



Short Communication

Occurrence of Hydrozoans from the Saurashtra Coast of Gujarat, India

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Available online at: www.isca.in

Received 6th September 2013, revised 10th September 2013, accepted 13th September 2013

Abstract

Hydrozoans belong to the phylum Cnidaria. Hydrozoans can simply be broken into three categories: Fern-like colonies of animals, others closely resemble corals like fire coral, and Floating Hydrozoans. Here we report the presence of floating hydrozoans (*Physalia*, *Porpita*, *Velella*) from the Saurashtra coast of Gujarat State. Pre-monsoon presence of the organism was recorded and various sizes were observed.

Keywords: *Porpita porpita*, *Velella velella*, *Physalia physalis*, hydroid, Dwarka, Narara.

Introduction

Hydrozoans are commonly known as 'water animals' and have the most varied body forms. In the whole Cnidarian Phyla, the peculiar characteristic of the hydrozoans is the division of labour between the polyps of the single colony. Some polyps are specialized in defence, some are reproductive organs while others feed and share nutrients with the colony. Floating hydrozoans are similar to the commonly known jelly fishes. However they are not; whereas they are actually a colony of individuals which floats on the surface of sea water with the help of a float like structure known as Pneumatophores. Recently floating hydrozoans were observed on the Saurashtra coast of Gujarat. These gelatinous hydroids were taxonomically identified as *Porpita porpita*, *Physalia physalis* and *Velella velella*.

Porpita porpita commonly known as 'Blue Button' belongs to the Class: Hydrozoa (Order: Anthomedusae, Family: Porpitiidae). These are mainly found on the surface of the sea. Their habitat is the epipelagic zone of a marine environment and thus gets carried to shore by the waves. Theirs' is a polymorphic colony made up of different individual zooids; each specialized for a different function, such as eating, defence or reproduction¹. It is a unique kind of hydroid and observed structurally in two parts: i. hard, slightly convex disc, golden brown, gas-filled float in the centre and ii. blue, purple or yellow hydroids, which look like tentacles having stinging cells called nematocysts. The gas filled centre helps them to float on the surface. They travel in massive group and frequently get stuck together. Depending on prevailing sea currents and the wind, *P. porpita* shows its movement².

Velella velella belongs to the same taxonomic group as *Porpita porpita*. These are commonly known as 'sea raft' or 'by-the-wind sailor'. The body of *Velella* has two parts i. a vertical oblique crest which acts as a sail with concentric rings only a

few centimetres long in order to travel³ and ii. little stinging tentacles below the disc for catching plankton, as well as other tentacles for reproduction, feeding etc.

Physalia physalis belongs to the Order: Siphonophora, Family: Physaliidae. It is found world-wide on the surface of tropical and subtropical waters³, and is easily identified due to its conspicuous blue float and its dangerous sting. It is commonly known as the 'Portuguese man-of-war', or 'bluebottle'. *Physalia* is a single animal, but made up of four main types of polyps: i. a gas filled float, Pneumatophore, which can be up to 15 cm above the water and is generally translucent, pink, purple or blue in colour, ii. Gastrozooids - for digestion of food, iii. Dactylozooids - for catching its prey and are also used for defence and iv. Gonozooids.

Material and Methods

The organisms were observed and identified during a regular field visit for Zoanthid diversity along the intertidal areas of Dwarka and Sutrapada of the Saurashtra Coast. Visual identification method was used and the organisms were photographed in-situ with Canon D-20 camera. The inbuilt GPS in the camera was used to record the GPS locations of the organisms.

Results and Discussion

Hydrozoans are easily noticed during high tide. However, these observations were made during pre monsoon low tides in the tide pools. The possible reason of their occurrence is under investigation. These hydrozoans were observed in large numbers and one of the reasons for their occurrence in surf is possibly their reproductive phase, since various colonies of small and large sizes were observed in case of *Porpita porpita* and *Physalia physalis* whereas, only a few individuals of *Velella velella* were seen.

Different sizes (0.5-2.0 cm) of *P. porpita* were observed in large number in an area of around 15 m² at the coast of Dwarka, Jamnagar district (Latitude: 22°14'N.; Longitude: 68°57'E) (figure 1). Another such observation was made by Dave C.S.⁴ at the coast of Narara (Latitude: 22°27'N; Longitude: 69°43'E). Bhave Vishal also observed and recorded them on the Dwarka coast in the year 2010⁵. Not rare, but very few observations of these hydrozoans have been recorded and reported till date. They are seen in large mass in tropical and temperate waters, and often wash up on a beach.



Figure-1
Porpita porpita (Blue button)

Verella verella, along with *P. porpita* was observed at the coast of Dwarka, (Latitude: 22°14'N; Longitude: 68°57'E) (figure 2). This has not been recorded from the coast of Dwarka till date. Tests on the factors affecting the distribution of *Verella verella* have been carried out in the past⁶ which may be studied further at the coasts of India to study its distribution pattern. As these organisms are frequent visitors of the coastal area, much work can be taken up on their diversity, polymorphism, distribution and seasonal observations.



Figure-2
Verella verella (Sea raft)

Physalia physalis was observed at the coast of Sutrapada (Latitude 20°50'N; Longitude: 70°28'E). The tentacles were about 1 foot. 20 individual organisms were observed in an area of 20 m² during the monsoon season (figure 3). Similar observation of occurrence is reported by Fenner *et. al.* from Australian coast⁷. Also Verlenkar in his report of *Trichodesmium erythraeum* bloom has mentioned thick infestation of *Physalia*⁸.

Antimicrobial and antifungal activities of such bioactive compounds from *P. porpita* have been reported by Fredrick and Ravichandran⁹. Edwards and Hessinger conducted a study to determine the venom of *Physalia physalis* causing the influx in cell types of different organisms¹⁰. Major fishes and crustaceans of commercial value feed upon *Physalia*¹¹. Along with this, the venom which is secreted by *P. physalis* may be seen to play an important role in the marine ecosystem for its continuous balance. The occurrence of these hydrozoans has drawn our attention for further studies.



Figure-3
Physalia physalis (Portuguese man-of-war)

Conclusion

These floating hydrozoans contain nematocyst in their tentacles that secrete biochemical compounds; that can be used for further studies. The scope of study is being divided in two major categories, i. health aspects for fishermen and tourists - stinging of nematocysts on their interaction with such organisms, and ii. potential use of their bioactive compounds for bio-medical or ecological studies.

Acknowledgements

Authors are thankful to Head, Department of Zoology, Faculty of Science, The M. S. University of Baroda, Vadodara. Dr. CS Dave is thankful to the Principal, Govt. Science College, Jhalod. Two authors Ms. Khushali Pandya and Ms. Kinjal Parikh are thankful to University Grants Commission for RFSMS fellowship and Gujarat State Biotechnology Mission (GSBTM) for the financial support for their research work respectively. Authors are thankful to Mr. Bhavik Patel for his help in collection, photography and identification of organisms.

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