

First record of *Trypauchen vagina* (Bloch and Schneider 1801) (Perciformes: Gobiidae) in the Narmada River, Gujarat, India

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Abstract

Gobiids are a large group of fishes inhabiting freshwater, marine and brackish water habitats. *Trypauchen* is the Indo-Pacific genus and comprises of two species: *Trypauchen pelaeos* known from Myanmar, Malaysia, Thailand, Vietnam and China; and *T. vagina*, distributed from Kuwait, along the coasts of India, ranging eastward to the Philippines, Taiwan and China. A specimen of *T. vagina* (Bloch and Schneider 1801) was caught by cast net from the shallow water of the Narmada River on 11 April 2017 that has later been preserved in the museum of Department of Zoology, Faculty of Science, The Maharaja Sayajirao University of Baroda, Vadodara (voucher number: ZL-CH-OSH-026). This paper presents the first observation of *T. vagina* in the Narmada River in Gujarat.

Keywords: *Trypauchen vagina*; burrowing goby; Narmada River; first record

1 | INTRODUCTION

The family Gobiidae, commonly referred to as gobies, is one of the largest groups of fishes inhabiting all three categories of waters – freshwater, brackish and marine consisting of more than 2000 species (Van Tassell 2001). They are concentrated in the tropics and subtropics, mainly in the Indo-Pacific region, but some marine species can be found in the subarctic streams of southern Siberia (Berra 2001). Gobies have united pelvic fins that they can use as a suction device to hold rocks and other objects in their environment. *Gobius vagina* was described by Bloch and Schneider (1801) based on a single specimen collected in Tranquebar, India. The original description was brief, but stated that an oval shaped opening was present on the dorsal edge of the operculum.

Because of this unusual, pouch-like structure at the dorsal margin of the operculum, Valenciennes in Cuvier and Valenciennes (1837) changed the genus to *Trypauchen* (from the Greek *trypa*, meaning hole, and *auchen*, meaning neck, for *G. vagina* (Murdy 2006). In addition to *Trypauchen vagina*, four other species were described and assigned to this genus: *T. microcephalus* (Bleeker 1860), *T. raha* (Popta 1922), *T. taenia* (Koumans 1953), and *T. wakae* (Jordan and Snyder 1901).

There are only two previous records of *T. vagina* in Gujarat; from Nawabunder (Khan 1986) and Veraval (Bhagirathan *et al.* 2012) coast, in a totally marine regime. In this paper, the first occurrence of *Trypauchen vagina* (Bloch and Schneider 1801) in the Narmada River is represented.

2 | METHODOLOGY

Trypauchen vagina, commonly called as burrowing goby, a species belonging to the family Gobiidae was caught and recorded from the Narmada River for the first time (21°40'55.28"N and 72°50'47.40"E) on 11 April 2017. The specimen was collected from a fisherman who caught it by using a cast net (10 mm mesh) from Bhadbhut in Bharuch district (Figure 1) which is situated at an elevation of 17 m from the sea level. Bhadbhut is an intermediate zone where water confluences and forms a semi brackish environment.

The collected specimen was kept preserved in 8% formalin solution with the voucher number of ZL-CH-OSH-026 in the museum of Department of Zoology, Faculty of Science, The Maharaja Sayajirao University of Baroda, Vadodara. The meristic characters used for the identification of the specimen were measured by a vernier caliper. The meristic and morphological characters were determined using standard available keys following Day's volume I and II (Day 1888), Fishes of the World (Nelson 1994) and Leibniz Institute of Marine Sciences in Kiel, Germany managed website www.fishbase.org, a global species database for fishes (Froese and Pauly 2017).

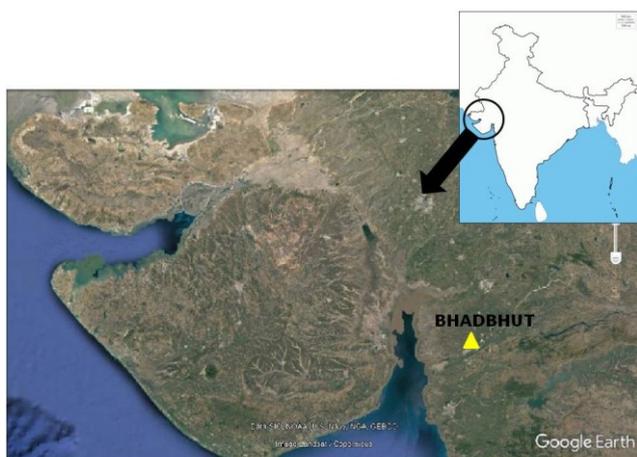


FIGURE 1 Map of the study area showing spot, Bhadbhut, from where a single specimen of *Trypauchen vagina* was caught

3 | RESULTS AND DISCUSSION

The body of the specimens was elongated and colour was reddish pink. The dorsal and anal fins were connected to the caudal fin. There were two dorsal fins although both of them seemed single attached due to a membranous connecting structure. The pelvic fins were small and unite to form a funnel like disc. In the dorsal part of the operculum, an oval shaped pouch like cavity was present. Tongue was thick, tip rounded, free from the floor of mouth. Canine teeth were observed on both the rows of

the jaws. When mouth closed, upper jaw was overlapped by lower jaw. No palatine or vomerine teeth were observed. The eyes were rudimentary and covered by skin in orbital depression, lens slightly larger than length of posterior naris. Posterior naris located on dorso-anterior rim of orbit; anterior naris at tip of small tube-like flap that slightly overhangs upper jaw. Chin, snout, and interorbital area with thickened flesh, which likely aids in burrow construction. There was no barbel. Body covered with cycloid scales (Figure 2 and 3).



FIGURE 2 Studied *Trypauchen vagina*, 110 mm TL, caught from the Narmada River, Gujarat



FIGURE 3 Head and teeth of *Trypauchen vagina*

The morphological features of the studied specimen were as follows: dorsal fin rays (D), 55; anal fin rays (A), 45; pectoral fin rays (P), 17; caudal fin rays (C), 24; total length (TL), 108 mm; standard length (SL), 97 mm; head length (HL), 13 mm; snout length, 3 mm; pelvic fin length (PFL), 2.31 mm; head width (HW), 1.78 mm; 9 teeth on outer row of upper jaw; 8 teeth on outer row of lower jaw; and longitudinal scale rows 81. SL was 89.81% of TL, HL 13.4% of SL, snout length 3.09% of SL, PEL 2.38% of SL and 17.76% of HL, HW 1.83% of SL and 13.69% of HL.

The original distribution area of *T. vagina* includes the Western Pacific, Indian Ocean, and Persian Gulf (Froese and Pauly 2017). *Trypauchen vagina* inhabits areas, near to their own burrows, in silty and muddy habitats of estuarine and coastal waters (Murdy 2006). There has been no previous record of this species in the waters of any river in Gujarat.

In this study, *T. vagina* was caught in relatively shallow waters in depths of nearly 4–4.6 m. Therefore, the availability of larger population of this species may be ascer-

tained in a wider area of the Narmada River and also in other rivers of Gujarat to revalidate its present distribution.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

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CONTRIBUTION OF THE AUTHORS

NT specimen collection; NT & KJS measurements of specimen;
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