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# Australian sawcheek scorpionfish, *Brachypterois curvispina* Matsunuma, Sakurai & Motomura 2013 (Scorpaeniformes: Scorpaenidae) new record from Indian waters

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**Abstract**

The Australian sawcheek scorpionfish, *Brachypterois curvispina* Matsunuma, Sakurai & Motomura, 2013, was collected from Visakhapatnam Fisheries harbour, India. Morphometric, meristic counts and description of the collected specimens as well as a key to species of *Brachypterois* represented in the catches of Visakhapatnam are presented. The record of *B. curvispina* from Visakhapatnam coastal waters is a new record for India.

**Keywords:** Taxonomy, New records, Indian waters, Ichthyogeography.
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## Introduction

The family Scorpaenidae is mostly found in the Indo-West Pacific region (Fischer and Bianchi 1984; Eschmeyer 2010). Scorpaenoids inhabiting many environments (Carpenter and Niem 1999), including tropical (Adrim et al. 2004; Randall and Lim 2000; Winterbottom et al. 1989), subtropical (Motomura and Iwatsuki 1997; Motomura et al. 2004; Randall et al. 1985) and temperate waters (Motomura et al. 2005; Motomura et al. 2006), although most of them are known from the Indo-Pacific region (Poss 1999), Red Sea, Persian Gulf, northern Australia and southern Japan (Kanayama and Amaoka 1981; Matsunuma et al. 2013). The genus *Brachypterois* Fowler 1938, previously known as monotypic, has three species including *B. serrulata* (Richardson, 1846), *B. serrulifer* Fowler, 1938 and *B. curvispina* Matsunuma, Sakurai & Motomura, 2013. This study is aimed to report first record of *B. curvispina* from Visakhapatnam coastal waters, India.

## Material and Methods

Seventeen specimens of *Brachypterois curvispina* (ranging 77-102 mm, Total length) were collected from Visakhapatnam coastal waters, India (17°44'N, 83°23'E). They were identified based on Fisher and Bianchi (1984), Nelson (2006), Eschmeyer (2010) and Matsunuma et al. (2013). Methodology for morphometric measurements follows Ginsburg (1953) and Hubbs and Lagler (1958). The measurements were made according to Eschmeyer (1969) and Chen (1981). Terminology of head spines follows Ginsburg (1953), Eschmeyer (1969), Randall and Eschmeyer (2001) and Motomura (2004).

## Results and Discussion

Figures 1 shows general appearance of the collected Australian sawcheek scorpionfish, *B. curvispina*. Meristic characters were as: D XII 10; A III, 5; C 14-15; V I 5; P 16; Ltr 4-5+1+8-10; L line scale series 38-42; Ll pored scale: 24-25; GR 5+1+10 =16; Pyloric caeca 3; Vertebrae 24 (5 specimens). Morphometric data are given in Table 1.

**Description:** Body oblong, moderately compressed; head large, its length greater than body depth; interorbital spaces shallow, about one-seventh of orbit diameter extending above dorsal profile of head. Interorbital ridges moderately developed and separated by a shallow channel, initially diverging posteriorly; conjoined with origin of coronal spine base; mouth moderately large, oblique; upper edge of maxilla extending slightly beyond a vertical through mid-orbit. Symphysial gap separating premaxillary teeth bands about twice the width of each

