

Feeding Response of a Sea Anemone

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Sea anemones are interesting members of various marine and estuarine communities, such as tidal pools, mud or sand flats, coral reefs, or zooplankton. Some may burrow in the sand but most are attached to rocks, pilings, or even sea grass. A few hitch rides on the backs of hermit crabs shells or oyster drills. In the Gulf of Mexico *Bundodosoma cavernata* (fig. 1) is found attached to rocks of the jetties. The jetty sea anemone's feeding behavior can be the basis for some interesting laboratory investigations.

Materials Needed

To conduct this investigation all that is needed is a living sea anemone which has not been fed for a week, a finger bowl, hole puncher, filter paper, and 10^{-5} solutions of the following: tyrosine, cystein, arginine and glutathione, glycogen, peptone, deuterio albumose, and potassium chloride, and 10^{-2} solutions of sucrose and glucose.

Procedure

Place a living sea anemone in a finger bowl with enough seawater to barely cover the organism (fig. 2). Wait until tentacles are fully extended. While you are waiting, cut the filter paper with a hole puncher and place a few disks into each of the test solutions and record your prediction of the expected response to each solution. When the tentacles are fully extended, place a filter paper disk that is saturated with one of the test solutions onto the

disc surrounding the oral cavity or mouth of a sea anemone and note the observed response. Remove the filter paper. Wait until the tentacles are fully extended once more and repeat the process with each of the test solutions.

Results

Record your results in tabular form showing the solutions, predicted responses, and observed responses.

Conclusions

To what solutions did the sea anemone respond? Describe the feeding response. What other responses were noted? How are the behaviors noted adaptive? What is the diet of a sea anemone? Identify other solutions that could be used

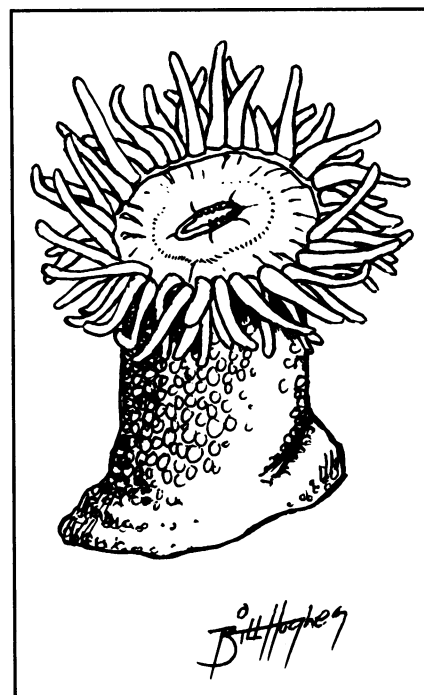


FIGURE 1. Texas Jetty Sea Anemone (*Bundodosoma cavernata*). Art by Bill Hughes.



FIGURE 2. Place the sea anemone in a finger bowl.

to test the feeding response of a sea anemone.

Additional Activities

Observe the discharge of nematocysts through a compound microscope. Is the discharge of nematocysts always linked to feeding response? Do all tentacles discharge nematocysts? The color of the anemone can be changed with food color. This color change will last for perhaps a month. Can you devise a method for doing this that would allow you to observe the distribution of ingested food in anemones?

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