

## Aquatic Invasions Records

## First record of the Indo-Pacific burrowing goby *Trypauchen vagina* (Bloch and Schneider, 1801) in the North-Eastern Mediterranean Sea

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### Abstract

This paper presents the first observation of a recent Lessepsian fish species, the burrowing goby, *Trypauchen vagina* (Bloch and Schneider, 1801) in the North-Eastern Mediterranean Sea, where two specimens of burrowing goby were caught by a shrimp trammel net in Iskenderun Bay. This record indicates the range extension of a possibly established population of burrowing goby in the Eastern Levant Basin.

**Key words:** burrowing goby, Iskenderun Bay, Lessepsian, *Trypauchen vagina*

### Introduction

The faunal structure of the Levant Basin is highly unstable due to the alien organisms originating mainly from the Indo-Pacific region. The Suez Canal is the most important introduction route for erythrean organisms inhabiting the Mediterranean (Bianchi 2007). This phenomenon, Lessepsian migration (Por 1978) is an incrementally continuous phenomenon (Golani 2002), whose influence extends beyond the border of the Levant Basin such as Ionian and Adriatic Sea (Lasram and Mouillot 2009).

There are 74 recorded Lessepsian fish species in the Mediterranean, including six Gobiids (Golani and Appelbaum-Golani 2010; Salameh et al. 2010), namely *Coryogalops ochetica* (Norman, 1927), *Oxyurichthys petersi* (Klunzinger, 1871), *Silhouettea aegyptia* (Chabanaud, 1933), *Favonigobius melanobranchus* (Fowler, 1934), *Vanderhorstia mertensi* Klauswitz, 1974 and *Trypauchen vagina* (Gill, 1859) (Golani et al. 2006; Kovačić and Golani 2007; Bilecenoglu et al. 2008; Salameh et al. 2010). The Gobiid, *Trypauchen vagina* was previously recorded in Israeli Coasts of the Mediterranean in December 2009 (Salameh et al. 2010). In this study, the range extension of *Trypauchen vagina* (Bloch and Schneider, 1801) in the Mediterranean is presented.

### Methods

On 24.09.2010 and 03.10.2010, two *Trypauchen vagina* specimens were observed in the eastern coasts of the Northeastern Levant Basin, Iskenderun Bay (36°32'40"N, 35°31'27"E; 36°32'45"N, 35°35'04"E). The samples were collected by a commercial shrimp trammel net from 20-27 m depth contours near to Ceyhan River's estuary. They were preserved in 4% neutralized formalin and kept in the collection of Fisheries Faculty, Cukurova University. The metric and meristic characters suggested by Larson and Murdy (2001) and Murdy (2006) were determined.

### Results and discussion

The body of the specimens is elongate. The body colour is reddish pink in fresh specimens and purple in fixed specimens. Dorsal and anal fins are connected to the caudal fin. There are two dorsal fins although both of them seem single due to a membranous connecting structure. Pelvic fins are small and fully united forming a funnel like disc. An oval shaped opening (pouch like cavity) is present at the dorsal margin of the operculum. Caninoid teeth are visible on both of the jaws. Eyes are covered by skin. There is no barbel on the chin. Cycloid scales are present on the whole body except for the head (Figure 1).



**Figure 1.** *Trypauchen vagina*, 210 mm TL from Iskenderun Bay, Northeastern Mediterranean (Photograph by C.E. Ozyurt).

The metric and meristic characters used for identification are as follows; D (dorsal fin): 57-58 (total elements), A (anal fin): 45-48 (total elements), precaudal vertebrae: 10, caudal vertebrae: 24, total length (TL): 210-217 mm, standard length (SL): 189-196 mm, SL of TL: 90.00-90.32%, head length (HL) of SL: 14.78-14.89%, pelvic fin length (PEL) of SL: 4.61-4.90%, PEL of HL: 31.25-32.94%, pectoral fin length (PEC) of SL: 4.36-5.16%, PEC of HL: 29.49-34.65%, PEC of PEL: 94.36-105.16%, head width of SL: 7.76-7.82%, jaw length of SL: 4.54%, body depth of SL: 10.63-10.96%, predorsal length of SL: 19.54-20.53%, pre-pelvic length of SL: 16.32-16.59%, preanal length of SL: 34.16-35.27%.

The original distribution area of burrowing goby includes the Western Pacific, Indian Ocean, and Persian Gulf (Froese and Pauly 2010). According to Salameh et al. (2010), however there is no record of burrowing goby from the Red Sea, the reason for this could be the difficulty involved in sampling for this species. *Trypauchen vagina* inhabits areas, near to their own burrows, in silty and muddy habitats of estuarine and coastal waters (Murdy 2006). Therefore, the most probable introduction route for *Trypauchen vagina* is via the Suez Canal (Salameh et al. 2010).

In this study burrowing goby was obtained in relatively shallow waters in depths of nearly 20-27m. Murdy (2006) notified that, *Trypauchen vagina* inhabits shallow coastal waters in the original distribution area, whereas Salameh et al. (2010) obtained the burrowing goby at the 90m depth contour off Israeli coasts. Therefore the

colonizing population of burrowing goby could be distributed in a wider depth range in the Mediterranean than in the original distribution area.

The discovery of burrowing goby in Iskenderun Bay a short while after the first Mediterranean record in Israel, could indicate successful establishment of this species in the Levant Basin.

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