

Callyspongia vaginalis (Branching Vase Sponge)

Order: Haplosclerida (Common Sponges)

Class: Demospongiae (Common Sponges)

Phylum: Porifera (Sponges)



Fig. 1. Branching vase sponge, *Callyspongia vaginalis*.

[<http://underwaterfocus.com/photo/20070511-102901-mevallee-2036>, downloaded 10 March 2016]

TRAITS. *Callyspongia vaginalis* is a simple, primitive marine organism and is among the most abundant species of sponges on many coral reefs in the Caribbean. Many morphologies, surface coloration and growth forms have been observed, but it is usually encountered as one to several elastic grey tubes with small conical projections (Fig. 1). It can also exist as red or orange morphotypes with convoluted ridges on the surface and thicker tube walls than the grey morphotype (López-Legentil et al., 2010). Many other colour variation occur such as lavender, green and brown, and individual vases vary from 15-90cm in height and 1-10cm in diameter (Encyclopedia of the Sanctuary, 2005). Over time, the tubes may become linked by anastomosis (growing together) to form a hollow fan-shaped specimen.

DISTRIBUTION. *Callyspongia vaginalis* populates tropical regions of the western Atlantic, and it is commonly found in South Florida, the Bahamas and the Caribbean. It is a native species in Trinidad and Tobago and the Caribbean (Layne, 2008).

HABITAT AND ACTIVITY. This species inhabits shallow and mid-range depths from 2-70m of water, coral reefs, walls and rocky areas or solid surfaces with a temperature range from 20-25 °C. It can also be found in mangroves. *Callyspongia vaginalis* are usually covered by anemone-like zoanthids (*Parazoanthus* sp.) and sponge brittle stars (*Ophiothrix lineata*) with which it has a mutualistic relationship (Fig. 2).

FOOD AND FEEDING. They acquire food heterotrophically by suspension-feeding, and feed on plankton and other microorganisms that are small enough to filter out of water currents that are moved through its anatomy (DeBiasse et al., 2010).

POPULATION ECOLOGY. The biomass of this sponge surpasses that of algae and corals in the Caribbean. *Callyspongia vaginalis* is a solitary species. However it is one of the most dominant members of the sponge community but they have low dispersal capacities (DeBiasse et al., 2010). Its low dispersal capacities is due to the fact that they are sperm-shedding hermaphrodites, which brood coloured parenchymella larvae that are already in an advanced stage of development, and are therefore competent enough to settle within minutes after release (Maldonado, 2006). *Callyspongia vaginalis* would normally release its parenchymella larvae in the daytime between 9:00 a.m. and 5:00 p.m. at varying intervals and numbers but can release an average of 50 larvae per day per individual (Lindquist et al., 1997). When the larvae are developed enough for release they may leave by squeezing through ostioles and secondary oscules (narrow openings) in the parent's body (Maldonado and Young, 1996). The larval release process is not solely controlled by the maternal parent but also by the larvae themselves (Maldonado, 2006). The release of larvae during daytime hours allows them to move to shaded areas. This aids in the survival of the offspring since the young die after 2-3 days of being directly exposed to UV light (Lindquist et al., 1997).

BEHAVIOUR. Despite the obvious bright coloured larvae of *Callyspongia vaginalis*, larval mortality is low since they are distasteful to most Caribbean reef fishes, and have chemical defences against fish predation (Lindquist et al., 1997). The coloration of larvae may be linked to their daytime release (Morgan, 1995). The adults possess physical and chemical defences that result in a low levels of predation from sea stars, reef fish and sea turtles. Environmental stimuli such as light affect larval behaviour, since the young die after 2-3 days of being directly exposed to UV light (Lindquist et al., 1997).

APPLIED ECOLOGY. *Callyspongia vaginalis* is not an endangered species since it was not assessed as yet for the IUCN Red List. *Callyspongia vaginalis* play an important role in the transfer of energy between the benthic and pelagic environments on Caribbean coral reefs (Duckworth et al., 2006) and coral reefs in general. They are also functionally important for water-column productivity. This is so because their feeding mechanism, which greatly reduce the concentration and a large variety of suspended food particles. They are not hunted, harvested or utilized as pets but may be utilized in a saltwater aquarium to aid in the filtration of suspended food particles.

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Fig. 2. *Callyspongia vaginalis* covered with brittle stars.

[<https://www.flickr.com/photos/earthinfocus/5895342764>, downloaded 10 March 2016]

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