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## First record of the burrowing goby, *Trypauchen vagina* (Actinopterygii: Gobiidae), from the Iranian coast of the Persian Gulf

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**Abstract:** The burrowing goby, *Trypauchen vagina*, is recorded for the first time from the Iranian coast of the Persian Gulf. Only one other record is known for this species from the Persian Gulf; that record is from Kuwait. The subject record is a new addition to the ichthyofauna of Iran resulting from four *T. vagina* specimens being collected from north of Qeshm Island in the Khoran Strait (26°56'N, 55°54'E) in the Persian Gulf.

**Key words:** *Trypauchen vagina*, Persian Gulf, burrowing goby

The eastern Indian Ocean, including the Persian Gulf, is less intensively studied than other parts of the Indo-Pacific region with regard to its benthic fish fauna. This is particularly true in relation to gobies (family Gobiidae), which inhabit burrows in silty and muddy sediment or within coral and stones of rocky coasts.

The burrowing goby *Trypauchen vagina* is characterized by an elongate reddish body that becomes purple in fixation, a continuous dorsal fin and anal fin that are connected to the caudal fin, small pelvic fins that are united and form a funnel-like disc, an oval pouch-like cavity at the dorsal margin of the operculum, canionoid teeth in jaws, and cycloid scales on the whole body except for the head. This goby inhabits shallow coastal waters of the western Pacific and Indian oceans including the coasts of Kuwait, India, Myanmar, Thailand, Vietnam, the Philippines, and China (Murdy, 2006). There are also 2 reports of this species' occurrence in the Mediterranean Sea as a lessepsian species (Salameh et al., 2010; Akamca et al., 2011).

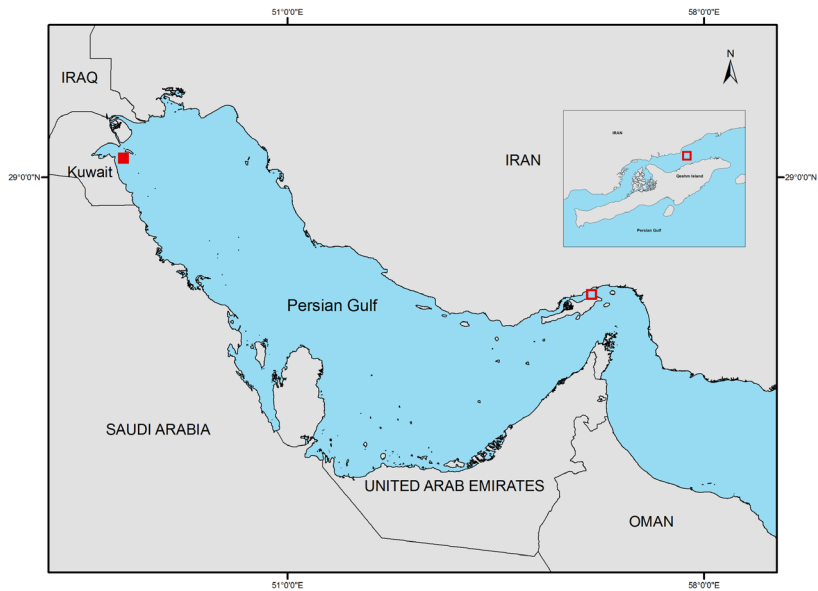
The samples here were collected by a commercial shrimp trawl net from 10m depth contour north of Qeshm Island (Figure 1). Specimens were preserved in 4% neutralized formalin and catalogued in the Aquatic Animal collection of Tarbiat Modares University (TAC1001-4-92). The morphometric and meristic characters are compared with those reported by Murdy (2006). All measurements were taken point to point by calipers to an accuracy of 0.02

mm (Keivany et al., 2012). Vertebral counts were based on radiographs (Figure 2).

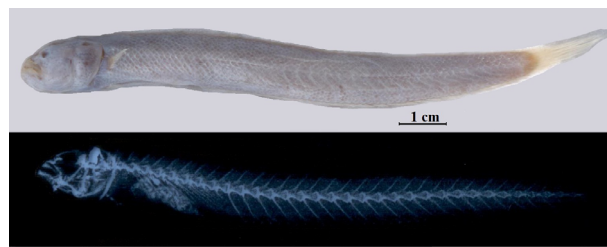
The morphometric and meristic characters used for identification of *T. vagina* were as follows (Murdy, 2006): total elements in dorsal fin 50–58 (this study: 54–57); total elements in anal fin 43–50 (43–47); caudal vertebrae 23 or 24, typically 24 (24); SL typically 84% or more of total length (89%); head length less than 18% of SL (15.3%); predorsal length less than 22% of SL (20.6%); prepelvic length less than 18% of SL (15.8%); preanal length 36% or less of SL (34.8%). All morphological findings in our study (Tables 1 and 2) correspond well with those of Murdy (2006).

