
EXPERIMENT 5 IDENTIFICATION OF COMMERCIALY IMPORTANT SEA CUCUMBERS

Structure

5.1 Introduction

Objectives

5.2 Experiment

5.2.1 Principle

5.2.2 Requirements

5.2.3 Procedure

5.2.4 Observations

5.2.5 Results

5.3 Precautions

5.1 INTRODUCTION

Several species of sea cucumbers occur in Indian waters. However, only some of the larger sized ones are used for manufacturing the product beche-de-mer. This is because consumer acceptability of the product varies with species. Further, only few species are harvested in good quantities. In this exercise, you will familiarize with a few important ones.

Objectives

After performing this experiment, you will be able to:

- understand the different parts of the animal; and
- identify important species of sea cucumbers.

5.2 EXPERIMENT

5.2.1 Principle

The product beche-de-mer is valued based on the species of sea cucumber used for its production. They are identified chiefly based on their morphological characteristics. Some of the characteristics include body colour, size, occurrence of teats, presence of sticky threads, body wall thickness and other structures on the body.

5.2.2 Requirements

- Sea cucumbers- live or well-preserved specimens
- Trays with water
- Scalpel or forceps

5.2.3 Procedure

- 1) Put the given specimens in water taken in trays. The different parts/ structures can be best observed under water.
- 2) Use the scalpel or forceps to examine the parts. Some of the parts to be observed are shown in Fig.5.1.

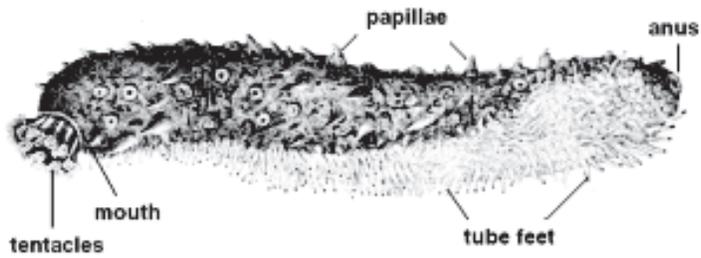


Fig.5.1: Parts of a typical sea cucumber

- 3) Observe for various characteristics given for each organism. In addition, refer to the photographs given for each animal.
- 4) Record your observations and try to interpret.

Look for the following characteristics:

All sea cucumbers have a long cylindrical body. The mouth is located at one end surrounded by tentacles and an anus (cloaca) at the other. The body is covered over by a thick and slimy skin. Protrusions called papillae or teats may be seen over the body. Rows of tube feet are seen on the ventral side.

Characteristics of various species are given below:

A) Genus: ***Thelenota***

The animals coming under this genus have comparatively a large body (up to 80 cm long), dorsally covered over by leaf-like teats or papillae.

i) ***Thelenota ananas*** (Fig.5.2)

It is an important species that is coloured reddish orange dorsally.



Fig.5.2: ***Thelenota ananas***

B) Genus: ***Holothuria***

The animals have moderate body size. Papillae (protrusions) are present over the body but are not conspicuous.

i) *Holothuria nobilis* (Fig.5.3)



Fig.5.3: *Holothuria nobilis*

The body appears like a loaf of bread and the body wall (edible part) is thick. The colour varies from whitish to blackish. There are six pairs of teats on the body.

ii) *H. scabra* (Fig.5.4)

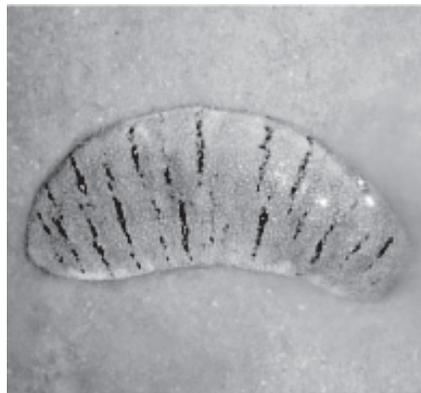


Fig.5.4: *Holothuria scabra*

The body wall is approximately 1 cm thick. The colour is grayish to blackish dorsally with yellow transverse bands. This species is caught in the largest quantities in India.

