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First record of raggy scorpion fish *scorpaenopsis venosa* (cuvier, 1829) (family scorpaenidae) from Visakhapatnam, central eastern coast of India

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Abstract
Fifteen specimens of *Scorpaenopsis venosa* (Cuvier, 1829) of total length range 86-119 mm, SL were collected from shore seine, rarely in trawl net catches at Visakhapatnam fishing harbour, central eastern coast of India during the period 2011-2015. This species is distinguished from its characters deep quadrangular depression across occiput; pectoral length 29.06 in percentage of standard length; pelvic fin ray length 15.20 in percentage of standard length. The morphometric and meristic characters of the recorded specimens are described. This is the first record from central eastern coast of India.

Keywords: First record, *Scorpaenopsis venosa* (Cuvier, 1829), Visakhapatnam, India

1. Introduction
The scorpion fishes are the smallest humpback species, characterized by a highly arched back below the spinous part of the dorsal fin, broad interorbital and divided into upper opercular spine. (Randall and Eschmeyer, 2002) [16]. Although Randall and Eschmeyer (2002) [16] collected and examined a large number of specimens of *Scorpaenopsis* from a wide geographical range in the Indo- Pacific region and who recognized 24 valid species. Scorpaeniformes contain twenty six families with 279 genera and about 1,477 species. scorpaenid is a very diverse group of fish consisting of approximately 500 species from 40 subfamilies (Eschmeyer, 2010) [6]. About 375 species are recorded in this family in Indo - West Pacific region (Fischer and Bianchi, 1984) [7]. Scorpaenoids also inhabit many environments ranging from intertidal shores (Carpenter and Niem, 1999) [2].

2. Materials and methods
Fifteen specimens of *Scorpaenopsis venosa* (Cuvier, 1829) [4] 86-119 mm, SL were collected from Visakhapatnam coastal waters, East Coast of India (17º44'N, Long 83 º 23'E) during the study period 2011-2015. Specimens were examined carefully and identified as *Scorpaenopsis venosa* (Cuvier, 1829) [4] hitherto not reported so far. The colour of the specimens in the samples was noted in fresh condition. Morphometric and meristic data were taken for fresh specimens. The specimens were preserved in 8% formalin for further studies. Measurements generally follow (Motomura 2004 a,b) [14], except head width (Motomura *et al*., 2005b, 2006a; Motomura *et al*., 2006b) [14]. Counts follow (Motomura *et al*., 2005 a-c and Motomura and Johnson 2006) [13, 11], with predorsal scale counts following Motomura *et al*., (2006b). Standard length is expressed as SL. Terminology of head spines follow Randall and Eschmeyer (2002) [16] and Motomura (2004a) [9]. The specimens were preserved in 5% formalin and deposited in the museum of the department of marine living resources, Andhra University, Visakhapatnam, India.

3. Results
Systematics
Family Scorpenidae
Genus *Scorpaenopsis* Heckel (1840)
Species *Scorpaenopsis venosa* (Cuvier, 1829) [4] (Fig. 1) Raggy scorpionfish *Scorpaena venosa* Cuvier 1829 [4], *Regne Animal.*, 2:166 (type locality: India) *Scorpaena mooro-bontoo*, Russell, *Fish*, *Vizag.* 1:44, pl. 56 (type locality: Vizagapatam, India)
Description based on 15 specimens measuring 112-150 mm TL
Meristic characters:
D XII 9-10; A III 5; C 13-15; V I 5; P 15-18; Ll42; Ll Pored scales 24; L tr 8/1/18-19; GR 5+1+9-10=15-16; Pyloric caeca 5; Vertebrae 24

