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Short Communication

The first record of the Indo-Pacific benthic ctenophore *Coeloplana (Benthoplana) meteoris* (Ctenophora: Coeloplanidae) in the Arabian-Persian Gulf

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ABSTRACT

This report presents the first occurrence of the Indo-Pacific benthic ctenophore *Coeloplana (Benthoplana) meteoris* (Thiel, 1968) in the western part of the Arabian-Persian Gulf, extending its range to 2000km, a record that illustrates a cyclic event observed in the Marine Arabic Province. The seasonal biodiversity influx of invertebrates from the Indian Ocean that establish themselves for a short period of time in the west of the Gulf before the extreme high temperatures takes place in the summer.

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Introduction

The Arabian-Persian Gulf is characterized as one of the most intense hyperthermic and hypersaline marine environments in the world (Camp et al 2018). The shallow marine zone in the west coast of the Gulf is more exposed to the heat from the Middle-East deserts and, between June and August, its marine environment presents water temperatures that reach 36°C and salinities up to 55ppt (Price 1981, 1982; Riegl and Purkis 2012; Camp et al 2018), creating, in the west coast of the Gulf, a restricted marine biogeographic zone known as the “Marine Arabic Province” that is physiochemically isolated during the summer by a hyperthermic and hypersaline biogeographic barrier (Al-Ansari et al 2015). In winter and spring, the Marine Arabic Province is characterized by a temperate marine climate (Riegl and Purkis 2012; Al-Ansari et al 2015), which creates the suitable environmental conditions for the establishment of marine species, a perfect condition for the biodiversity that is constantly transported within the influx of water from the Indian Ocean. This report presents the first occurrence of the Indo-Pacific benthic ctenophore *Coeloplana (Benthoplana) meteoris* (Thiel, 1968) in the Arabian-Persian Gulf and discusses the biogeographic significance of this record for this restricted marine province.

Material and methods

For two years, numerous faunal surveys were conducted aboard the *RV Janan* from Qatar University, where several specimens were manually captured by scuba divers aiming to illustrate the marine fauna that inhabit the Marine Arabic Province in the west of the Gulf. During this faunal survey, *Coeloplana (Benthoplana) meteoris* was collected in soft substrate (muddy) in the deeper underwater valleys (20–30m) between the offshore oyster beds. The specimen was immediately placed in a jar underwater, due to its fragility, and subsequently transferred to an aquarium in the vessel, where it was photographed to capture its morphological features. The sampled material was conserved in alcohol and placed in the marine collection at the Environmental Science Centre at Qatar University.

The systematic section comprises the following: the references used in species identification and distribution; the diagnosis, including all geographic coordinates specific to the collection; the previous geographic distribution; the remarks about the species; and some comments about the species.

Systematic accounts

Phylum Ctenophora Eschscholtz, 1829
Family COELOPLANIDAE Willey, 1896
Genus *Coeloplana* Kowalevsky, 1880
Subgenus *Benthoplana* Fricke & Plante, 1971

