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Occurrence of *Aequorea pensilis* (Haeckel, 1879) from Ratnagiri, West coast of India

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Short Communication

Abstract

Hydrozoa, a diverse group of cnidarians, inhabit various aquatic environments, displaying a wide array of life cycles, growth patterns, and specialised structures. This study documents the presence of *Aequorea pensilis* in Jaigad, Ratnagiri, marking the first record of this species in the region. Monthly sampling was conducted from October 2023 to January 2024 in a motorised commercial trawl fishing boat at two stations along the Jaigad coast, at depths of 18 and 36 m. A total of 64 individuals of *A. pensilis* were collected, characterised by a bell diameter range of 30-45 mm, a biconvex umbrella, and 12-16 tentacles. They are known for their eurythermal and euryhaline nature. This finding contributes to the understanding of *A. pensilis* diversity along the Indian coast.

Keywords: *Crystal jellyfish, bottom trawler, Aequorea, Ratnagiri, India*

Introduction

Hydrozoa is a highly diverse group of cnidarians that reside in many aquatic environments. Hydrozoans display a diverse array of life cycles, growth patterns, and specialised structures, which have fascinated biologists for decades (Cartwright and Nawrocki, 2010). They have a life cycle that includes both polyp and medusa phases. The polyp stage reproduces asexually by budding and exhibits dominance in certain species such as Hydra and Hydractinia (Bouillon *et al.,* 2004). The medusa stage is often characterised by its ability to move freely and the production of gametes. Hydrozoan colonies demonstrate functional specialization, with certain polyps dedicated to defence, feeding, and reproduction. Limited studies have been carried out along the Indian coast on hydrozoans (Ganapati and Nagabhushanam, 1958; George, 1953; Gunasekaran *et al.,* 2012; Kramp, 1958; Menon, 1931; Nagale, 2012; Nair, 1951; Navas and Vannucci, 1991; Rao, 1959; Santhakumari and Nair, 1999). The current study is the first to document the presence of *Aequorea pensilis* (Haeckel, 1879) in Jaigad, along the west coast of India. This finding is an important addition to the diversity of cnidarians along the Indian coast.

Material and methods

Monthly sampling was carried out from October 2023 to January 2024 in a motorized commercial trawl fishing boat. Water samples from both the surface and bottom were collected during each trawl operation. The area of investigation was divided into two different stations along the Jaigad coastal area. Sampling stations were fixed using the GPS, at 10 (J_1) and 20 fathoms (J_2) depth respectively (Fig. 1). Trawling operations were conducted between (17° 16′ 49″ N; 73° 10′ 54″ E and 17° 16′ 56″ N; 73° 10′ 38″ E).

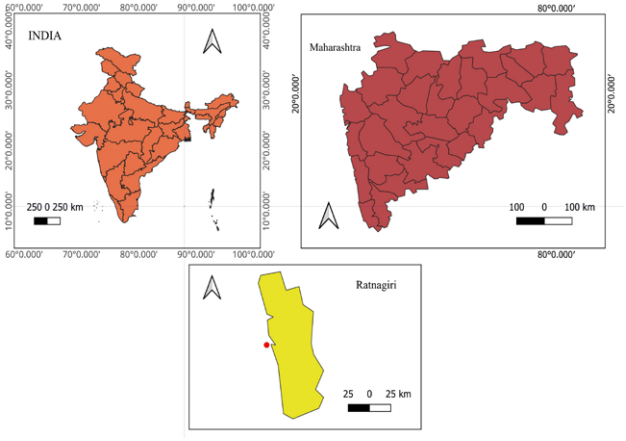

Fig. 1. Location map showing the study area of Jaigad coast, west coast of India

Results and discussion

Systematics

Class: Hydrozoa Owen, 1843
Order: Leptothecata Cornelius, 1992
Family: Aequoreidae Eschscholtz, 1829
Genus: *Aequorea* Pe´ron & Lesueur, 1810
Species: *Aequorea pensilis* (Haeckel, 1879)

Description

Taxonomic identification was achieved from a sample of 64 individuals collected, with a bell diameter ranging from 30 to 45 mm. The umbrella has a biconvex shape without any protrusion at the apex. The central region is of increased thickness that progressively tapers towards the outside edge. They exhibit transparency, without any noticeable colour and have a glassy appearance (Kramp, 1961). The mesoglea is significantly thick and has a flexible texture. Between every two consecutive tentacles, 8-10 radial canals are present (Fig. 2). The ring canal is cylindrical, and the number of radial canals varies up to 150, which are thin and indivisible. The tentacles are simple and hollow (Kramp, 1961) (Fig. 3). The specimens exhibited 12 to 16 tentacles surrounding the umbrella, among all the collected individuals, few species were considerably damaged (Fig. 4). The stomach is round and measures roughly 3/4 of the diameter of the whole umbrella (Kramp, 1961) (Fig. 5). In few *A. pensilis* which are somewhat mature, gonads are easily noticeable as large, bulging, whitish masses.

