First Report of two fish species of genus *Pterygotrigla* (Family: Triglidae) from East Coast of India

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Received 23 October 2013; revised 17 December 2013

Two species of fishes from the family Triglidae were collected from Digha Coast, Northern part of Bay of Bengal and identified as *Pterygotrigla arabica* (Boulenger, 1888) and *P. hemisticta* (Temminck and Schlegel, 1843). Both species morphologically very similar and previously considered conspecific, but present study describes sufficient interspecific difference among them on the basis of morphological characters. Both the species were first time reported from east coast of India; also this report confirms the occurrence of *P. hemisticta* from Indian coast.

[Key Words: Triglidae, *Pterygotrigla*, First report, East coast of India.]

**Introduction**

The fishes of family Triglidae, commonly known as Gurnards and Sea Robins, comprise deep benthic species. This family is distributed in all the tropical and temperate seas throughout the World along continental shelf edge, slope and insular areas from 200 to 500 meter with about 9 genera and 124 species. In India the species of the genus *Pterygotrigla* are very rare and uncommon. During local survey around West Bengal coast authors encounters several fishes of family Triglidae and subsequently identified as *Pterygotrigla arabica* (Boulenger, 1888) and *P. hemisticta* (Temminck and Schlegel, 1843). Both the species were first time reported from east coast of India, also this report confirms the occurrence of *P. hemisticta* from Indian coast describe characters and differences between them.

**Materials and Methods**

During local survey around Digha coast, authors collected eleven Triglidae fishes from Digha mohona (21°37.843′N, 87°32.827′E) and subsequently identified as *Pterygotrigla arabica* (Boulenger, 1888) with 7 ex. (Reg No.MARC/ZSI/F3267; 61mm-82mm standard length) and *P. hemisticta* (Temminck and Schlegel, 1843) with 4 ex. (Reg No. MARC/ZSI/F3268; 68mm-77mm standard length). Digha is located in the East Midnapore district of the State of West Bengal of Eastern India and lies in the southern most part of the state on the bank of Bay of Bengal. Fishes are collected mainly from trawl nets. After collection of fishes photography was taken and kept in 10% formaldehyde solution. Taxonomic Identification was carried out as per the key to species of genus *Pterygotrigla* by Richards et al. (2003). Vertebrae counted by radiograph. All Measurements were made by digital calipers with a resolution of 0.1 mm. Specimens are deposited in Marine Aquarium Cum Regional Center, Zoological Survey of India museum.

**Results**

The present study thoroughly and critically observes each example of both the species collected. Morphometric measurement and meristic counts of present study match with that of Richards et al., (2003). Comparison of morphometric characters are shown in Table 1.
**Pterygotrigla arabica** (Boulenger, 1888)

**Vernacular name:** Pencha


**Characters**

D VII+12; A 12; P 15; V I, 5; C 13. Body elongated. Head moderately large and with many bony ridges and spines but no scales. Snout ends with two outward directed short, strong triangular rostral spines; long and slender opercular spine extending posterior to cleithrum; cleithral spine short; nasal spine and antlorse rostral spine absent. Mouth terminal; villiform small teeth present on jaws, premaxilla, dentaries and head of vomer. Trunk scale elongated; breast and interpelvic area naked but belly scaled; lateral line scales small and elongate. Ceratobranchial gill rakers 12, epibranchial gill rakers 2. Dorsal spine well separated. Base of first dorsal fin with 10 flat plates, first plate extends in advance of first dorsal-fin spine. Pectoral fin with 12 connected rays and lowermost 3 are separated. Vertebræ 27: 10+17; lateral line scales 56-57; bucklers 10 (bony plates of dorsal fin base).

**Colour**

Body red with irregular black spots in back, head and soft dorsal. A large black spot present in between 3-5 dorsal fin spine; inner surface of pectoral fin black pigmented and lacking white spots; membrane and rays dark (Fig. 1).

![Fig 1. *Pterygotrigla arabica* (Boulenger, 1888)](image1)

**Distribution**

Western Indian Ocean, known from Oman in Persian Gulf, eastern Arabian Sea and West coast of India. Also, the present report extends its distribution along the east coast of India and the present study report extends the distributional range of the species from west coast of India to Bay Bengal.

**Pterygotrigla hemisticta** (Temminck and Schlegel, 1843)


**Characters**

D: VII+11; A: 11; P: 15; V: I, 5; C: 13. Body elongated; head scale less and with many bony ridges and spines. Snout ends with rostral projection formed by large sharp horned spine which directed outwardly; inner margin smooth and outer margin granulated. Opercular spine large and stout. Humeral and nuchal spine very short; cleithral spine present on ventral side of opercular spine. Mouth terminal; jaws with villiform small teeth, teeth also present on premaxilla, dentaries and head of vomer. Scale cycloid and minute; nape naked; breast with scales; lateral line scales crenulate shaped. Base of first dorsal fin with 9-10 flat plates. Ceratobranchial gill rakers 10-11, epibranchial gill raker 1. Bases of first dorsal fin spines expanded into broad, flattened, bony plates; no spines or plates along base of second dorsal fin. Pectoral fin with 12 connected rays and innermost 3 are separated. Vertebræ 25/26: 10+15-16; lateral line scales: 55-56; bucklers 10.