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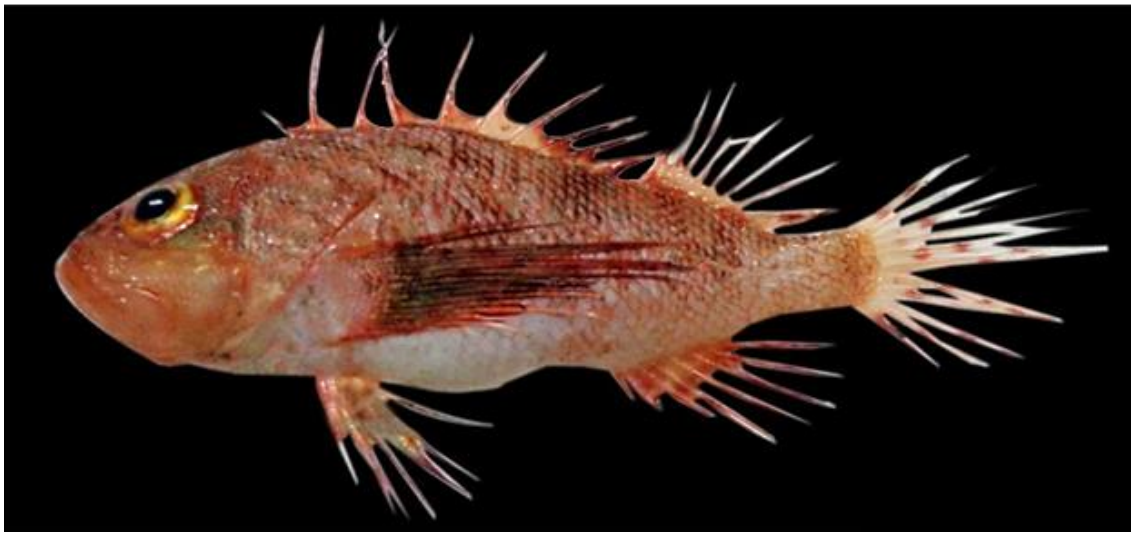

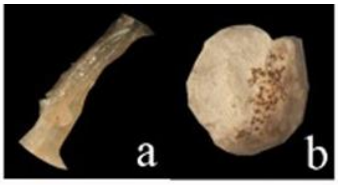


**Figure 1.** *Brachypterois curvispina,* 102 mm, TL (a=spines on the lateral line of maxilla and b= body scale).

band; upper jaw with a band of small slender conical teeth; about four to five rows of tooth at front of upper jaw; about 4 tooth rows at front of lower jaw. Vomer with a V-shaped patch of two to four rows of small teeth. Tongue smooth, round apically. Nostrils close to each other, anterior one round, tubular; posterior nostril entire, elliptical. Dorsal profile of snout steep. Nasal spine base relatively long, its length subequal to distance between anterior and posterior nostrils; with a row of small spines. Gill openings wide; gill membrane free from isthmus; pseudobranchiae present; slit below fourth gill arch. Gill rakers in middle of arch short, reduced to spiny knobs at either end. Air bladder present, thin, spherical in shape.

Lachrymal with two lateral ridges; upper ridge with three to five spines, its anterior origin conjoined with ridge on dorsal articular process of lachrymal; lower ridge with two to three spines. Anterior lachrymal spine with three spinous points, directed downward. Posterior lachrymal spine broad, with two to four spinous points. Suborbital with two ridges; both ridges with supplementary upper and lower ridges; posteriorly upper ridge branched into two; two small arched ridges below anterior and posterior ridges; all ridges strongly spinous. Suborbital pit poorly developed. Preopercle with five denticles; upper opercular spine simple with a spinous point; a simple lower opercular spine present, usually under the skin; lateral ridge of uppermost spine with one or two spines. A ridge on preopercle submargin strongly spinous. Two poorly developed spinous vertical ridges on postorbital; cleithral spine with five spinous points on a relatively long ridge; supracleithral spine with a spinous point on a relatively short ridge; lower post temporal spine finely serrated; pterotic with spinous points. A short oblique ridge with two spines between parietal spine and lower posttemporal spine. Tympanic with two spinous ridges; upper ridge shorter than lower ridge with three spines; lower ridge with two to seven spines. Sphenotic spine with one to ten spinous points. Postocular with eight spines on margin of orbit. Supraocular with a transverse ridge located between interorbital ridge and outer edge of supraocular with three to seven spines; ten to twelve spines on margin of orbit; posterodorsal edge of supraocular expanded posteriorly with a small inner pit. Preocular with three to eleven spines on its frontal surface and margin of orbit; nuchal spine fused to single serrated ridge; Parietal with eight spinous points on a relatively longer ridge; its base diverging posteriorly; a short ridge with two spines just under parietal ridge. Coronal spine with two small spinous points on short base; its base conjoined with origin of parietal spine base; small spines forming a pair of small patches

