

Occurrence of Portuguese man-of war along Digha coast, West Bengal: a threat to tourists and fisherfolk

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Physalia physalis belongs to the phylum Cnidaria and class Hydrozoans. It's commonly called blue bubbles and mimic like jelly fish. In the present study, we observed the presence of floating *P. Physalis* from the Digha coast of West Bengal during the summer time of 2017. The occurrences and distribution of the organism were recorded in different sizes in three different sites (Old Digha, New Digha, Udaipur beach) during summer season.

[Key words: Hydrozoans, *Physalia physalis*, Portugues man-of war, Digha, West Bengal]

Introduction

The Portuguese man-of-war, commonly called bluebottle or blue bubbles, is found floating on epipelagic zone. The name 'Portuguese Man-of-War' denotes an old Portuguese warship as it slightly resembles it at full cruise. *Physalia physalis* belongs to the phylum Cnidaria, class Hydrozoa and is generally miss identified with a jellyfish due to its appearance. It's common along Indo-Pacific coast and their movement are based on wind and current. Pneumatophore or body of the blue bottle float measures between 3 to 15 cm and for locomotion, the gas filled float is used and it's lacking the ability to swim. The average length of tentacles is from 15 centimetres to 50 meter, which consists of nematocysts or stinging cells loaded with venom¹. The stings of the Portuguese Man-of-War have a negative impact on tourism and it cannot always be easily distinguished in seawater due to their translucent colour. This report on the occurrence of this species along Digha coast is alarming as the stinging nematocysts could cause injuries to the fisherfolk and tourists.

The venom of *Physalia physalis*, is used for food capture and defence against the predators, is dangerous to the human causing excruciating pain and usually affects the lymph nodes. One of Italian

woman suffered an allergic reaction and died after being stung by the venom of *P. physalis* (bluebottle)². In the Mediterranean Sea, *P. physalis* has been reported unusually during summer and it is usually sighted in the tropical and subtropical areas of the Pacific, Atlantic and Indian Oceans³. *P. physalis* was reported along the east coast of Australia during the summer season and named as 'ili mane'o or palalia from Hawaiian⁴. The venom of the Portugese Man-of-War has a negative impact on the tourism industry^{5 & 6}.

In India, *P. physalis* has been reported during south west and north east monsoon seasons⁷. The organisms were observed in the intertidal region in Dwarka and on Saurashtra coast during pre-monsoon season⁸. Portuguese man-of-war has been washed up on Juhu and Girgaum beaches of the Mumbai coast⁹.

Material and Methods

A survey was conducted from three sites for assessing the status of trash fishes landing along the Digha coast. The samples were collected from three study sites on April 2017 along the intertidal areas and the samples has narcotised with the help of menthol sprinkled. A few crystals of menthol over the water in the tray in which the samples were distributed uniformly and covered with a glass plate

bring about complete narcotisation in 1 to 2 hours. The narcotised samples were preserved 40% formaldehyde and identified based on diagnostic characters^{10,11}. A type specimen was deposited in National Zoological Collection ZSI-MARC, Digha, West Bengal.

Results

Among a total number of 38 samples observed and three samples were collected from three study sites during the survey. The utmost number of individuals and percentage of cover were from Udaipur beach (47.4 %) and minimum in Old Digha beach (21.1 %). The PAST software used for ternary plot, the statistical analysis, also confirmed the maximum distribution of *Physalia physalis* in the Udaipur beach in Digha coast (Fig. 1). The systematic position and the details of the studied samples are presented below.

Phylum	: Cnidaria Hatschek, 1888
Class	: Hydrozoa Owen, 1843
Subclass	: Hydroidolina Collins, 2000
Order	: Siphonophorae Eschscholtz, 1829
Suborder	: Cystonectae Haeckel, 1887
Family	: Physaliidae Brandt, 1835
Genus	: <i>Physalia</i> Lamarck, 1801
Species	: <i>Physalia physalis</i> (Linnaeus, 1758)

