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## A new *Imogine* species (Turbellaria: Polycladida: Stylochidae) associated with rock oysters (*Saccostrea cucullata*) from the Persian Gulf, with a review of the genus

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### Abstract

A new species of acotylean polyclad, *Imogine qeshmensis* sp. nov. is described from Qeshm Island, Persian Gulf, Iran. *I. qeshmensis* is characterized by the number and arrangement of the tentacular, cerebral and frontal eyes, a body margin with opaque white bands and eyespots and a male genital complex with an highly muscular seminal vesicle equal in size to the prostatic vesicle.

**Key words:** taxonomy, Acotylea, stylochid, free-living flatworms, *Imogine qeshmensis* sp. nov., Iran

### Introduction

The order Polycladida was divided by Lang (1884) into the two suborders Acotylea and Cotylea, based on the absence or presence of sucker. Faubel (1983, 1984) emphasized, in his classification system, the anatomical characters and character states of the male and female reproductive structures. He placed 28 families within Acotylea and 15 families within cotyleans.

Identification of acotylean species relying only on their color pattern is difficult, because this character can vary based on their prey items. The family Stylochidae (Acotylea) includes well-known predators of, molluscs and barnacles all over the world (Brusa & Damborenea 2013; Lee *et al.* 2006; Newman *et al.* 1993; Sluys *et al.* 2005). Recently, the family Stylochidae has been subdivided into the two major genera, *Stylochus*, with a single-lobed seminal vesicle, and *Imogine*, with a tripartite seminal vesicle (Jennings & Newman 1996a; b).

Until now, six species of *Imogine* have been formally reported from Indo West Pacific region (Jennings and Neman 1996 a,b ; Lee *et al.*, 2006). The polyclads fauna of the Persian Gulf, as part of the Indo West Pacific, has previously been studied by Khalili *et al.* (2009) who recorded two cotylean flatworms belonging to the family Pseudocerotidae: *Tythosoceros lizardensis* and *Thysanozoon* sp.

Recently, Maghsoudlou and Rahimian (2013) described two new acotyleans belong to *Discocelis* along the northern coasts of the Persian Gulf. The present study reports the occurrence of a new acotylean species from Iranian shore lines of the Persian Gulf.

### Material and Methods

The sampling location was the intertidal rocky shore of Hamun station, Qeshm Island, Persian Gulf, 26° 58' 35.3" N, 56° 14' 53" E (Fig. 1). The type locality was covered with rock oysters *Saccostrea cucullata* (Figs. 2A, B). Specimens were collected by hand in February 2011, using a fine paint brush. Collected specimens were transferred to the laboratory and were fixed using frozen 5% buffered formalin with seawater. In the laboratory, worms initially placed on filter paper and then were placed on frozen fixative. A soft brush was used to ensure the

The ejaculatory duct joins the prostatic duct at the proximal end of the penis papilla in *I. lesteri*, the situation which is not similar to our species. *I. exigus* is relatively smaller ( $7 \times 4$  mm) than present species ( $25 \times 18$  mm). *I. exigus* also has fewer cerebral eyes (7 eyes) compared with the species described here (about 91 eyes). Based on the above diagnostic features, *Imogine qeshmensis* is a new species.

In terms of habitat, members of the genus *Imogine* are known to be associated with or feed on giant clams and rock oysters (Jennings & Newman 1996a; Newman *et al.* 1993; Sluys *et al.* 2005), or other invertebrates such as barnacles (Lee *et al.* 2006). All specimens of the species described here associated with rock oysters. Our sampling area located at Qeshm Island is a free economic zone. The island is used for mariculture such as cultivation of shellfish and pearl oysters. The presence of the new species described here should be considered by managers of oyster farms because these flatworms kill and consume cultured bivalves, significantly contributing to mortalities (Galleni *et al.* 1980; Littlewood & Marsbe 1990; Newman *et al.* 1993).

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