



Short Communication

Surveillance of Gravel Attached Sea Anemone

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Abstract

Sea anemone, Urticina cledenstina (Order: Actiniaria, Family: Actinidae, Genus: Urticina) is commonly found in the mid littoral zone at Vadodara-jhala of the Saurashtra coast, Gujarat. Its presence in shallow tide pools in the intertidal zone makes them at risk to various environmental stresses during both low and high tide. The purpose of the present study is to provide evidence of the adaptive strategy of Urticina cledenstina for the survival against the environmental stresses. The adherence of the gravel and shell to the external surface of the organism is the survival peculiarity for imitating surrounding habitat. This facilitates the camouflage.

Keywords: Sea anemone, camouflage, intertidal zone.

Introduction

Anthozoans inhabit intertidal regime subject to the varieties of abiotic and biotic stresses as they are directly connected with the surroundings^{1,2}. In nature, attachment of gravel and shell particles to the body walls of intertidal Anthozoans is a common phenomenon. During low tide these anemones retract their tentacles and continue to fold in it, closing until it appears to be nothing more than a protuberance of sand and tiny shells. The apparent camouflage strategies of sea anemone may be beneficial to avoiding recognition by potential predators and other environmental stresses through reassembling other species or object in its environment³.

Anthozoans found at nearly all the marine environment demonstrate various types of strategic adaptations for their survival⁴. One of such adaptation is symbiosis. Nature and role of symbiotic association between sea anemones and gastropods have been documented⁵. Such is also reported from Narara reef of Saurashtra coast, here the stationary anemone living as an epibiont life on the shell of the gastropod and gets a 'mobile home' allowing it greater exposure to food by movement of gastropod⁶.

However in present report, sedentary sea anemone represents another type of adaptation for its survival. Distinct adaptation strategy of a sea anemone was observed at coastal region of Vadodara Jhala village of Saurashtra Coast, Gujarat. It was observed that *Urticina cledenstina*⁷ (Order: Actiniaria, Family: Actinidae, Genus: Urticina) found attached empty gastropod shells and gravel which thus showing both camouflage and as a deterrent to possible predators. The assemblage of such sea anemone was observed in the mid littoral zone (latitude: 20° 48' 51.042" N, longitude: 70° 31' 97.356" E) comprise of several tide pools anatomising with each other forming big network of aquatic regime as well as open rocks. In the supra littoral zone i.e. having lesser tide pools, such anemone zone is not marked.

This may be attributed to substratum as well as water quality. The role of the tide pool is to be studied further for better understanding of the distribution pattern and habitat preferences of these animals.

From sporty observation, gravel and shell attached to the outer surface of the body having adhesive projection, known as verrucae; which have been implicated in the attachment of gravel and shell particles to the body wall⁸ enhancing their camouflage⁹ and protection against predation¹⁰. The gravel found stuck to their body is thought to protect the animal and its algal symbionts by providing shade from directly sunlight exposure of to the tissue¹¹. The simplest mechanism by which the attached gravel results in reduction of the rate of evaporative water loss is that the gravel reduces the surface area available for transpiration of water vapour⁸. The attached gravel and shells could also be dispersing wave action as the tide ebbs and flows each day.

Conclusion

Many intertidal organisms represent various adaptation strategies, one of such camouflage mechanism observed in sea anemone at Saurashtra coast of Gujarat. It involves protection against predation, exposure to sunlight and other environmental stress. This is the preliminary study which accounts behavioural study of anemone. Such example strengthens knowledge of adaptations of animals in local area. Further study on behavioural mechanism and species conformation is required hence, in progress.

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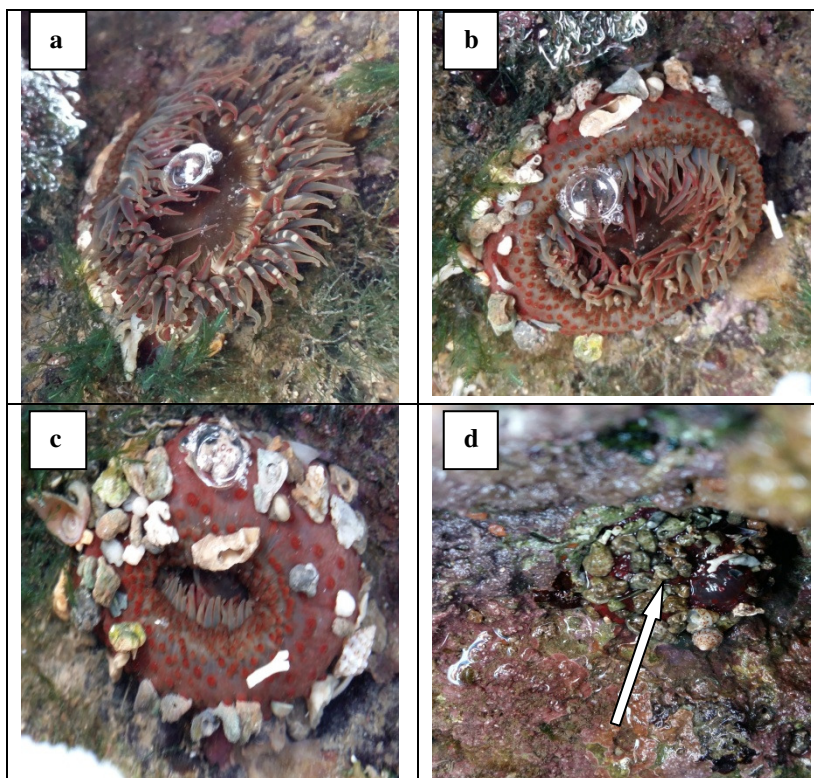


Figure-1

(a) Animal in submergence. Sea anemone having flat and circular oral disk with brick red to bright red column, Tentacles are bright to dull red and olive green with thin red radial line; (b) and (c) The retracted tentacles, showing characteristic warts (verrucae) and adherent gravel and shell; (d) The Sea anemone showing camouflage mechanism with rarely visible column

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