**Table 1.** Morphometric data of the species of *Brachypterois curvispina* represented in the catches of Visakhapatnam (n=17).

| | Min-Max | Mean±SD |
|---|---|---|
| Standard length (mm) | 58.0-75.0 | |
| **In percent of standard length (SL)** | | |
| Total length | 125-138.9 | 132.6±3.82 |
| Body depth | 27.8-34.5 | 31.5±1.95 |
| Head length | 40-44.11 | 41.6±1.25 |
| Pre dorsal | 29.3-36.2 | 32.4±1.87 |
| Pre pectoral | 34.7-43.1 | 38.9±3.05 |
| Pre pelvic | 33.3-41.9 | 37.9±2.96 |
| Pre anal | 64.8-74.1 | 69.6±2.92 |
| Dorsal base | 54.8-63.8 | 59.5±2.92 |
| Anal base | 12.5-16.1 | 14.1±1.13 |
| Dorsal spine height | 13.5-19.3 | 16.0±2.04 |
| Soft dorsal height | 13.8-22.5 | 18.0±2.58 |
| Pectoral length | 37.1-46.2 | 42.5±2.79 |
| Pelvic spine length | 12.9-16.1 | 14.2±0.95 |
| Soft pelvic length | 18.3-24.1 | 20.5±1.75 |
| Anal spine height | 11.1-13.5 | 12.3±0.80 |
| Soft anal height | 16.6-21.3 | 19.2±1.46 |
| **In percent of Head length (HL)** | | |
| Head depth | 60.0-72.0 | 66.9±3.69 |
| Head width | 41.6-48.2 | 44.9±2.15 |
| Eye diameter | 20.0-28.0 | 24.2±2.97 |
| Pre orbital | 13.3-19.3 | 15.3±1.86 |
| Post orbital | 41.6-51.7 | 47.5±2.96 |
| Inter orbital width | 10.0-15.3 | 13.0±1.57 |
| Upper jaw | 42.3-48.3 | 46.3±1.91 |
| Lower jaw | 37.9-44.8 | 41.8±2.12 |
| Maxillary width | 13.3-18.5 | 16.2±1.63 |
| Snout length | 13.3-21.4 | 17.5±2.77 |

between origins of coronal spine base; occipital area lacking anterior ridge; a pair of short low ridges with five to seven spines on posterior margin between parietal spine bases. Postorbital, upper post temporal spines absent; head and body covered with feebly crenulated cycloid scales.

Dorsal fin continuous, with notch after penultimate spine; dorsal origin above middle of opercle; origin of first dorsal-fin spine above cleithral spine; bases of first and second dorsal-fin spines closer than those of succeeding adjacent spines; length of longest spine about half of maximum body depth; penultimate spine shortest; intespinous membrane distinctly notched. Dorsal fin soft rays all branched; fourth soft ray longest; length of longest ray sub equal to or slightly longer than longest fin spine; posterior branched ray not joined by membrane to caudal peduncle. Origin of first anal spine below base of penultimate dorsal fin spine; third spine longest. Pectoral fin long, with six to seven divided rays; longest ray reaches a vertical through base of last anal-soft ray. Pelvics shorter than pectorals, not reaching vent. Third anal spine longest, stout, soft rays branched. Second soft ray longest, its length greater than that of longest dorsal fin soft ray; posterior branch of last soft ray not joined by membrane to caudal peduncle. Caudal fin with rounded edge.