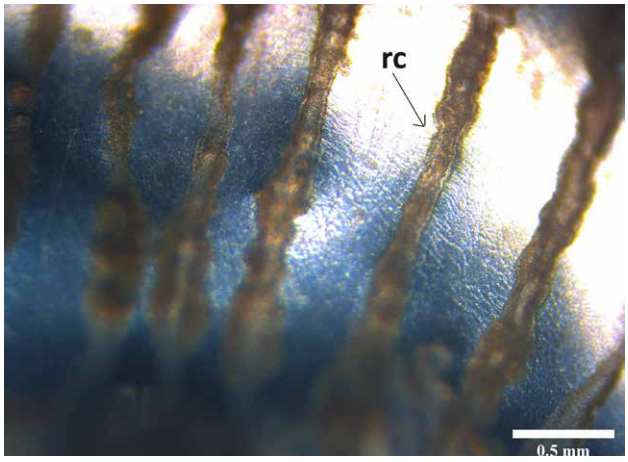

Fig. 2. Microscopic sub-umbellar view of *A. pensilis* showing radial canals (rc)

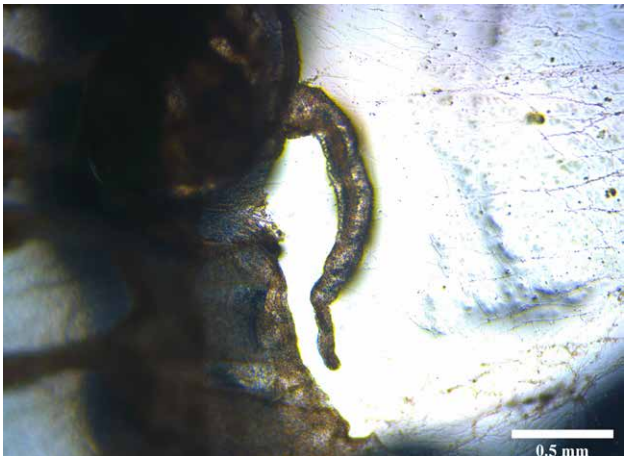

Fig. 3. Microscopic view of *A. pensilis* tentacle

Fig. 4. Freshly collected specimens of *A. pensilis* (Haeckel, 1879) from the Jaigad, Ratnagiri, West coast of India

Fig. 5. Subumbrellar view of *A. pensilis* (Haeckel, 1879)

A. pensilis is considered a long-lived meroplanktonic species that is both eurythermal and euryhaline and can withstand salinities of 33 to 36 psu (or higher) (Navas and Vannucci, 1991). Records of *Aequorea* sp. were earlier reported from India at Raigad, Maharashtra (Nagale, 2012) and from the Bay of Bengal, India (Rao, 1958). *A. pensilis* distribution has been reported by several authors from the Indo-Pacific and Atlantic oceans and along the Mediterranean Sea. (Bigelow, 1913; Bouillon *et al.,* 2004; Browne, 2009; Boero and Bouillon, 1993; Dawydoff, 1937; George, 1953; Gul and Gravili, 2013; Kramp, 1953, 1956, 1958, 1961; Mayer, 1910; Menon, 1931; Nagale, 2012; Nair, 1951; Rao, 1959; Ganapati and Nagabhushanam, 1958; Navas-Pereira and Vannucci, 1991; Nicholas and Yong, 2012;). *A. pensilis* from genus *Aequorea* is reported for the first time from Jaigad, Ratnagiri, along the west coast of India. This report gives its extended distribution along the Indian coasts. The present study provides important documentation of *A. pensilis* from the west coast of India based on morphological characteristics. While molecular analyses could further confirm species identity and provide insights into genetic diversity and connectivity, such an approach was beyond the scope of this study. Future studies incorporating molecular techniques would enhance our understanding of the species distribution and phylogenetic relationships.

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Author contributions

Conceptualization: PA; Methodology: PA, AA; Writing Original Draft: PA; Data Analysis: PA; Data Collection: AP, RP, SI; Writing Review and Editing: PA, AA, AP, RP, PN; Supervision: AA, AP, MS, RP, SI., Investigation: PA, AA., Validation AA, MS.

Conflict of interests

The authors declare that they have no conflict of financial or non-financial interests that could have influenced the outcome or interpretation of the results.

Ethical statement

No ethical approval is required as the study does not include activities that require ethical approval or involve protected organisms/ human subjects/ collection of sensitive samples/ protected environments.

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Publisher's note

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