

STUDIES ON THE MORPHOLOGICAL FEATURES OF SCYPHOZOAN UPSIDE DOWN JELLYFISH, *CASSIOPEA ANDROMEDA* RECORDED FROM A BIOFILTER FACILITY

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INTRODUCTION

- Distribution** : Circum-tropical upside-down jellyfish, *Cassiopea andromeda* are semi-sessile, planktonically dispersed scyphomedusa exhibiting a benthic life.
- Habitat** : Calm, shallow, tropical inshore marine waters and are usually associated with mangrove-dominated habitats.
- Associations** : Symbiotic relationship with dinoflagellates, *Symbiodinium microadriaticum* and commensalistic relationship with the crustacean mysid, *Idiomysis tsunnamali* (Bacescu, 1973).
- Impact** : Prominent invasive & nuisance species, which can sting people (toxin of the nematocysts) leading to skin welts, skin rash, itching, vomiting and skeletal pains.
- Relevance** : Potential bio-indicator for nutrient monitoring in coral reefs and sea grass ecosystem; Todd *et al.* (2006) demonstrated as a susceptible indicator species for environmental phosphates.
- Earlier, this species have been documented from the mangrove, coral reef and sea grass ecosystems of Indo-Pacific & Western Atlantic regions but present occurrence is from the seawater reservoir kept for filtration, Tuticorin, south east coast of India.

MATERIALS & METHODS



Figure 1-6: Flow chart for the materials and methods

RESULTS

Systematics & Taxonomy :

Phylum: Cnidaria

Class: Scyphozoa

Order: Rhizostomeae

Family: Cassiopeidae

Species: *Cassiopea andromeda* Forskal, 1775

- It was first described as *Medusa andromeda* by Forskal from Thor at the Red Sea in 1775 and later on transferred to the genus *Cassiopea* by Eschscholtz in 1829.
- Literature reports** : Indo-West Pacific Ocean, Mediterranean Sea, Aegean Sea, European waters of North Atlantic Ocean. In India, it was reported initially as *C. andromeda var. maldivensis* from west coast (Browne, 1916) and Krusadai Island, east coast (Menon, 1936) other reported areas are shown in Figure 7.

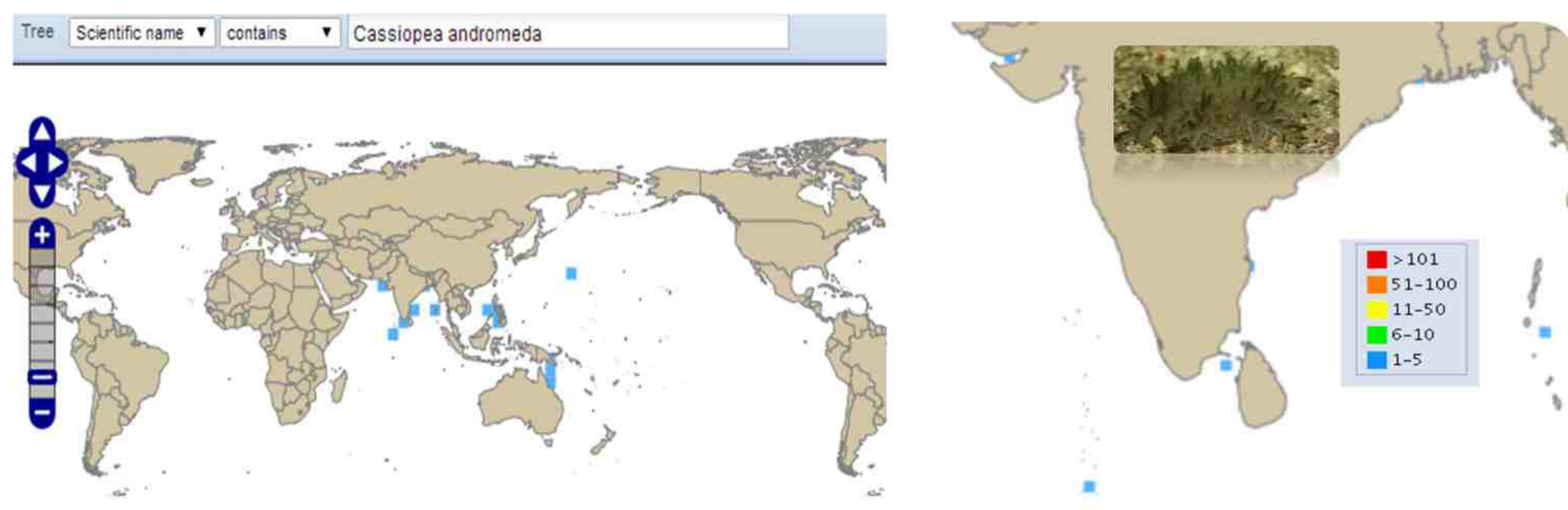


Figure 7: Maps showing the global distribution of *C. andromeda* from OBIS

- Description** : Bell flat, disk-shaped with variable number of short, blunt, marginal lappets; its diameter ranges from 30 to 150 mm (max. 60.6 ± 8 mm), 8 oral-arms (mean 30.3 ± 3.3 mm), 4 to 6 flat, short side branches arise from each arm in a tree-like manner and in turn give offside branchlets; number of rhopilia varies from 16 to 19; numerous small club-shaped vesicles on each arm between the mouths. Total weight ranges from 4 to 100 g (max. 32.2 ± 8.3 g).
- Colour** : Two distinct colour forms (one as dark brown and other as light brown) was observed (Figure 2). Exumbrella is reddish-brown to violet-brown, with milk-white spots. Bell-margin bluish or violet. Oral arm distinct brown.

