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Infestation of colonial ascidians on reef biota of Gulf of Mannar Marine Biosphere Reserve, India

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ABSTRACT

Reef associated ascidians are least studied from coral reef environments of Gulf of Mannar region. The present study observed the infestations of two ascidians on coral reef biota of Hare Island in Gulf of Mannar region, southeast coast of Tamil Nadu, India. These two ascidian species are observed to cause smothering on reef biota. Therefore, it is necessary to monitor these two ascidian species found in the Gulf of Mannar.

Key words: Ascidians, *Cystodytes dellechiajei* and *Distaplia nathensis, Halimeda optuntia,* Hare Island.

INTRODUCTION

Ascidians are benthic suspension feeders commonly found attached to rocks, rubbles and shells in coastal waters. The integuments of ascidians comprise numerous numbers of zooids which trap food via oral siphon (OS) and atrial siphon (AS). Studies on ascidians diversity from reef environment have gained more attention due to the negative impact of some ascidians on corals. Despite of the role of ascidians in removal of particulate organic matter in reef areas, some ascidians are appear to kill corals (Vargas-Angel et al. 2009). Therefore special attention was given to survey ascidians in coral reefs of Gulf of Mannar Marine Biosphere Reserve (GOMMBR), Tamil Nadu, India. Coral reefs in GOMMBR are potentially under threats from several invasive algal and invertebrate species (Ramesh et al. 2019). A total of 372 species of ascidians are recorded from GOMMBR (Meenakshi and Senthamarai 2013), however, studies on the impact of ascidians on reef biota are scarce. In this study, we identified two ascidians species overgrowing different substrates in the reef environments of GOMMBR.

MATERIALS AND METHODS

Field surveys were conducted at Hare Island in the Mandapam region in Gulf of Mannar Marine Biosphere Reserve during June 2019. Underwater diving was performed on coral reef flats at different locations around the Hare Island. Images of the ascidians were photographed using NIKON Coolpix underwater camera.

RESULTS AND DISCUSSION

During coral reef monitoring in Hare Island, infestation of two ascidians, *Cystodytes dellechiajei*

and *Distaplia nathensis* overgrowing various substrates was observed. *Cystodytes dellechiajei* showed species specific infestation on calcium carbonate producing seaweed *Halimeda optuntia* (F.g. 1a-c). Whereas, overgrowth of *D. nathensis* was observed on seagrass *Cymodocea* sp., coral *Porites* sp., concrete manhole rings, and fishing nets (Fig. 1d-f). *Cystodytes dellechiajei* was found to inhibit the growth of *H. opuntia* in patch and continues form, while, *D. nathensis* did not show any negative impact on preferred substratum. These ascidians occupy about 30 cm to 80 cm surface area on the observed substrates. Some ascidian species from Swains Island, American Samoa are known to kill corals (Vargas-Angel et al., 2009). In Indian context, the interactions of corals and ascidians are not well understood. Therefore, this preliminary observation will help researchers to monitor these overgrowing ascidian species on reefs of GOMMBR. Further studies on seasonal monitoring are under way to investigate the long term negative impact of these ascidians species on corals and other reef biota.