Description, meristic counts and morphometric characters are in good agreement with that of Matsunuma et al. (2013). Matsunuma et al. (2013) stated that, among the three species of this genus, *B. curvispina* is unique in having the posterior lachrymal spine usually directed posteriorly, but with strong upwardly curved tip in adults vs. directed posteriorly but not curved upward in *B. serrulata* and usually ventrally directed in *B. serrulifer.* Another distinguishing character is the posteriorly directed spine around the posterior corner of the outer angular ridge longer and stouter than the adjacent spines on the ridge in *B. curvispina* vs. ventrally

directed and of similar size to adjacent spines in *B. serrulata* and *B. serrulifer.* In addition, *B. curvispina* differed from other two species of this genus in having 6-14 spots on the longitudinal fin rays of caudal fin vs. 5-26 spots in *B. serrulata,* and 2-10 spots in *B. serrulifer.* Spines on median lateral ridge of the maxilla absent in *B. curvispina* vs. present in other two species. Morphometric characters that are helpful in distinguishing the three species of genus *Brachypterois* as suggested by Matsunuma et al. (2013) and results obtained from present study are:

Head length in SL% is 40.0-44.1 (41.6) in *B. curvispina* vs. 36.9-44.1 (40.5) in *B. serrulifer* and 33.4-41.6 (39.1) in *B. serrulata*. Eye diameter in HL% is 20.0-28.0 (24.2) in *B. curvispina* vs. 22.8-29.0 (25.1) in *B. serrulifer* and 20.0-30.0 (26.3) in *B. serrulata*. Maxillary length in HL% is 42.3-48.3 (46.3) in *B. curvispina* vs. 43.7-52.7 (46.7) in *B. serrulifer* and 43.3-52.9 (47.6) in *B. serrulata*. Longitudinal scale seires 38-42 in *B. curvispina* vs. 42-46 in *B. serrulifer* and *B. serrulata*. Scales above lateral line 4-5 in *B. curvispina* vs. 5-7 in *B. serrulifer* and *B. serrulata*. Scales below lateral line 8-10 in *B. curvispina* vs. 14-17 in *B. serrulifer* and *B. serrulata.*

This species is very rare at Visakhapatnam and mainly captured by bottom trawl. This is the new record from Indian waters. Local Telugu name is “Murri Moyyah”.

## Key to species of *Brachypterois* represented in the catches of Visakhapatnam

1. Posterior lachrymal spine usually directed posteriorly, but with strong upwardly curved tip in adults; spines on median lateral ridge of the maxilla absent; head length 40.0-44.1 % of standard length; eye diameter 20.0-28.0 % of head length; maxillary length is 42.3-48.3 % of head length; longitudinal scale series 38-42; scales above lateral line 4-5; 6-14 spots on the longitudinal fin rays of caudal fin……..……..……*Brachypterois curvispina*

2. Posterior lachrymal spine usually directed posteriorly, not curved/when curved directed ventrally; spines on median lateral ridge of the maxilla present; Head length 33.4-44.1% of standard length; eye diameter 20.0-30.0% of head length; maxillary length 43.3-52.9% of head length; longitudinal scale series is 42-46; Scales above lateral line 5-7; scales below lateral line 8-10; scales below lateral line 14-17; 2-26 spots on the longitudinal fin rays of caudal fin……. a

- Number of spines on median lateral ridge of maxilla range from 1-3; caudal fin with small spots in the range 5 to 26; pectoral fin rays in the range14-16; total gill rakers 15-17; dorsal fin ray length 16.2-20.2; anal soft ray length 9.72-13.5……..……..……..... *Brachypterois serrulata*

- Number of spines on median lateral ridge of maxilla range from 1-22; caudal fin with relatively few large dark spots i.e. 2-10 on longest middle ray; pectoral fin rays in the range15-17; total gill rakers 16-19; dorsal fin ray length 13.3-19.5; anal soft ray length 17.8-21.6……..……..……..... *Brachypterois serrulifer*

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