

## The First Records of *Duplicaria spectabilis* (Hinds, 1844) (Neogastropoda: Terebridae) from Balochistan, Pakistan

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**Abstract:** The first records of *Duplicaria spectabilis* from Sonmiani Bay Lagoon and Ormara in Balochistan, Pakistan, are reported. A brief description of the species based on the newly-collected specimens is provided. Its distinction from the morphologically similar *Duplicaria duplicata* is discussed.

**Key words:** *Duplicaria spectabilis*, new record, taxonomy, Northern Arabian Sea, Balochistan, Pakistan.

### Introduction

The neogastropod family Terebridae Bruguière, 1789 is distributed in tropical and sub-tropical waters worldwide (BRATCHER 1988). It is a large family with more than 400 valid species recorded (MOLLUSCABASE 2018). Some 20 species have been reported from Pakistan (MELVILL & STANDEN 1901), which has a coastline of about 980 km located in the subtropical northern Arabian Sea (Indian Ocean). Around 320 km lie in the Sindh Province and the remaining 670 km are in the Balochistan Province (SIDDIQUI et al. 2008). As part of a detailed study aiming to describe and illustrate the molluscan diversity of Pakistan as well as to collate historical information and provide updates on the taxonomy and distribution of molluscs in Pakistan, we report the first records of *Duplicaria spectabilis* (Hinds, 1844) from two sites along the coast of Balochistan, i.e. Sonmiani Bay (Miani Hor) and Ormara (Taq Bay).

We also present morphological data and information on its distinction from the similar species *Duplicaria duplicata* (Linnaeus, 1758).

### Materials and Methods

Specimens of *D. spectabilis* were collected in March 2015 from two sites: (i) the low tidal zone in the Sonmiani Bay (Miani Hor) – a swampy, sandy/muddy lagoon, Lasbela District (25°25'25"N, 66°35'45"E") and (ii) Ormara (Taq Bay) – a semi-sheltered rocky shore with sandy pockets in the Hingol National Park (25°12'38"N, 64°37'56"E"), both located along the Balochistan coast (Fig. 1). Shells were identified based on morphological characters using keys and descriptions given in the literature (DESHAYES 1859, BRATCHER & CERNOHORSKY 1987, TERRY 2007) and photographic consultation with Yves Terry. Various morphometric parameters were noted, including the maximum shell length

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(SL), maximum shell width (SW), aperture length (AL), aperture spiral distance (ASD) and aperture sub-sutural distance (ASB) (after URRRA et al. 2007). Shells are deposited at the Centre of Excellence for Marine Biology (Biodiversity Lab), University of Karachi, Pakistan (CEMB).

## Results

Four specimens of *D. spectabilis* (Fig. 2) were collected. The largest SL was 45.1 mm, while the widths of the specimens (SW) varied from 6.75 to 8.34 mm (for morphometric details, see Table 1). This species is known to reach a length of 50 mm (BRATCHER & CERNOHORSKY 1987). The elongated and slender dark brown or grey and off-white shells of this species are morphologically characterised by the presence of a dirty white spiral stripe at the periphery of the body whorl, a well-defined slightly convex sub-sutural band, slightly convex whorls with widely-spaced inflated axial ribs and a recurved columella.

## Discussion

*Duplicaria spectabilis* is widely distributed – from the Persian Gulf to South Africa (West Indian Ocean) and Indonesia (TERRYN 2007). Members of the family Terebridae are infaunal, inhabiting sandy, muddy and (or) silty substrata, from the intertidal zone to a depth of 1,000 m (BRATCHER & CERNOHORSKY 1987). Elsewhere in the Indian Ocean, they are trawled in shallow depths on sandy or mud bottoms (Yves TerryN 2019, pers. comm.). Nothing is known about the biology and ecology of this species. The taxonomy and synonymy of this species has been treated in detail by BRATCHER & CERNOHORSKY (1987). MELVILL (1898) has described *Terebra edgarii* from Karachi, which is currently accepted as a junior subjective synonym of *D. spectabilis* but we have not been able to find any terebrid specimen from this area. Earlier malacological studies of the Sonmiani Bay Lagoon have not mentioned terebrids (e.g., VANZANLINGE et al. 1987, AFSAR et al. 2012, GONDAL et al. 2012,

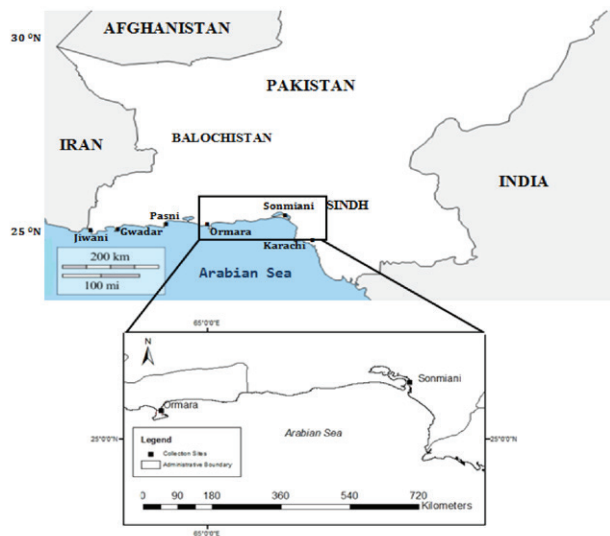


Fig 1. The map showing two sites, Sonmiani Bay (Miani Hor) lagoon and Ormara (Taq Bay) along Balochistan coast from where *Duplicaria spectabilis* (Hinds, 1844) was collected.



Fig 2. *Duplicaria spectabilis* (Hinds, 1844), CEMB. GAS.5081, from Balochistan, Pakistan: A. Ventral view. B. Dorsal view. Scale-bar: 10 mm.

Table 1. Morphometric data (in mm) of *Duplicaria spectabilis* (Hinds, 1844). Localities: \*Sonmiani Bay (Miani Hor) Lagoon; \*\* Ormara (Taq Bay).

Species	Voucher no.	SL	SW	AL	ASD	ASB	SW/SL	AL/SL	ASD/SL	ASB/SL
<i>Duplicaria spectabilis</i> *	CEMB.GAS.5081	45.05	7.9	7.53	4.47	2.51	0.176	0.167	0.099	0.06
<i>Duplicaria spectabilis</i> *	CEMB.GAS.5082	44.77	8.34	8.23	4.37	2.21	0.187	0.184	0.097	0.049
<i>Duplicaria spectabilis</i> *	CEMB.GAS.5083	37.51	6.75	7.19	3.45	1.92	0.18	0.2	0.091	0.051
<i>Duplicaria spectabilis</i> **	CEMB.GAS.5084	20.72	4.14	5.69	2.79	1.06	0.19	0.27	0.13	0.05

JAHANGIR et al. 2012). Only AHMED et al. (1982) have reported *D. duplicata* (Linnaeus, 1758) from the West Bay of Gawadar, which might be misidentified *D. spectabilis*. *Duplicaria duplicata* differs in having a protoconch of three whorls and only slightly convex whorls with axial ribs that are broad, dense, close-set and flattened. However, the lack of accompanying photographs and description in AHMED et al. (1982) makes it impossible to confirm the species identification. This highlights the importance of including figures and descriptions, which are lacking in many previous studies of Pakistan molluscs. The present study reports the occurrence of *D. spectabilis* in the Sonmiani Bay Lagoon (Miani Hor) and Ormara (Taq Bay), Balochistan, for the first time. Moreover, the figure of the species provided here could serve as a photographic record. We hope that the included figures and the descriptions will aid identifications and studies of the malacofauna of Pakistan.

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