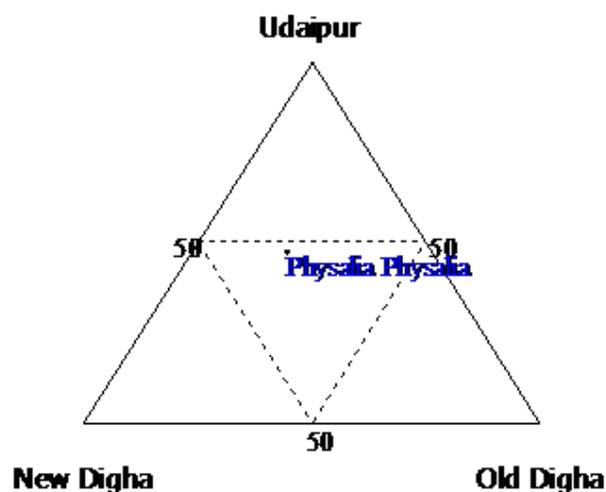


Fig. 1 — Ternary plot analysis based on *Physalia physalis* distribution between the study sites in the Digha coast.

Materials examined: ZSI/MARC 4790: live sample 7.2 cm length, 3.3 cm width, intertidal, New Digha coast, West Bengal (Fig 2).

Description: The live animal has a long polyp which becomes the blue or purple coloured gas filled float (Pneumatophore). The long polyp has been divided into feeding tentacles (gastrozooids), the defensive and prey capturing tentacles (dactylozooids) and reproductive tentacles (gonozooids). The maximum length of the tentacles observed was 165 feet or 50 meters.

Habitat: Pelagic

Distribution: Australian part of the Bass Strait; Gulf of Mexico; Indian Ocean; Mediterranean Sea; Japanese part of the North Pacific Ocean; Sargasso Sea; Brazilian part of the South Atlantic Ocean, South Atlantic; Atlantic Europe, Atlantic Ocean, Hawaii, Tropical Pacific Ocean; East coast and West coast of India.

Remarks: The species was reported during summer season (April & May) by Ramakrishna *et al.*,¹². The present study has also reported its occurrence on 13th April 2017 along Digha coast.

Discussion

A population of Digha, a coastal resort town with an area of 3,153 km² and a population of 35,054, is located 187 km from Kolkata in West Bengal. Its 12 kilometre long sandy beach is a major tourist attraction for recreational activity including bathing in West Bengal. This coast is the second highest earning tourist site in West Bengal and more than 40 lakh peoples visit this beach annually¹³. About half million people visit the shiva temple, present in Chandaneswar between Bengal and Orissa border.

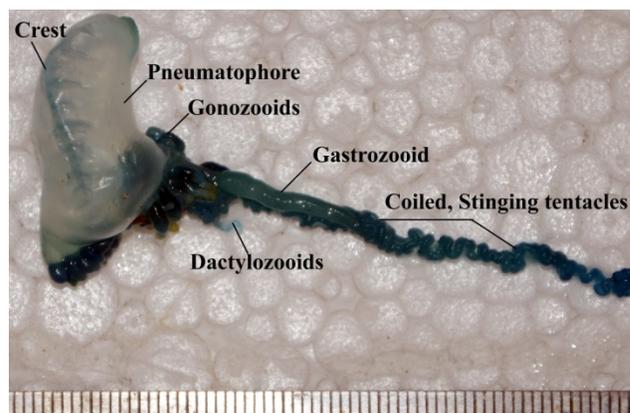


Fig. 2 — *Physalia physalis* from Digha Coast deposited in the National Zoological Collection, ZSI – MARC, Digha.

The summer season is the peak tourism time in Digha due to summer vacations. The Portuguese man-of-war was also reported during the summer time of the year on the Digha beach¹². More than 10000 people were affected by *Physalia physalis* in Australia on each summer⁴.

Since Digha is a famous tourist destination, the people recreating in the sea and fisherfolk may get injured if they comes into contact with its tentacles in the water or on beach¹⁴. Ultimately, the tourism industry will suffer can be affected in areas where this species are common because tourists peoples can be injured. A more extensive study may reveal out several threaten species along Digha coast.

Conclusion

The species *Physalia physalis* have toxic stinging nematocyst in their tentacles. The stings of the Portuguese Man-of-War can have a negative impact on the tourism and the intriguing factor is that this stinging organism cannot always be easily distinguished in seawater due to their translucent colour. The report of presence of this species in appreciable numbers along Digha coast is a threat and warning to the fisherfolk and tourists. The authors recommend issue of advisory to the fisherfolk and resorts, detailed study to assess the reasons for spurt in numbers and continuous monitoring.

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