

New record of the flasher scorpionfish, *Scorpaenopsis macrochir* Ogilby, 1910 (Scorpaeniformes, Scorpaenidae) from Indian waters

Muddula Krishna Naranji • Govinda Rao Velamala • Sujatha Kandula

Department of Marine Living Resources, College of Science and Technology, Andhra University, Visakhapatnam 530003, Andhra Pradesh, India

Correspondence

Muddula Krishna Naranji; Department of Marine Living Resources, College of Science and Technology, Andhra University, Visakhapatnam 530003, Andhra Pradesh, India
Email: krishna.muddu217@gmail.com

Manuscript history

Received: 27 Nov 2016; Received in revised form: 25 Feb 2017; Accepted: 01 Mar 2017; Published online: 03 Mar 2017

Citation

Naranji MK, Velamala GR and Kandula S (2017) New record of the flasher scorpionfish, *Scorpaenopsis macrochir* Ogilby, 1910 (Scorpaeniformes, Scorpaenidae) from Indian water. Journal of Fisheries 5(1): 473–476. DOI: [10.17017/j.fish.43](https://doi.org/10.17017/j.fish.43)

Abstract

Based on two specimens of the flasher scorpionfish, species of *Scorpaenopsis macrochir* Ogilby, 1910 (85–96 mm, TL) collected from the Visakhapatnam coastal waters, India, we described *S. macrochir* as the new record from Indian waters. This species is characterized by having 12 dorsal spines, medial surface of pectoral fins with a black subterminal band along entire margin of fin; supraorbital spine ending in a single spinous point and unserrated ocular spines. Nasal spines usually divided into two to six small points. The present study describes full description of the species with illustrations.

Keywords: New record; flasher scorpionfish; *Scorpaenopsis macrochir*; Scorpaenidae; India

1 | INTRODUCTION

The genus *Scorpaenopsis* belongs to the subfamily Scorpaeninae that includes 20 genera and 185 species (Nelson *et al.* 2016). The flasher scorpionfish (Scorpaeniformes: Scorpaenidae), *Scorpaenopsis macrochir* Ogilby, 1910, originally described on the some Indo-Pacific specimens. The Indo-Pacific scorpionfish genus *Scorpaenopsis* Heckel, 1839, now comprising 27 species, is characterized by having 12 dorsal spines, lacking palatal teeth and of black pigment between in the first and third dorsal fin spines, and head strongly compressed (Randall and Eschmeyer, 2002). Although (Randall and Eschmeyer 2002) collected and examined a large number of *Scorpaenopsis* specimens a wide geographical range in the Indo-Pacific region, *S. macrochir* was reported only from Hong Kong waters (Sadovy and Cornish 2000) and Mariana Islands (Myers 1997). The species was originally described by Ogilby, 1910 on the basis of single specimen. Humpback

scorpion fishes are mostly small and robust but of characteristic appearance and usually easily recognisable. The identification of members of the genus *Scorpaenopsis* is very difficult, but this species is characterized by having a rounded head with short snout (Motomura *et al.* 2004). *Scorpaenopsis* is widely distributed in tropical and subtropical waters of the Indo-Pacific Ocean (Poss 1999). The flasher scorpionfish, *S. macrochir* in the beginning refer to on *Sebastapistes ballieui* (Seale 1906). The smallest humpback species of *Scorpaenopsis*, categorized by a very highly arched hindmost below the spinous portion of the dorsal fin, broad interorbit and divided upper opercular spine (Randall and Eschmeyer 2002; Motomura and Shinohara 2005). This species were reported first time from the Western Australia from Rowley Shoals (Allen and Russell 1986). A single specimen from Mauritius is the only record for the Western Indian Ocean. Day (1875–1878) listed and provided details about the species of *Scor-*

paenopsis fishes from India, including the adjacent waters of Indian waters to date. Whereas five species have been known from the Indian waters (Froese and Paul 2016). From Visakhapatnam coastal waters only two species of Scorpionfishes *Scorpaenopsis venosa* and *S. rosea* have been recognized. *S. venosa* species was initially described and reported for the first time in the Visakhapatnam (Russell 1803). Recently (Muddula Krishna 2016; Naranji and Velamala 2016) has reported this two species of the genus *Scorpaenopsis*, *S. venosa* and *S. ramarao* were recorded from Visakhapatnam coastal waters and one from the Dhiga Coast (Ray *et al.* 2015). These three *Scorpaenopsis* species were revealed to be new to Indian waters. We, therefore, describe *Scorpaenopsis macrochir* as the new record from India.