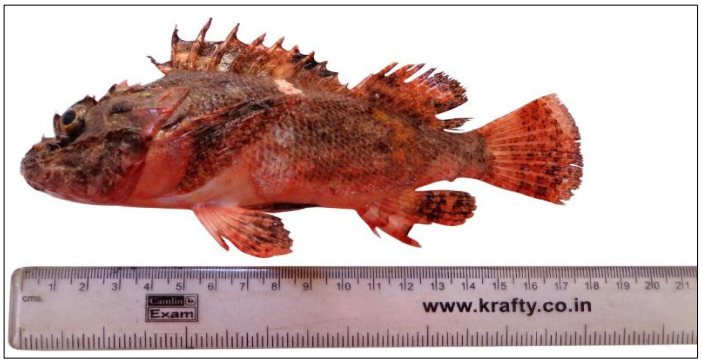

Fig 1: *Scorpaenopsis venosa* (Cuvier, 1829), 150 mm, TL.

Morphometric data of 15 specimens given in Table1.

Table 1: Morphometric data of the species of *Scorpaenopsis venosa* represented in the catches of Visakhapatnam

Standard Length in mm SL	*S. venosa*, n= 15	
	86-119	
	Min-Max	$\overline{X}$ ±SD
As percentage of standard length		
Total length	122.22-130.68	126.95±2.45
Body depth	29.00-32.72	31.14±1.02
Head length	42.42-46.59	44.74±1.27
Pre dorsal distance	35.41-40.90	38.29±1.60
Pre pectoral distance	37.50-42.45	40.31±1.51
Pre pelvic distance	37.50-43.39	40.65±1.72
Pre anal distance	70.70-78.40	76.52±2.18
Dorsal base	57.14-63.86	60.62±2.30
Pectoral base	13.63-16.16	15.20±0.75
Anal base	12.94-18.69	14.18±1.62
Dorsal spine height	13.63-16.16	15.20±0.75
Soft dorsal height	14.95-21.42	17.63±2.09
Pectoral length	26.41-31.81	29.06±1.73
Pelvic spine length	16.63-16.16	15.20±0.75
Soft pelvic fin length	13.63-16.16	15.20±0.75
Anal spine height	18.18-22.91	20.66±1.74
Soft anal height	19.00-23.63	22.08±1.45
As percentage of head length		
Head depth	54.90-61.53	59.26±2.12
Head width	48.83-56.81	54.51±2.54
Eye diameter	18.36-23.07	20.50±1.26
Pre orbital distance	20.93-28.57	25.09±2.51
Post orbital distance	49.01-54.76	51.92±1.92
Inter orbital distance	14.28-19.04	16.36±1.92
Upper jaw length	46.34-51.28	48.42±1.58
Lower jaw length	41.86-50.00	45.67±2.32
Maxilla width	15.68-19.04	17.46±1.19
Snout length	25.00-30.23	27.09±1.69
Caudal peduncle depth	13.63-16.16	15.20±0.75

Body oblong, slightly compressed. Pre dorsal profile with deep slope from nape to snout, snout with deep groove depression before eyes. Mouth large, oblique; lower jaw slightly projects, with small symphysial knob. Maxilla broad, distally, long reaches below the last third of the eye. Interorbital space deeply very concave with an elevated smooth coronal ridge on either side, a deep quadrangular pit across occiput. Eyes moderate, elevated, slightly upward, with a deep groove below, and anterior and posterior depressions. Nostrils round, of equal size, anterior one with multiciliate flap posteriorly; posterior nostril situated in deep depression before eye. Teeth villiform, in bands on jaws, those of inner rows large, teeth on a few inner rows on each side of symphysis of upper jaw largerpalatine teeth absent, a inverted V- shape patch on vomer, patches of teeth on roof and floor of phyrnx. Tongue smooth, free, rounded apically. Gill opening wide, gill membrane free from isthmus, pseudobranchiae present, no slit below fourth gill arch. Gill rakers reduced to spiny knobs. Preopercle slightly rounded, opercular flap pointed, extends over lateral line.

