



## Short Communication

# New distributional record of a tetraodontid fish, *Canthigaster petersii* (Bianconi, 1854), from Tamil Nadu coast, India with a note on *Canthigaster* species recorded from Indian waters

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## Abstract

The Peter's toby, *Canthigaster petersii* (Bianconi, 1854) (Tetraodontiformes: Tetraodontidae: Canthigasterinae), is being reported herewith for the first time from mainland coast of India, based on one specimen from Thoothukudi, Tamil Nadu. Distribution of different species of *Canthigaster* in Indian waters is discussed pointing erroneous record of *Canthigaster margaritata* (Ruppell) and *C. solandri* (Richardson), which are most likely based on specimens of *C. petersii* (Bianconi).

**Keywords:** *Canthigaster*, Colouration, Distribution, First Record, Peter's Toby

## Introduction

The subfamily Canthigasterinae (Tetraodontiformes: Tetraodontidae) consists of a single genus, i.e., *Canthigaster* Swainson, 1839. There are 37 valid species of sharp nosed puffer fishes belonging to this taxa making it the largest genus in the family Tetraodontidae (Froese and Pauly, 2018). The genus *Canthigaster* can be distinguished from other tetraodontids based on the following characters: compressed body, pointed snout and rather minute nostrils and keeled dorsal surface posterior to the eyes. There are 11 species of this genus known from Indian waters till date, viz., *C. amboinensis* (Bleeker, 1864), *C. bennetti* (Bloch, 1854), *C. cyanospilota* Randall, Williams and Rocha 2008, *C. investigatoris* (Annandale and Jenkins, 1910), *C. janthinoptera* (Bleeker, 1855), *C. margaritata* (Ruppell, 1829), *C. papua* (Bleeker, 1848), *C. petersii* (Bianconi, 1854), *C. solandri* (Richardson, 1845), *C. smithae* Allen and Randall, 1977 and *C. valentini* (Bleeker, 1853). Records of *Canthigaster* species from Indian waters are given in Table 1. However, some of them, particularly records of *C. solandri*, need to be revisited based on newly defined characters in recent literature.

The present study records *Canthigaster petersii* (Bianconi, 1854) for the first time from Tuticorin Fishing harbour, Tamil Nadu in the south-eastern part of India, extending its distributional range westward to Indian peninsular coast.

## Material and Methods

A single specimen was collected from Tuticorin (=Thoothukudi), Tamil Nadu located on the Bay of Bengal. The specimen was preserved and deposited at Zoological Survey of India (Z.S.I), Kolkata. Description given by Allen and Erdman (2012) is used to identify the specimen. Measurements were done using digital callipers to the nearest millimetre and the specimen was photographed with Canon D7000 camera.

## Results

The systematic account of the species is given here under based on the collected specimen belonging to order Tetraodontiformes, family Tetraodontidae and subfamily Canthigasterinae.

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**Table 1.** Distribution of *Canthigaster* species in Indian waters as recorded till date

Species	Occurrence	References
1. <i>Canthigaster amboinensis</i> (Bleeker, 1864)	Lakshadweep	Jones and Kumaran, 1980
2. <i>Canthigaster bennetti</i> (Bleeker, 1854)	Andamans	Rao <i>et al.</i> , 2000
	Lakshadweep	Jones and Kumaran, 1980
3. <i>Canthigaster cyanospilota</i> Randall, Williams & Rocha, 2008	Andamans	Allen and Erdmann, 2012; Ramakrishna <i>et al.</i> , 2010 (as <i>C. coronata</i> )
	Lakshadweep	Jones and Kumaran 1980 (As <i>C. cinctus</i> )
4. <i>Canthigaster investigatoris</i> (Annandale & Jenkins, 1910)	Andamans	Annandale and Jenkins, 1910
5. <i>Canthigaster janthinoptera</i> (Bleeker, 1855)	Lakshadweep	Prabhakaran <i>et al.</i> , 2013
6. <i>Canthigaster margaritata</i> (Ruppell, 1829)	Lakshadweep	Jones and Kumaran, 1980
	Tamil Nadu	Day, 1878
7. <i>Canthigaster papua</i> (Bleeker, 1848)	Andamans	Allen and Erdmann, 2012
	Lakshadweep	Ajith Kumar <i>et al.</i> , 2012
8. <i>Canthigaster petersii</i> (Bianconi, 1854)	Andamans	Allen and Erdmann, 2012
9. <i>Canthigaster solandri</i> (Richardson, 1845) (should to be recognized as <i>C. petersii</i> )	Andamans	Rao <i>et al.</i> , 2000
	Tamil Nadu	Murugan and Durgekar, 2008 Biswas <i>et al.</i> , 2012;
	Andhra Pradesh	Sujatha and Padmavati, 2015
10. <i>Canthigaster smithae</i> Allen & Randall 1977	Andamans	Allen and Erdmann, 2012
11. <i>Canthigaster valentini</i> (Bleeker, 1853)	Andamans	Rao, 2003

***Canthigaster petersii*** (Bianconi, 1854) (Figure 1)

1855. *Tetrodon petersii* Bianconi, 147, pl. 2, fig. 2 (Type locality: Mozambique).

2012. *Canthigaster petersii*: Allen and Erdmann, *Reef fishes of the East Indies*, 3: 1095.

**Material examined:** ZSI F 12747/2, 1 ex, 83.7 mm SL, Tuticorin (=Thoothukudi), Tamil Nadu, 21/3/2011, S.S. Mishra and Party.

