

Condylactis gigantea (Giant Caribbean Sea Anemone)

Order: Actiniaria (Sea Anemones)

Class: Anthozoa (Corals and Sea Anemones)

Phylum: Cnidaria (Corals, Sea Anemones and Jellyfish)



Fig. 1. Giant Caribbean sea anemone, *Condylactis gigantea*.

[[https://commons.wikimedia.org/wiki/File:Condylactis_gigantea_\(giant_Caribbean_sea_anemone\)_\u0028San_Salvador_Island,_Bahamas\u0029_7_\(16085678735\).jpg](https://commons.wikimedia.org/wiki/File:Condylactis_gigantea_(giant_Caribbean_sea_anemone)_\u0028San_Salvador_Island,_Bahamas\u0029_7_(16085678735).jpg), downloaded 10 March 2016]

TRAITS. The giant Caribbean sea anemone, also called the pink or purple-tipped anemone, as well as giant golden anemone has a distinct purple or pink colour at the tip of its tentacles (Zahra, n.d.) (Fig. 1). Contrastingly, behind its tip straight down to its base, the tentacles are brown or greenish in colour. This organism may possess either male or female reproductive organs, or more rarely both (hermaphrodite). Its size is estimated at 15cm high and 30cm wide with a disc as wide as approximately 40cm (Wikipedia, 2015). This large column-shaped animal has 100 or more tentacles (free floating) around its mouth which is hidden at the centre of all the tentacles on an oral disc, leading to the gastrovascular cavity. Cnidocysts (stinging organelles that inject poison) are present in the tentacles (Hickman et al., 2002, 119). The basal disc is

firmly connected to the substrate causing the organism to be sessile or fixed into location (Zahra, n.d.). The giant Caribbean sea anemone lacks a medusa (jellyfish-like) stage in the life cycle.

DISTRIBUTION. Largely found in the Caribbean, that is, mainly in the West Indies, as well as they span the western Atlantic Ocean, including Bermuda (Silva, 2000).

HABITAT AND ACTIVITY. The habitat usually include the warmer waters of coastal and inshore areas where the pedal/basal disc is attached to rocks, shells and other natural occurrences firmly attached to the sea floor, hence its benthic nature (Hickman et al., 2002: 118). *Condylactis gigantea*, apart from shores, can also be found in coral reefs, however, it is not a general occurrence (Zahra, n.d.). It has been found that some however reside in shallow waters, while others are in deep-ocean waters. Since the giant Caribbean sea anemone is partially sessile, its activity is limited. It is sometimes mobile depending on its substrate. If it attaches to a crab for example, it becomes mobile, where its pedal disc is attached, but its tentacles are freely floating in the water. This free movement of the tentacles is used as a defense mechanism. Additionally, whenever not stationary, movement may occur via crawling using the pedal disc. This aspect gives the mobile characteristic of the organism and is a slow process occurring by release of disc from one substrate, followed by contractions and then attachment to another substrate (Zahra, n.d.).

FOOD AND FEEDING. These organisms, because they are not the most active, do not go in search of food, but rather, wait for food to pass near them to feed. They are entirely carnivorous, devouring animals like small invertebrates, pieces of shrimp, crustaceans, fish, mussels, and plankton via the mechanism of utilization of tentacles. Prey within close proximity contacts the tentacle and is subdued by paralysis from toxins in cnidocytes (explosive cell with secretory poison; Fig. 2), and the prey is subsequently guided to the mouth by the tentacles (Fresh Marine, 2016). Another form of feeding occurs via symbiosis (mutualism) with the cleaner shrimp, *Periclimenes anthophilus* (Fig. 3). These shrimps are protected within the sea anemone's tentacles from predators, and they are not stung after about two hours and forty minutes of familiarization and camouflage with the anemone's mucus (Doubleday, 2016). The mucus causes the sea anemone to disregard the shrimp's presence. The shrimp benefits the sea anemone because it can lure other small invertebrates to become food (Hickman et al., 2002: 131).

POPULATION ECOLOGY. This sea anemone species is described as being completely solitary (Zahra, n.d.). Since the species is quite large and considered mobile compared to other sea anemone species, it has a high tendency to compete for space (Francis, 1988).