Spines on head well developed, lachrymal stellate, with four radiating spines two of which extend over maxilla, anterior lachrymal spine directed forward, posterior lachrymal spine directed down and back, suborbital well developed, with four backward directed spines; preopercle with five spines, first two spines well developed, third spine smooth, last two spines ridged; supplemental preopercular spine short, half the length of first preopercular spine; cleithral spine broad based, directed forward. Post orbital spines short, two opercular spines, first one large, second one well developed, opercular ridged; supracleithral and upper post temporal spines short, lower post temporal spines tip pointed; parietal and nuchal spines of approximately equal size, joined to base in line with tympanic spines; sphenotic with three short spines; tympanic and nasal spines present; postocular and supraocular spines close to each other; coronal and interorbital spines absent. A low ridge on each side of pit between tympanic and parietal spines.

Filaments present, two on snout, four on preorbital, antother one multiciliate, short filaments on preocular spine, six filaments present on over maxilla; preopercle and opercle edge, lower jaw, dorsal fin, pectoral rays, lateral line scales, body scales, upper margin of iris part with short filaments. Body covered with ctenoid scales, small scales on ventral side; large cycloid scales in postorbital region and upper half of operculum.

Origin of dorsal and pelvic same line where as origin of pectoral slightly anterior, dorsal fin continuous with notch after penultimate spine; origin above hind border of opercle, dorsal spines moderately strong, the third dorsal spine longest, succeeding spines decreasing in length to penultimate which is shortest, single spine of second dorsal spine twice the length of last spine of first dorsal; interspinous membrane notched; soft dorsal height slightly less than that of third dorsal spine, posterior part of soft dorsal rounded, pectorals rounded, upper rays long, two to five rays divided, lower rays fleshy with pointed tips, reaching slightly beyond vent. Pelvic fin reaches vent, pelvics shorter than pectorals, Anal fin with three spines, second spine strong, stout and longest, first anal spine shortest, rays longer than longest anal spine height. Caudal cut nearly truncate.

Colour

Body dark, dull red; marbled with greyish or tiny light –blue ocelli scattered over the body; lower side of throat and belly pink. Head dark red brown with paler, three dark bars below eye, upper and lower jaws with pale and dark gray mottling. A dark triangle seen below the eye. Dorsal fin dark brown with irregular white and gray streaks; dark blotches present between seventh and tenth dorsal spines, one or two irregular vertical gray bands on the caudal; pectorals with numerous dark spots. Anal fin with three white bars, the ventrally pink; filaments on body gray to dark brown.

4. Discussion

Description, meristic and morphometric data are in good agreement with that of Cuvier and Valenciennes (1829) [4], Day (1875) [5] and Smith and Heemstra (1986) [21]. Day (1875) [5] reported 16 caudal rays; present study reports 13-14 caudal rays. According to Smith (1986) [21] lateral line scales 50; in the present study it is 42. Earlier Indian records of this species are from Visakhapatnam by Russell (1803) [18], Day (1875) [5], Munro (1955) [15] from Ceylon and Rao (2003) [17] from Andaman Nicobar Islands. The occurrence of *S. venosa* has earlier been reported from the Randall and Eschmeyer (2002) [16] on examination of 55 specimens from the Indo-Pacific region and south west coast (off Kovalam, Kerala) coasts of India, and Durban Harbour, South Africa (Day, 1868). It is mainly captured mainly by hand line and shore seine, rarely in trawl catches. This is the rare and first report from central eastern coast of India. A

total of 15 specimens of length range 112-150 mm TL were collected in the present study period. It inhabits coastal reefs, usually taken by diving in protected areas of bays or lagoons often where the fish can be well camouflaged in areas of algae, seagrass or sponges. It grows to 25 cm TL (Froese and Pauly, 2014) [8]. The present study provides full description of this species with more number of samples, after Day (1875) [5] from Indian waters. Local Telugu name is "Moroo-bontoo" adopted by Russell (1803) [18].

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