**Description:** Body compressed laterally; snout produced; gill opening minute; dorsal surface keeled posterior to the eyes; minute nostrils; tail rounded; spinules present on belly. Dorsal fin rays 9, Anal fin rays 9, Pectoral fin rays 16. Body depth at dorsal to anal fin origin is 43.85%, head length 37.87%, caudal peduncle depth 19.37%, snout length 25.93%, eye diameter 6.37% of standard length. Body coloration involves numerous white spots which are present laterally on the body upto the caudal fin. Striations present around the eye and on the dorsal

profile. A distinct black spot below dorsal fin base is present, while the abdomen white. Figure 1 depicts the specimen collected from Thoothukudi, Tamil Nadu.



**Figure 1.** *Canthigaster petersii* collected from Thoothukudi, Tamil Nadu, India.

**Distribution:** This species is distributed throughout the Indian Ocean from Oman to the Andaman Sea (up to the Northwestern tip of Sumatra).

## Discussion

Eleven species in the genus *Canthigaster* have been reported from Indian waters. Records of different states of peninsular India include only one species, *C. margaritata*, following Day (1878). However, *C. solandri* is also reported from Tamil Nadu coast (Murugan and Durgekar, 2008; Biswas *et al.*, 2012) and from Andhra Pradesh (Sujatha and Padmavati, 2015). Six species, *C. amboinensis*, *C. bennetti*, *C. cintus* [= *C. cyanospilota*], *C. janthinoptera*, *C. margaritata* and *C. papua*, are recorded from Lakshadweep Islands (Jones and Kumaran, 1980; Ajith Kumar *et al.*, 2012; Prabhakaran *et al.*, 2013). A maximum of eight species have been reported from Andamans, viz., *C. investigatoris* by Annandale and Jenkins (1910); *C. bennetti* and *C. solandri* by Rao *et al.*, (2000); *C. valentini* by Rao (2003); *C. cyanospilota*, *C. papua*, *C. petersii* and *C. smithae* by Allen and Erdmann (2012).

Day (1878) included most of the species of *Canthigaster* with black blue-edged ocellus on both side of dorsal fin base and horizontal blue lines around eye (*C. bennetti*, *Tetrodon insignitus* [= *C. compressa*], *Tetrodon ocellatus* [= *C. bennetti*], *C. papua*, and *C. solandri*) under one name, *C. margaritata*. Munro (1955) also reported only one species, *C. margaritata*, from Sri Lanka with *T. ocellatus* as its synonym. However, the specimens of both Day (1878) and Munro (1955) have 9 or 10 dorsal fin rays indicating it is not *C. margaritata*, which has 8 dorsal fin rays. Further, Sri Lankan specimens are also not *T. ocellatus* [= synonym of *C. bennetti*] as the description goes as 'orange caudal fin with yellow spots' (Munro, 1955) while *C. bennetti* has no spots on caudal fin.

Randall *et al.*, (2008) comprehended earlier work on *Canthigaster* and discussed the major problem faced by taxonomists in distinguishing the species of *Canthigaster*. According to them, the problem lies in the uniformity of morphological characters among *Canthigaster* species and they also found a high degree of genetic uniformity within the genus as well. As noted by Randall *et al.*, (2008), color pattern reigns as the primary tool that is used to distinguish the species of *Canthigaster*. Allan and Randall (1977) clubbed *C. petersii* and *C. papua* with *C. solandri* together as synonymous. But, Allen and Erdmann (2012)

was probably first to treat all these three species as valid and distinct.

Fricke *et al.*, (2018) stated, following Allen and Erdmann (2012), that "the Indian Ocean populations formerly assigned to *C. solandri* are now to be recognized as *C. petersii*, while *C. solandri* is restricted to the western and central Pacific, and a third species, *C. papua* (Bleeker, 1848) is found in Indonesia, Philippines and Papua New Guinea". Prominent orange colour around snout and eye in *C. papua*, abrupt white coloured abdomen in *C. petersii* and yellow-orange colouration on tail of *C. solandri* now distinguishes these three species (Allen and Erdmann, 2012; To and Seha, 2016). Accordingly, record of *C. papua* from Lakshadweep (Ajith Kumar *et al.*, 2012) and records of *C. solandri* from Andaman Islands and Tamil Nadu, Andhra Pradesh (Rao *et al.*, 2000; Biswas *et al.*, 2012; Sujatha and Padmavati, 2015) needs to be reassessed. The photographs provided by Ajith Kumar *et al.*, (2012), Biswas *et al.*, (2012) and Sujatha and Padmavati (2015) seem more to be of *C. petersii*. However, it will be premature to confirm identity without examining those specimens.

While the reasons for new fish records are manifold, some reasons are more obvious than the others. Release by aquarist or because of religious practice can certainly be ruled out because no such incident has been recorded so far unlike in other places like in South East Asia (To *et al.*, 2013). In the present case the most likely reason can be the confounding taxonomic nature of the species that resulted by it from refraining detection or being detected and described wrongly. The present study provides the first record of *Canthigaster petersii* (Bianconi, 1854) from Tuticorin, Gulf of Mannar, India extending its range to mainland Indian waters.

## Acknowledgements

The authors are thankful to Dr. Kailash Chandra, Director, Zoological Survey of India (ZSI), Kolkata and Dr. L. Kosygin Singh, Scientist-D, Fish Division, ZSI, Kolkata for facilities and permission. The third author (PC) would like to thank Dr. Kranti Yardi, Bharati Vidyapeeth Institute of Environment Education and Research, Pune.

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