C) Genus: *Bohadschia*

This genus is characterized by five groups of papillae that surround the anal opening. The body has cuvierian tubules (sticky threads) that are thrown out upon disturbing.

i) *Bohadschia argus* (Fig.5.5)



Fig.5.5: *Bohadschia argus*

The body of this species is blackish or brownish in colour with eye-like spots.
The body surface is smooth.

ii) *B. marmorata* (Fig.5.6)



Fig.5.6: *Bohadschia marmorata*

This has a yellowish brown colour with black spots.

D) Genus: *Actinopyga*

Animals belonging to this genus have 25 teeth-like structures surrounding the anal opening.

i) *Actinopyga miliaris* (Fig.5.7)

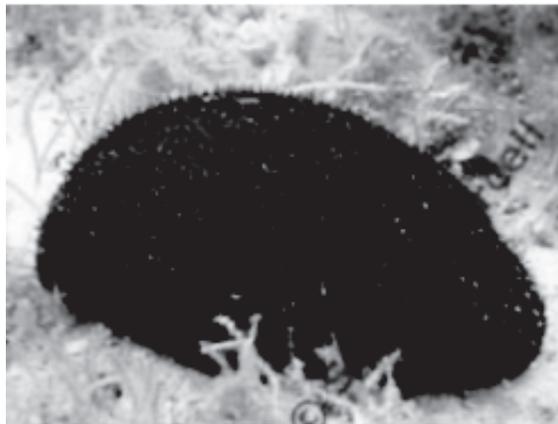


Fig.5.7: *Actinopyga miliaris*

This animal is completely black in colour. Dorsal side is more curved.

ii) *A. mauritiana* (Fig.5.8)

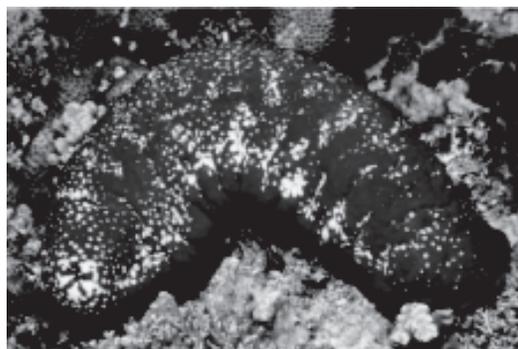


Fig.5.8. *Actinopyga mauritiana*

This has a brick red colour dorsally and whitish colour below.

E) Genus: *Stichopus*

They have massive body which gets easily disintegrated when taken out of water. Body is somewhat quadrangular in shape.

i) *Stichopus variegatus* (Fig.5.9)

This has a loaf-like body that has a dark yellow colour with brown patches.



Fig.5.9: *Stichopus variegatus*

ii) *S. chloronotus* (Fig.5.10)

This animal is dark green in colour with four rows of finger-like protrusions.

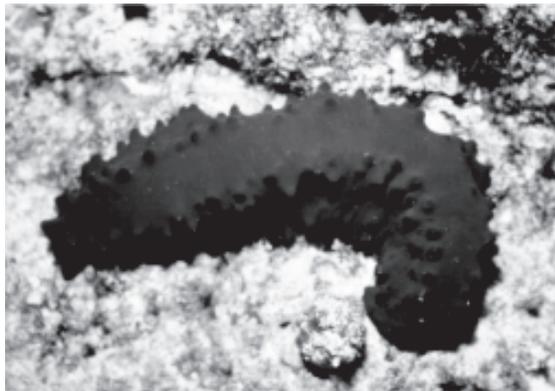


Fig.5.10: *Stichopus chloronotus*

5.2.4 Observations

After examining each specimen record your observations. Then, try to name the animal. Present your observations in a tabular form as shown below:

Specimen No.	Characteristics observed	Name of Animal

5.2.5 Results

The sea cucumbers identified are:

5.3 PRECAUTIONS

- Only a few easily noticeable characteristics are given for each animal. In order to correctly identify the species, more thorough examination of the specimen is necessary.