2 | METHODOLOGY

Two specimens of *S. macrochir* (85–96 mm, TL) were collected from the by-catch landed by a commercial trawler at Visakhapatnam landing centre (17°44'N, 83°23'E). The specimens were caught about 35 km north off Visakhapatnam harbour at depth range of 30 to 60 m. All morphometrics were measured to the nearest 0.1 mm using vernier callipers. All counts, measurements, morphological descriptions, colour agreed with the descriptions of (Sadovy and Cornish 2000; Randall and Eschmeyer 2002). Terminology of head spines followed by (Eschmeyer 1969b; Randall and Eschmeyer 2002; Motomura and Shinohara 2005). Specimens were preserved and deposited in the Museum of the Department of Marine Living Resources (Voucher No. 145/2016/MLR), Andhra University.

3 | RESULTS

3.1 | Systematics

Family Scorpenidae

Genus *Scorpaenopsis* Heckel (1840)

Species: *Scorpaenopsis macrochir* Ogilby, 1910 (Figures 1 & 2)

Scorpaenopsis macrochir Ogilby, 1910:29 (type locality, Bulwer Island, Brisbane, Queensland).

Sebastapistes ballieui (non Vaillant and Sauvage) Seale, 1906: 60 (Nuku Hiva, Marquesas Islands).

Description carried out as per two specimens (Figures 1 & 2; Tables 1 & 2)

3.2 | Diagnosis

Body slightly compressed, stout; back below anterior spinous portion of dorsal fin highly arched, develops a humpback appearance; mouth moderate; not strongly oblique, maxilla reaches almost below hind margin of the eye; lower jaw slightly projecting, with prominent symphyseal knob; in upper jaw, villiform teeth in fairly broad

band, widely separated at symphysis by a fleshy knob and ridge that are part of a skinny transverse membrane across mouth between jaw and vomer, its middle part black. Inner front of teeth enlarged, retrose. In lower jaw similar teeth in band, barely separated at symphysis, inner series of teeth enlarged, retrose a black patch behind front teeth. An irregular an inverted V- shaped patch of palate tooth on vomerine; tongue apically free, narrowly rounded. Eyes are moderately, interorbital ridges present; interorbital space broad, a very deep triangular shape of pit below anterior part of orbit. Head and body variably with few to many cilia, at the extreme whole head with filaments, the longest at supraocular spine, also over body; outer ring of iris with fleshy processes some trifoliate; interorbital space moderate, exceeding eye; no coronal ridges.



FIGURE 1 Shows the *Scorpaenopsis macrochir* Ogilby, 1910, 96 mm, TL collected from Visakhapatnam fishing harbour, coast of India



FIGURE 2 Figure showing inner side of pectoral fin of *Scorpaenopsis macrochir* Ogilby, 1910.

Dorsal fin inserted above opercle, 1st dorsal spine short; 3–5th spines longest. Anal fin inserted before soft dorsal, origin; 2nd anal spine little longer than 3rd spine and strong, stouter. Pectoral reaches near the anus; pelvic not

reaches to the anal fin. Caudal fin slightly rounded. Ctenoid scales above and as well as below lateral line and spinous dorsal; remainder mainly cycloid; scales absent in soft dorsal, anal and most of head.

TABLE 1 Meristic characters of the species of flasher scorpionfish, *Scorpaenopsis macrochir* Ogilby, 1910 as compared by two different authors

| Consideration | Randall and Eschmeyer (2002) | Visakhapatnam Coast (2016) |
|---------------------------|------------------------------|----------------------------|
| Dorsal fin | XIII, 9 | XIII, 9 |
| Anal fin | - | I, 5 |
| Pectoral fin rays | 16–18 (17) | 18 |
| Caudal fin rays | - | 11 |
| Lateral line pored scales | 20–22 | 22 |
| Lateral line scale | 40–45 | 45 |
| Gill rakers | 4+5+8–10 | 4+1+10 |

TABLE 2 Morphometric measurements of flasher scorpionfish, *Scorpaenopsis macrochir* Ogilby, 1910 from Visakhapatnam, India; $n = 2$, 74–64 mm SL

