

Ircinia strobilina (Black-ball Sponge)

Order: Dictyoceratida (Horny Sponges)

Class: Demospongiae (Common Sponges)

Phylum: Porifera (Sponges)



Fig. 1. Black-ball sponge, *Ircinia strobilina*.

[<http://bicamsoft.nl/mieke/index.php/sponge/#jp-carousel-889>, downloaded 25 October 2016]

TRAITS. *Ircinia strobilina* is a large, spherical sponge with a fibrous skeleton of the protein spongin, similar to collagen, and no mineral spicules (Fig.1). Its size is from 5cm to over 1m diameter. Internally, it can be described as stiff and soft, whilst externally *I. strobilina* is covered with small connected cones approximately 3-8mm high and wide. Small pores 2-5mm wide are scattered over the outer surface. The colour varies from grey to black, with a dull yellow at the base as well as inside the cavity of the sponge (SMS, 2016).

DISTRIBUTION. *Ircinia strobilina* is found from Florida to the Bahamas, throughout the Caribbean, to Brazil (NOAA, 2016).

HABITAT AND ECOLOGY. Found at 5-23m depth, mainly in inner-reef zones as well as lagoons, and among beds of *Thalassia testudinum* turtle grass (Xavier Biology, 2016). It may also thrive on rocky substrate in strong currents of rocky reef channels, such as in the Bahamas. *I. strobilina* are filter feeders. They draw water which carries food particles into their internal cavities through the small pores on the surface. Inside the sponge the choanocytes (feeding cells) trap the food whilst the water flows through the body and exits through the osculum, which is the large opening at the top of the sponge. This species has been known to be consumed in small amounts by a few fish such as the Queen Angelfish (SMS, 2016).

REPRODUCTION. *I. strobilina* is dioecious, meaning that the male and female organs can be found on separate individuals. It is also viviparous, as the males release sperm that are taken into the females in water currents, where the eggs are fertilized internally and develop into larvae. The larvae are then released by the females, and settle on the sea floor to grow into a new sponge. The breeding season ranges from September to April (Hoppe, 1998).

BEHAVIOUR. *I. strobilina* produces furanosesterterpene tertonic acid (FTA) as well as low-molecular-weight-volatile-compounds such as dimethyl sulphide. The FTA smells like garlic, however, the odour may also be described as sulphurous. The purpose of these compounds is unclear, though they may be used to warn predators (Pawlik et al., 2002). Whilst some species of fish may consume the sponge without any consequence, studies have shown that the sponge induces paralysis as well as narcosis in other species (SMS, 2016).

APPLIED BIOLOGY. The chemical metabolites found in *I. strobilina* are studied by being isolated and identified for their pharmaceutical uses (SMS, 2016). *I. strobilina* has also been shown to contribute to nitrogen fixation through the use of various bacteria within its system (Mohammed, 2007). Their population in the Caribbean is stable as of late (NOAA, 2016).

REFERENCES

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Author: Shalini Sookoo

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