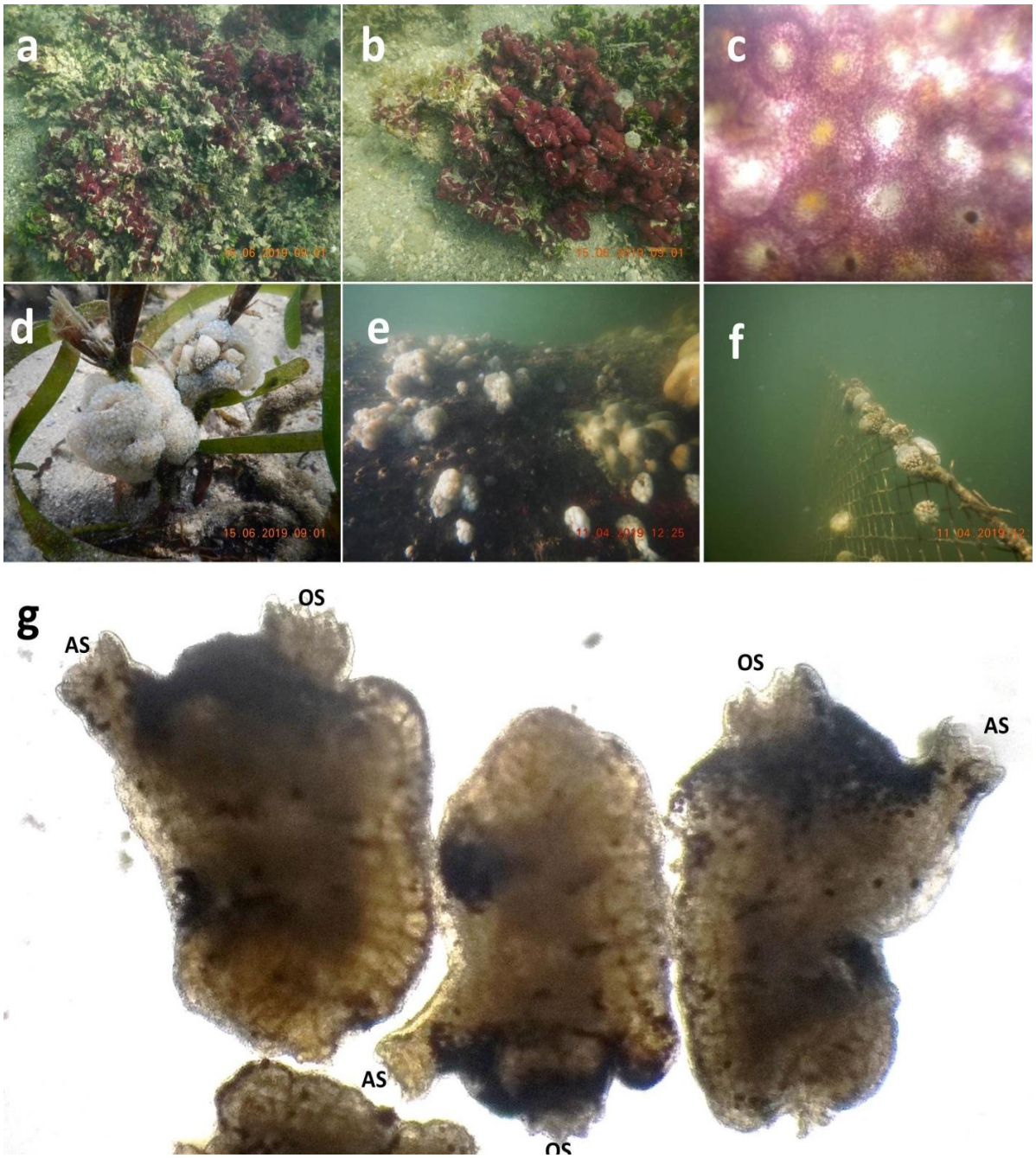

Fig. 1. a&b. Infestation of *Cystodytes dellechiajei* on seaweed *Halimeda optuntia*; **c.** microscopic view of *C. delilechiajei*; **d.** *D. nathensis* overgrowing on seagrass *Cymodocea* sp.; **e.** coral *Porites* sp., concrete manhole rings; **f.** fishing nets; **g.** microscopic view of individual colony of *D. nathensis.*

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REFERENCES

Meenakshi VK, Senthamarai S. 2013. Diversity of Ascidians from the Gulf of Mannar. In: Venkataraman K et al. (eds.), Ecology and Conservation of Tropical Marine Faunal Communities. Springer-Verlag Berlin Heidelberg, pp. 213-229.

Ramesh CH, Koushik S, Shunmugaraj T, Murthy MVR. 2019. Baseline survey on coral diseases, stress factors and new threats in coral reefs of Gulf of Mannar Marine Biosphere, India. Journal of Marine Science 01(01): 31-48.

Vargas-Angel B, Asher J, Godwin LS, Brainard RE. 2009. Invasive didemnid tunicate spreading across coral reefs at remote Swains Island, American Samoa. Coral Reefs 28: 53.