| Considerations | Length (mm) | |
|---------------------------------------|---------------|-------------------|
| | Min–Max | Mean \pm SD |
| As percentage of standard length (SL) | | |
| Total length | 129.72–132.81 | 131.27 \pm 1.54 |
| Body depth | 39.06–43.24 | 41.15 \pm 2.09 |
| Body width | 32.43–34.37 | 33.40 \pm 0.97 |
| Head length | 43.75–44.59 | 44.17 \pm 0.42 |
| Pre dorsal distance | 37.5–39.18 | 38.34 \pm 0.84 |
| Pre pectoral distance | 42.18–43.24 | 42.71 \pm 0.52 |
| Pre pelvic distance | 37.5–40.54 | 39.02 \pm 1.52 |
| Pre anal distance | 68.75–70.27 | 69.51 \pm 0.76 |
| Dorsal fin base | 56.75–60.93 | 58.84 \pm 2.09 |
| Anal fin base | 14.86–15.62 | 15.24 \pm 0.38 |
| Pectoral fin base | 15.62–16.21 | 15.92 \pm 0.29 |
| 1 st dorsal spine height | 6.75–7.81 | 7.28 \pm 0.52 |
| Soft dorsal fin height | 18.91–20.31 | 19.61 \pm 0.69 |
| 1 st anal spine height | 6.25–8.10 | 7.17 \pm 0.92 |
| 2 nd anal spine height | 15.62–17.56 | 16.59 \pm 0.97 |
| 3 rd anal spine height | 14.06–14.86 | 14.46 \pm 0.40 |
| Soft anal fin height | 18.75–18.91 | 18.83 \pm 0.08 |
| Ventral spine height | 12.5–13.51 | 13.00 \pm 0.50 |
| Pectoral length | 32.43–32.81 | 32.62 \pm 0.19 |
| Soft pelvic fin length | 20.27–20.31 | 20.29 \pm 0.02 |
| As percentage of Head Length (HL) | | |
| Head depth | 72.72–78.51 | 75.64 \pm 2.92 |
| Head width | 72.72–78.57 | 75.64 \pm 2.92 |
| Eye diameter | 18.18–21.42 | 19.80 \pm 1.62 |
| Pre orbital distance | 28.57–30.30 | 29.43 \pm 0.86 |
| Post orbital distance | 51.51–53.57 | 52.54 \pm 1.02 |
| Inter orbital distance | 27.27–28.57 | 27.92 \pm 0.64 |
| Upper jaw length | 51.51–57.14 | 54.32 \pm 2.81 |
| Lower jaw length | 42.42–42.85 | 42.64 \pm 0.21 |
| Maxilla width | 1.42–1.51 | 1.47 \pm 0.04 |
| Snout length | 17.85–18.18 | 18.01 \pm 0.16 |
| Caudal peduncle depth | 10.81–10.93 | 10.87 \pm 0.06 |

3.3 | Head spines

Spines on head normally stout and strong, many spines multifid. Nasal spines multifid, small and 2–5 points present. The preopercular, un serrated supraocular and postocular spines rather very small; single nasal spine present; double post ocular spine present it is divided into two or three spinous points; laterally slightly angling and tympanic spine slightly joined by a low ridge; deep occipital pit with low ridges on side and anteriorly, the anterior bent inward; No ridges on across interorbital space between un serrated suparocular spines; a large, very deep, subtriangular pit centred below anterior edge of orbit; Upper posttemporal spine single and blade like structure present; upper opercular with double spines present; suborbital ridge with five spines that angle ventro posteriorly, the first on two on lacrimal (the first becoming a ridge with two to three small points), the last four downward with ridges above; anterior lacrimal spine clearly shorter than posterior; ascending process of premaxilla broad, with supplemental ridges.

3.4 | Colour

Body commonly variable, mottled and marbled in greenish to red with orange mottling; anal fin brownish black blotches with marbled mottling; often a wide brown bar across middle. Caudal fin with light orange to slight pink to brown as vague cross bar, then slight pink white bar, next wide light maroon bar streaked green and white. Distally brownish with light white streaks. Pectoral basally with light maroon and green mottlings, body of fin dark maroon brown, distally yellowish with orange tips. Inner side of pectoral basally blue, then vivid orange, with small pure black spots, base of first four to five pectoral rays and membranes without a large black spot; a broad black band sub marginally on both inner and outer surfaces of first 6–9 pectoral fin rays and membranes, continuing less darkly pigmented on membranes of rest of fin. Pelvic mostly lighter maroon with slight pale areas basally and distally; eyes are brilliant orange in colour. Half of belly part light rosy with chestnut pink in colour; skinny flaps slightly marbled greenish; dorsal fin mottled and marbled with dull maroon.

4 | DISCUSSION

Five humpback species of *Scorpaenopsis* have been recognized as a valid: *S. diabolus*, *S. gibbosa*, *S. macrochir* and *S. obtusa*. *Scorpaenopsis macrochir* species closely related to *S. diabolus*, *S. gibbosa* except that the submarginal black band on inner side of the pectoral fin surface is complete. *Scorpaenopsis macrochir* confused with their closely relatively congener species *i.e.* *S. gibbosa*, *S. diabolus* and *S. neglecta* with it shares their meristic characters and head spines and inner side of pectoral fin. *Scor-*

paenopsis macrochir has usually been misidentified as *S. diabolus*, *S. gibbosa* and *S. neglecta*. *Scorpaenopsis macrochir* was recently redescribed (Randall and Eschmeyer 2002; Motomura and Shinohara 2005) on examination of some Indo-Pacific scorpion fishes. Specimens of *S. macrochir* have been examined only at Indian Ocean localities (Hongkong) (Sadovy and Cornish 2000). The present specimens agree with the description, morphometric and meristic characters (Sadovy and Cornish 2000; Randall and Eschmeyer 2001; Motomura and Shinohara 2005).