![Fig 2. *Pterygotrigla hemisticta* (Temminck and Schlegel, 1843)](image2)
**Colour**

Body red with irregular black spots in head, back and soft dorsal. A large black blotch between the 3rd and 6th dorsal spine. Inner surface of pectoral fin black pigmented and intense black blotch near base bordered by a diagonal rows of white spots forming a stripes (Fig. 2).

**Distribution**

Western Pacific, from Japan to Australia\(^3\). The present study reports the range of extension of the species to northern Bay of Bengal.

**Discussion**

*Pterygotrigla arabica* is closely related to *Pterygotrigla hemisticta*; but both the species were more often mistakenly synonymized \(^4\)–\(^7\). *P. arabica* differs from *P. hemisticta* in many characters like: lacking white spots on the inner surface of the pectoral fin, having moderately long snout, marginally large eye, large cheek height and more and longer ceratobranchial gill rakers. Golani and Baranes (1997) \(^8\) considered *P. arabica* is valid species and distinct from *P. hemisticta*. Boulenger (1889) \(^9\) first separated two species (He refers *hemisticta* as *polysticta*) on the basis of development of bucklers, orbit size, distance between the first and second dorsal fin and colouration of inner surface of pectoral fin. Richards et al. (2003) \(^3\) found different significant interspecific variation among these two species. Measurements of present study of some important characters of those two species are similar with Richards et al., (2003) \(^3\) study.

Though, from Indian coast three representative of genus *Pterygotrigla* previously reported: *P. arabica*, *P. hemisticta* and *P. guezei* Fourmanoir, 1963\(^10\)–\(^11\). *P. guezei* was listed from Kerala coast without detail description\(^11\). However, since presently this is known from Mauritius to Madagascar\(^12\), its occurrence along Indian coast is uncertain and need material verification. Richards et al (2003) observed that synonymizing *P. arabica* with *P. hemisticta* in Richards and Saksena (1977) is a mistake as have done by other authors (Day, 1888; Alcock, 1890, 1899, Richards, 1984) and detailed the distribution of *P. hemisticta* as widely distributed in Western Pacific from Japan to Australia. In this condition the present report of *P. hemisticta* forms the first confirmed report from Indian waters, as most of the earlier reports are attributed to *P. arabica*. *P. arabica* is known to have distribution from Persian Gulf to west coast of India (Richards et al, 2003). The present report from north east coast of India extends its distributional range to northern Bay of Bengal.

<table>
<thead>
<tr>
<th>Characters</th>
<th><em>Pterygotrigla arabica</em></th>
<th><em>Pterygotrigla hemisticta</em></th>
</tr>
</thead>
<tbody>
<tr>
<td>% of Standard Length</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cleithral spine length</td>
<td>7.06-7.87</td>
<td>8.25-8.44</td>
</tr>
<tr>
<td>Pectoral fin length</td>
<td>31.77-35.37</td>
<td>32.60-36.03</td>
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<tr>
<td>Free Pectoral fin length</td>
<td>31.18-33.11</td>
<td>29.38-34.96</td>
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<td>Snout length</td>
<td>18.12-19.44</td>
<td>14.61-14.68</td>
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<tr>
<td>Ceratobranchial gill raker length</td>
<td>4.44-5.22</td>
<td>3.75-4.04</td>
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<td>% of Head Length</td>
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<td></td>
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<tr>
<td>Orbit wide</td>
<td>3.75-3.84</td>
<td>3.98-4.04</td>
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<tr>
<td>Interorbital width</td>
<td>3.84-3.95</td>
<td>3.22-3.26</td>
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<tr>
<td>Snout Length</td>
<td>2.52-2.76</td>
<td>2.63-2.70</td>
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<tr>
<td>% of Orbit Wide</td>
<td></td>
<td></td>
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<tr>
<td>Interorbital Width</td>
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<td>1.06-1.36</td>
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<td>Upper Jaw Length</td>
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<tr>
<td>Snout Length</td>
<td>1.39-1.51</td>
<td>1.46-1.49</td>
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**Acknowledgements**

Authors are thankful to Dr. K. Venkataraman, Director, Zoological Survey of India, Kolkata fo providing the necessary facilities for the work. DR is thankful to ZSI for the senior research fellowship.
References

6. Day, F. The fishes of India; being a natural history of the fishes known to inhabit the seas and fresh waters of India, Burma and Ceylon. Suppl. 4 (1888): 779-816.
10. Balachandran, K and Nizar, MA. A check list of fishes of the Exclusive Economic Zone of India collected during the research cruises of FORV Sagar Sampada Proceedings of the first workshop on scientific results of FORV Sagar Sampada CMFRI, Cochin. (1990) 305-324 Available at - http://eprints.cmfri.org.in/5269/1/43.pdf