *C. capensis* and *C. sagittus*[3]. Among them *C. capensis* is very similar to *C. snyderi*, however the former species differs from later by having triangular patch of scales between pectoral and pelvic fin bases and extending posteriorly along sides of body as thin line that connect with belly scales anterior to the anus [not in *C. snyderi*, belly naked]; 8 pairs of parallel longitudinal papillae present between bony ridges on dorsal surface of head [In *C. snyderi*, 4 to 7 pair]. Apart from this, *C. capensis* differs from *C. nudivittis* and *C. sagittus* in having fully scaled breast (absent in latter two species). Moreover, *C. capensis* can be distinguished from *C. sagittus* in having less number of gillrakers in upper arm of 1st gill arch [1 vs. 2 in case of *C. sagittus*]. *C. capensis* differs from *C. longipinnis* in having lesser number of transverse row sensory papillae between posterior margins of pterotic ridges [8 vs. 10]. In case of *C. capensis*, belly scaled anterior to vent, as far as three-quarters the distance to the pelvic fin base [fully scaled in case of *C. longipinnis*]. *C. capensis* differs from *C. vorax* in having scale less chin in between dentaries [chin scaled in case of *C. vorax*]; tiny melanophores are present in chin in case of *C. capensis*. Moreover, 6–8 pairs of parallel longitudinal papillae present between bony ridges on dorsal surface of head [in *C. vorax* 4 pairs]. Thus, the studied specimens are clearly distinguishable from other *Champsodon* species reported from the Indian waters. Present report thus extends the range of the species from Andaman waters to the northern part of the east coast of India.

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Conflict of Interest

Authors declare no conflict of Interest.

Author Contributions

DR: Collection, preservation, identification of specimens & MS preparation; TK: Collection and contributed towards MS preparation; SR: Preservation, designing and contributed towards MS preparation; and AM: Identification, concept and designing of MS.

References

1 Heemstra P C, Champsodontidae, In: FAO species identification sheets for fishery purposes. Western Indian Ocean), Vol. 1, (FAO, Rome), 1984, pp. 1982.

2 Nemeth D, Champsodontidae, The Living Marine Resources of the Western Central Pacific. Vol. 6. Bony Fishes, part 4 (Labridae to Latimeriidae), estuarine crocodiles, sea turtles, sea snakes and marine mammals, In: FAO species identification guide for fishery purposes, (FAO, Rome), 2001, pp. 3497–3499.

3 Rahangdale S, Kumar R, Kannan K, Roul S K, Ranjith L, et al., First Record of Arrow Gaper, *Champsodon sagittus* Nemeth, 1994 (Family: Champsodontidae) from Bay of Bengal, Eastern Indian Ocean, Thalassas, 35 (1) (2018) 161–166.

4 Nemeth D, Systematics and distribution of fishes of the Family Champsodontidae (Teleostei: Perciformes), with descriptions of three new species, Copeia, 2 (1994) 347–371.

5 Nelson J S, Fishes of the world, 4th edn, (John Wiley and Sons, New York), 2006, pp. 601.

6 Bariche M, *Champsodon vorax* (Teleostei: Champsodontidae), a new alien fish in the Mediterranean, Aqua, 16 (4) (2010) 197–200.
7 Barman R P, Kar S & Mukherjee P, Marine and Estuarine fishes, In: Fauna of Andhra Pradesh, State Fauna Series, (Zool Surv India, Kolkata), 5 (2) (2004) 97–311.
8 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, pp. 186.
9 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.
10 Barman R P, Mishra S S, Kar S, Mukherjee P & Saren S C, Marine and Estuarine fishes, In: Fauna of Tamil Nadu, State Fauna Series, (Zool Surv India, Kolkata), 17 (2) (2011) 293–418.
11 Varghese M, Manisseri M K, Ramamurty N, Geetha P M, Thomas V J, et al., Coral reef fishes of Gulf of Mannar, S.E. of India, Fish Chimes, 31 (1) (2011) 38–40.
12 Sanyal A K, Alfred J R B, Venkatraman K, Tiwari S K & Mitra S, Status of biodiversity of West Bengal. 1-969+35 plates, (Published by the Director, Zool Surv India, Kolkata), 2012, pp. 969.
13 Rajan P T, Sreeraj C R & Immanuel T, Fishes of Andaman and Nicobar Islands: a checklist, J Andaman Sci Assoc, 18 (1) (2013) 47–87.
14 Dalyan C, Yemisken E & Eryilmaz L, A new record of gaper (*Champsodon capensis* Regan, 1908) in the Mediterranean Sea, J Appl Ichthyol, 28 (5) (2012) 1–2.
15 Froese R & Pauly D (eds), FishBase, World Wide Web electronic publication. Accessed from: http://www.fishbase.org, version (08/ 2019).