In the present study our specimens has medial surface of pectoral fins with a black sub terminal band along entire margin of fin; supraorbital spine ending in a single spinous point and unserrated ocular spines present. *S. macrochir* and *S. neglecta* coexist at least in the Western Pacific. *Scorpaenopsis macrochir* specimens were collected from shallow waters of sand and rubble at Lawsons bay beach and Tenneti rocky shore beaches in Visakhapatnam coastal waters. This is the new record from India. Further specimens from the region are required to assess the occurrence and biological aspects of *S. macrochir*. Local vernacular name is “Moragoddu”.

ACKNOWLEDGEMENTS

The authors very much thankful to Prof. Ronald Fricke, Stuttgart State Museum of Natural History, Germany for his great suggestions for identification of this species and University Grants Commission (UGC) New Delhi, India for awarding fellowship during the study period (RGNF Fellowship, 2010–2016) and Head of the Marine Living Resources department, College of Science and Technology, Andhra University for providing facilities during the entire study period and we also thankful to anonymous reviewers for their valuable comments to improve our manuscript.

REFERENCES

- Allen GR and Russell BC (1986) Fishes of Rowley Shoals-Scott Reef. Records of the Western Australian Museum Supplement No. 25: 75–103.
- Day F (1875–1878) The Fishes of India, London. XX+778., 108 pls. (Reprinted WM. Dawson & Sons, 1958).
- Eschmeyer WN (1969) A new Scorpion fish of the genus *Scorpaenodes* and *S. muciparus* (Alcock) from the Indian ocean with comments on the limits of the genus. California Academy of Sciences 76: 1–11.
- Froese R and Pauly D (Eds.) (2016) Fish Base. Version 04/2016. Retrieved from <http://www.fishbase.org>.
- Motomura H and Shinohara G (2005) Assessment of taxonomic characters of *Scorpaenopsis obtuse* and *S. gibbosa* (Scorpaenidae), with first records of *S. obtusa* from Japan and Australia and comments on the synonymy of *S. gibbosa*. Cybium 29(3): 295–301.
- Motomura H, Yoshino T and Takamura N (2004) Review of the scorpionfish genus *Scorpaenopsis* (Scorpaeniformes: Scorpaenidae) in Japanese waters with three new records and an assessment of standard Japanese names. Japanese Journal of Ichthyology 51(2): 89–115.
- Muddula Krisha N (2016) First record of raggy scorpionfish *Scorpaenopsis venosa* (Cuvier, 1829) (family: Scorpaenidae) from Visakhapatnam, Central Eastern Coast of India. International Journal of Zoology Studies 1(5): 25–27.
- Myers RF (1999) Micronesian Reef Fishes. Coral Graphics. 330 pp.
- Naranji MK and Velamala GR (2016) First record of Ramarao's scorpionfish, *Scorpaenopsis ramaraoii* Randall and Eschmeyer, 2001 (Scorpaenidae) from Visakhapatnam, Andhra Pradesh Coast, India. Fish Taxa 1(6): 84–88.
- Nelson JS, Grande TC and Wilson MVH (2016) Fishes of the World, 5th Edition. John Wiley & Sons. 752 pp.
- Randall JE and Eschmeyer WN (2001) Revision of the Indo-Pacific scorpionfish genus *Scorpaenopsis* with descriptions of eight new species. Indo-Pacific Fishes 34: 1–79.
- Ray D, Mishra SS and Mohapatra A (2015) Proceedings of the Zoological Society 68: 199. doi: 10.1007/s12595-014-0099-2.
- Russell F (1803) Description and figures of two hundred fishes collected at Vizagapatam on the coast of Coramandel. W. Bulmer & Co., London 2: 85.
- Sadovy Y and Cornish AS (2000) Reef fishes of Hong Kong. Hong Kong University Press. 318 pp.
- Seale A (1906) Fishes of the South Pacific. Occasional Papers B.P. Bishop Museum 4(1): 1–89.

CONTRIBUTION OF THE AUTHORS

MKN & GRV sample collection; MKN data analysis; MKN & SK manuscript preparation.