REPRODUCTION. *Condylactis gigantea* has the ability to be dioecious (possess distinct male or female reproductive organs) or hermaphroditic (possess reproductive organs of both male and female simultaneously). Its reproductive season is known to be in the spring time, in May. These organisms reproduce sexually, upon release of sperm and eggs. Sexual reproduction involves fertilization of the egg by the sperm of another sea anemone in the water column, but its success is directly dependent upon the proximity of both animals (opposite sexes). Once fertilization is successful, a planula larva (free-swimming, ciliated and flattened) is formed which settles down by the development of a pedal disc and then continued development into a mature sea anemone (Hickman et al., 2002: 124).

BEHAVIOUR. *Condylactis gigantea* exhibits quite a variety of behavioural patterns. One behavioural pattern reflects its mechanism of self-defence, apart from stinging and poisoning predators and prey via the stimulus of vibrations. Since these organisms do not escape their predators by fleeing the scene, their mechanism of protection involves a large reduction in size, decreasing the amount of surface area exposed to the predator by retracting its tentacles into its gastric cavity. The water in the cavity is replaced by these tentacles and this decreases the amount of attraction to predators. This reduction in size can still take place to a great extent even if the tentacles are not packed into the cavity of the column (Zahra n.d). In addition, *Condylactis gigantea* are known to be very aggressive to not only prey and predators, but will utilize its paralyzing toxin toward other marine aquarium invertebrates (Fautin, 2013). This form of aggression is usually displayed in order to secure its territory and maintain an adequate amount of space.

APPLIED ECOLOGY. The giant Caribbean sea anemone is ecologically important as it is essential in providing a habitat for other organisms like the cleaner shrimp, thus contributing to the benthic community. Additionally, it is making headway in medicine as its neurofilament proteins are similar to those of mammals' neurons which can be used to do further studies. Also, the toxins can be used to treat diseases where it is incorporated in drugs to benefit cardiac deficiencies/troubles (Zahra n.d.).

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Posted online: 2016

Revised: 2016

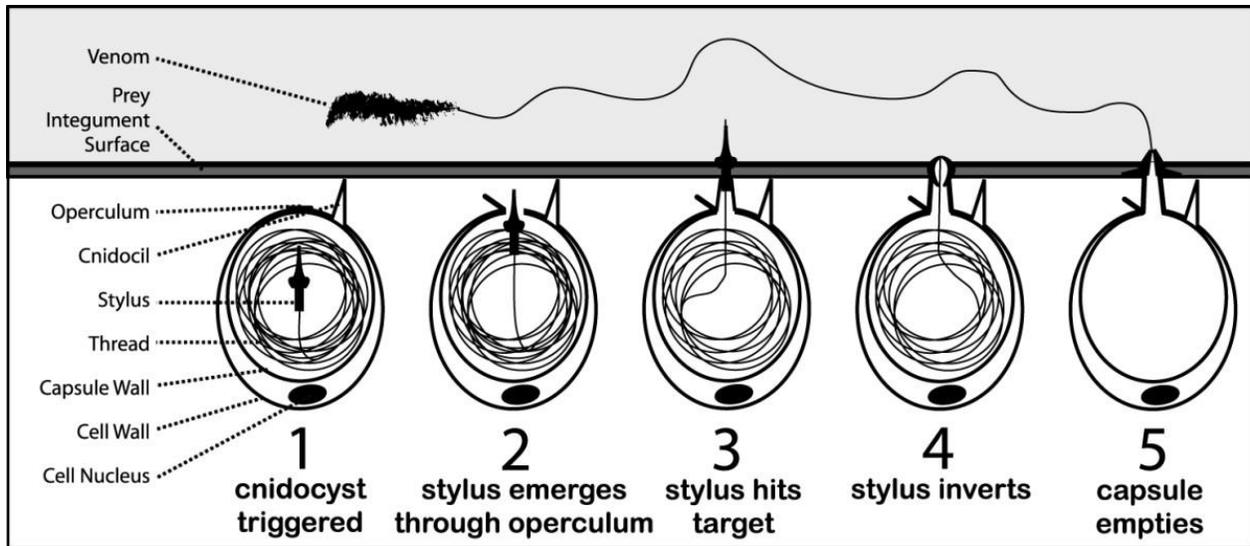


Fig. 2. Illustration depicting cnidocyst discharge into prey.

[<http://jbioleng.biomedcentral.com/articles/10.1186/1754-1611-3-17>, downloaded 11 March 2016]



Fig. 3. Mutualistic relationship between cleaner shrimp and *Condylactis gigantea*.

[<http://www.coralreefphotos.com/spotted-cleaner-shrimp/>, downloaded 11 March 2016]