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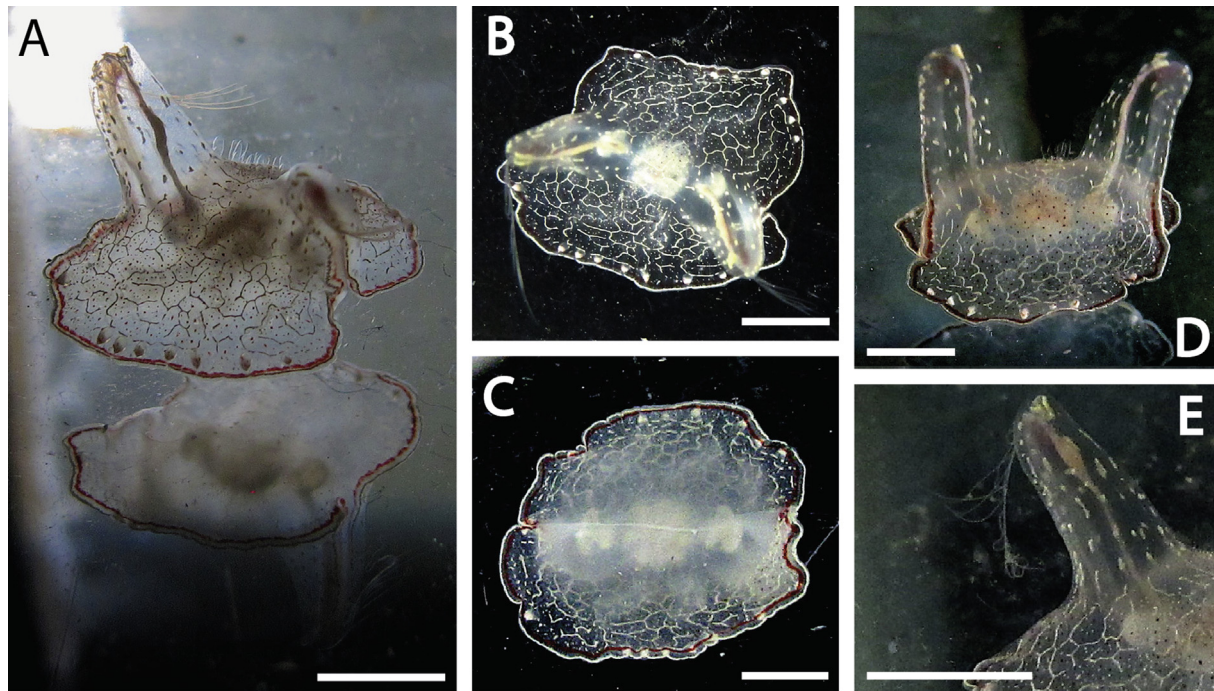


Figure 1. *Coeloplana (Benthoplana) meteoris* (Thiel, 1968) in aquarium after survey: A, details of the color and the base reflecting in the glass; B, superior view; C, inferior view; D, lateral view; E, details of the tentacles capturing a plankton. <scale bar: 10 mm>.

***Coeloplana (Benthoplana) meteoris* (Thiel, 1968)**
(Figure 1)

Coeloplana (Benthoplana) meteoris - Fricke & Plante, 1971:58-68.
Coeloplana meteoris - Thiel, 1968:6 - Gershwin et al 2010: 17-41 -
Venkatraman et al 2012:58 - Alamaru et al 2016 : 268-269.

Diagnosis. The sampled specimen exhibited the same characteristics described by references in the diagnosis and description; this includes benthic life; flatworm-like body; free-living on soft sediments (without host); clear colored with yellow-white reticulations covering the body, and red pigmentation around canals, tentacle sheaths and papillae; papillae with 4 rows of simple papillae, 3–4 per row; 25–36 mm long (Fricke and Plante 1971; Gershwin et al 2010; Alamaru et al 2016).

Material examined. 1 specimen (approx. 36 mm long), 20m deep, soft bottom, offshore (25° 33' 25" N - 052° 01' 52" E), 06 v 15, (ECZQU00026).

Distribution. Indo-Pacific: Australia, Vietnam, Somalia, and India. (Fricke and Plante 1971; Gershwin et al 2010; Alamaru et al 2016)

Remark. This is the first report of this species in the Arabian Gulf, extending the occurrence of this species by approximately 2000 km.

Comments. *Coeloplana (Benthoplana) meteoris* is the only ctenophore species characterized by a flatworm-like body and a free-life on soft sediment (without hosts) (Alamaru et al 2016; Gershwin et al 2010). It was mainly reported and described in the Pacific side of Australia (Gershwin et al 2010); however, it was first described in the Indian Ocean, and recently, it was reported in India (Alamaru et al 2016; Thiel 1968; Venkatraman et al 2012), the closest records to the studied province. There has been a notable lack of research into Ctenophores in the Arabian-Persian Gulf (Riegl and Purkis 2012), and there is a notable absence of peer-reviewed articles related to existing species in the region, with no checklists or ecological data. Indeed, the presence of several congeners in the Red Sea (Alamaru et al 2016) is highlighting the lack of taxonomic description of species from Family Coeloplanidae in the Arabian-

Persian Gulf. The presence of only one specimen, even after a large number of dives in the region, is suggesting that this species does not have a stablished population in the Gulf. Indeed, it is present only in May, before the seasonal establishment of the hyperthermic water mass (Al-Ansari et al 2015), suggesting that *Coeloplana (Benthoplana) meteoris* is part of the seasonal biodiversity influx from Indian Ocean that occasionally invades the Marine Arabic Province.

Conflict of interest

The authors declare that there is no conflict of interest.

Acknowledgments

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