*Trypauchen vagina* is a burrowing goby inhabiting soft bottoms. As such, collecting this goby is not easy as it likely can evade nets while in its burrow. Given this ability, *T. vagina* is probably more widespread than collections indicate. The only other record of *T. vagina* in the Persian Gulf is a specimen collected from Kuwait by James M Bishop on 20 Aug 1985 (Murdy, 2006). In Iran, we collected specimens from the Khoran Strait area north of Qeshm Island, which is a shallow muddy coastline (5–10 m) and affected by the Kol Estuary. There are similar ecological conditions at the Kuwaiti site of the other Persian Gulf record (i.e. muddy and close to Tigris and Euphrates estuaries). Based on this information, we can state that *T. vagina* inhabits shallow estuaries and muddy coastal waters in the Persian Gulf. The present record is a new addition to the marine fish species list of Iran. The

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**Figure 1.** Distribution map of *T. vagina* recorded from the Persian Gulf. The solid square is the previously known locality (in 1985) and the open square corresponds to the new record locality at 26°56'N, 55°54'E, north of Qeshm Island.



**Figure 2.** A photo and a radiograph of *Trypauchen vagina*, 140 mm TL from north of Qeshm Island in the Persian Gulf.

**Table 1.** Comparison of 16 morphometric characters of four specimens of *T. vagina* collected from north of Qeshm Island (Persian Gulf) with those in Murdy (2006).

| Morphometric measurements  | This study |             | Murdy 2006 |             |
|----------------------------|------------|-------------|------------|-------------|
|                            | Mean       | Range       | Mean       | Range       |
| Standard length/TL         | 0.89       | 0.87–0.91   | 0.855      | 0.815–0.938 |
| Head length/SL             | 0.153      | 0.148–0.160 | 0.169      | 0.161–0.179 |
| Pelvic-fin length (PEL)/SL | 0.054      | 0.047–0.068 | 0.060      | 0.042–0.072 |
| Pelvic-fin length/HL       | 0.352      | 0.296–0.434 | 0.354      | 0.248–0.450 |
| Pectoral-fin length/SL     | 0.046      | 0.043–0.049 | 0.053      | 0.042–0.063 |
| Pectoral-fin length/HL     | 0.301      | 0.276–0.332 | 0.315      | 0.235–0.349 |
| Pectoral-fin length/PEL    | 0.873      | 0.636–0.980 | 0.921      | 0.667–1.507 |
| Head width/SL              | 0.074      | 0.070–0.076 | 0.084      | 0.077–0.100 |
| Snout length/SL            | 0.040      | 0.034–0.049 | 0.048      | 0.034–0.077 |
| Jaw length/SL              | 0.043      | 0.041–0.046 | 0.050      | 0.044–0.057 |
| Interorbital width/SL      | 0.026      | 0.024–0.028 | 0.027      | 0.024–0.031 |
| Nape width/SL              | 0.061      | 0.051–0.069 | 0.064      | 0.057–0.071 |
| Body depth/SL              | 0.107      | 0.099–0.113 | 0.107      | 0.092–0.122 |
| Predorsal length/SL        | 0.206      | 0.199–0.213 | 0.202      | 0.188–0.218 |
| Prepelvic length/SL        | 0.158      | 0.153–0.162 | 0.165      | 0.157–0.175 |
| Preanal length/SL          | 0.348      | 0.343–0.351 | 0.345      | 0.308–0.362 |

**Table 2.** Comparison of 5 meristic characters of four specimens of *T. vagina* collected from north of Qeshm Island (Persian Gulf) with those in Murdy (2006).

| Meristic counts     | This study | Murdy 2006 |
|---------------------|------------|------------|
|                     | Range      | Range      |
| Dorsal-fin rays     | 54–57      | 50–58      |
| Anal-fin rays       | 43–47      | 43–50      |
| Pectoral-fin rays   | 16–17      | 15–20      |
| Caudal vertebrae    | 24         | 23–24      |
| Precaudal vertebrae | 10         | 10         |

discovery of *T. vagina* in Iranian waters indicates that a suitable habitat for burrowing gobies is present and that additional species of burrowing gobies in the subfamily Amblyopinae may be discovered in the future.

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