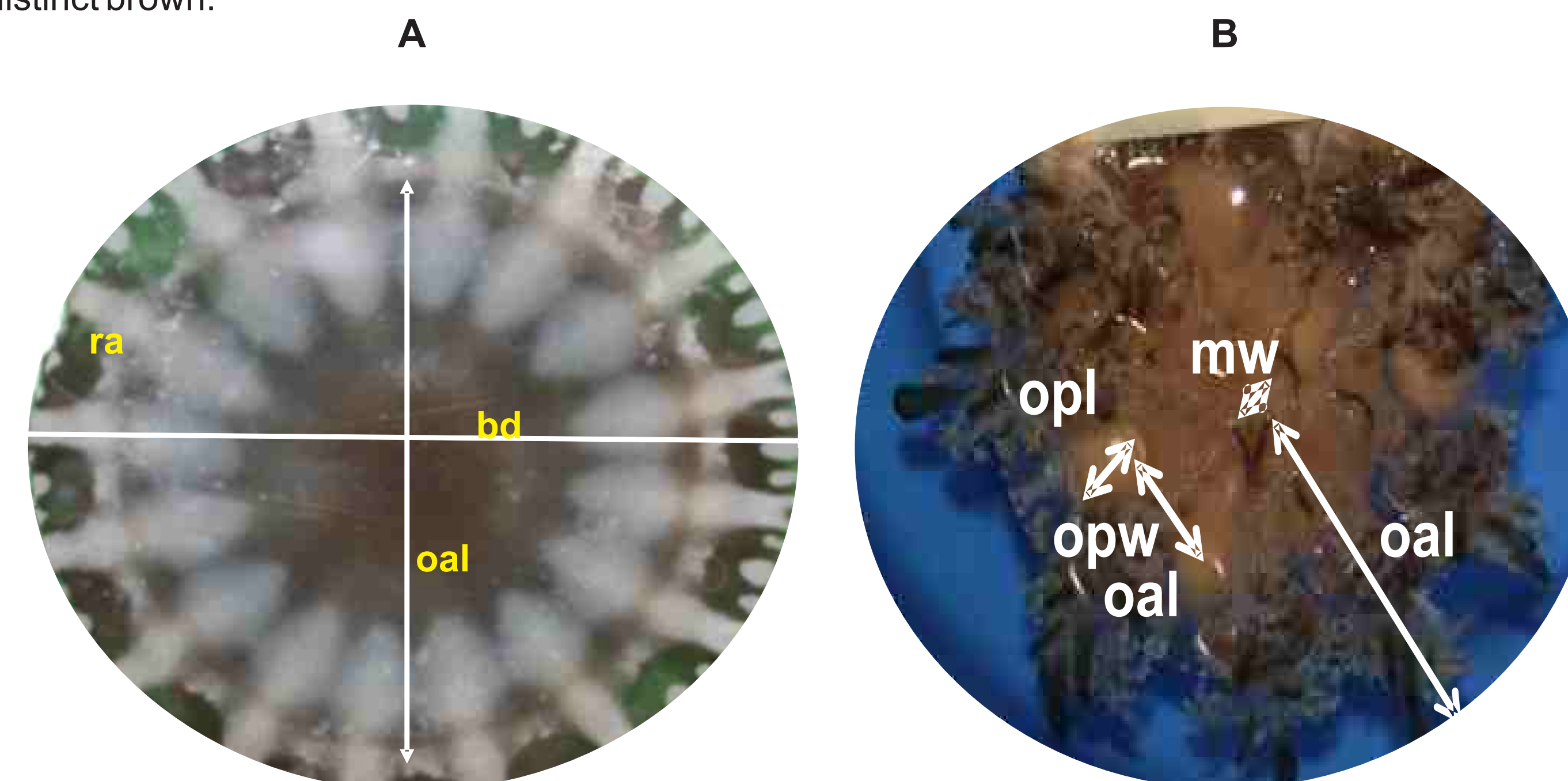


Figure 8: Sketch of Ex-umbrella (A) & Sub-umbrella (B) of *C. andromeda*

Table 1. Measurements & counts of *C. andromeda*

Characters	Mean \pm S.E
bd, bell diameter (mm)	61.60 ± 8.07
rcd, ring canal diameter (mm)	54.50 ± 6.47
oal, oral arm length (mm)	30.32 ± 3.33
opl, oral pillar length (mm)	10.40 ± 1.77
opw, oral pillar width (mm)	9.36 ± 1.21
odd, oral disc diameter (mm)	26.28 ± 3.10
mw, mambrium width (mm)	7.30 ± 1.75
m, mass (g)	32.22 ± 8.30
oa, number of oral arm (nos.)	8.00 ± 0.00
ra, number of rhopilia (nos.)	17.33 ± 0.88

- Most of the species were found on surface; with the ex-umbrella found attached on the walls of the reservoir where as the larger ones showing the ex-umbrella to the sediment exposing the oral appendages to the surface, as the large portions of their nutrient are coming from their intracellular symbiotic zooxanthellae.
- The entry of medusa in to reservoir is not easy; possibly the gametes or the larval form (polyps) might have come through the intake pipe system and gets established, as there were no strobilation was found in the reservoir.

CONCLUSIONS

- Global phylogeography and molecular systematics revealed that there are three recognized species; *C. andromeda*, *C. frondosa*, & *C. xamachana*. However, Holland *et al.* (2004) found wide mDNA sequence divergence between different samples that were supposedly *C. andromeda* suggesting the presence of cryptic species
- Moreover, East Indian species ranges from the Red Sea to Sumatra, giving rise to a number of colour varieties & local races, many of which may be described as distinct species. The present study would provide baseline information on the morphometrics & colour forms of *C. andromeda* from Gulf of Mannar, southeast coast of India.

REFERENCES

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