

HERMANNIA: 'A Sea Squirt'

Phylum - Chordata

S.Ph - Ascidiacea

Class - Ascidiacea

Order - Pleurogastera

Genus - Hermannia (Rhodocyclinae)

sp. - Pallida

⇒ Hermannia can suddenly contract its body to squirt water simultaneously or independently in its lateral & apical apertures, hence the common name "Sea-squirt".

Geographical Distribution :- The sessile ascidian have colonised

shore to ocean depths, but most sp. live in shallow coastal waters. They are distributed from the equator to polar seas & most are cosmopolitan. It is widely distributed in Indian Ocean, Pacific, Atlantic & Caribbean Oceans.

Habitat & Habitat :- H. pallida is found in shallow waters all along along the

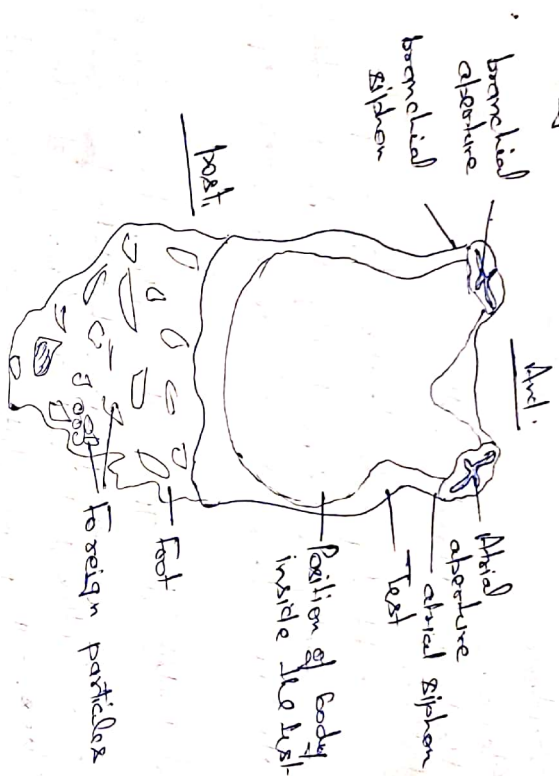
Indian sea coast. It is a solitary & sedentary ascidian found attached to a rocky sea bottom by a broad base or embedded in the sandy floor by its extended foot.

External Morphology :-

Shape, size & coloration → The whole animal looks

like a purse or bag. It measures about 10 cm long, 1 cm broad & 1 cm thick.

Body is somewhat rectangular in shape. Fresh specimens are pinkish in colour but preserved ones are of reddish-brown colour.



Morphology: external features

Division of Body :- Body is covered by test & divisible into body proper & foot.

① Body Proper :-

It is the part of the body animal.

The free end of the body proper bears two short projections called branchial & atrial siphons. Branchial aperture or mouth is at on the branchial siphon while atrial or cloacal aperture lies on the atrial siphon.

② Foot :-

Foot is about 3 to 4 cm, about 1/3rd of total length of the animal. It is made by the

Test 4th is thick in colour & rough due to sand particles, shell pieces & other foreign bodies, as it remains embedded in sand or mud & holds in attachment.

Test 1:- The outer layer of the body wall is composed of a tough hemichord-subst forming a thick test or tunic. The body is protected in the test. It also acts as a respiratory & receptor organ. It is secreted by epidermis & is formed of tunic similar to cellulose of plants. The test is wrinkled in appearance & has a fold & depression running all over the surface. It is composed of -

1) matrix 2) corpuscles 3) interlacing fibrils, & branching blood vessels & calcareous spicules.

1. Matrix:- The gelatinous matrix forms the ground substance in corpuscles, fibrils, blood vessels & spicules are embedded.

2. Corpuscles:- These are mesodermal in origin & are of many types -

a) Large eosinophilous cells -> These stain bright red in eosin, so the eosinophilous cells.



These are rounded or oval in shape & a large vacuole.

b) Small eosinophilous cells -> comparatively smaller cells & an eccentric vacuole.



c) Amoeboid cells :- or Amoebocytes :- These are amoeboid in shape.



d) Vacuolated cells :- more or less spherical in shape.

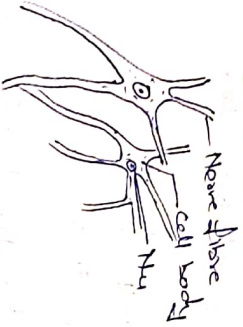


each containing vacuoles. Nu is not clear.

e) Granular cells :- These are oblong in shape & c a large & definite nu.



f) Nerve cells :- These are irregular cells & avo. of fibres & a large nu.



3) Interlacing fibres :- These form a fine network in the test. Some of them are like smooth muscular fibres, while others resemble nerve fibres.

4) Blood vessels :- These form an anastomosing system in the test. Numerous branches near the surface penetrate into and are bean shaped, ampullae or terminal knobs, responsible for red patches, visible on the surface of test. The ampullae serve as accessory resp. as well as receptor organs, being connected to nerve cells.

5) Spicules :- large no. of calcareous spicules are embedded in the matrix. All the spicules bear equi-distal rings of minute spines, all along their length.

The appear Pippetta-like due to large large swelling in the middle. They are of 2 types -

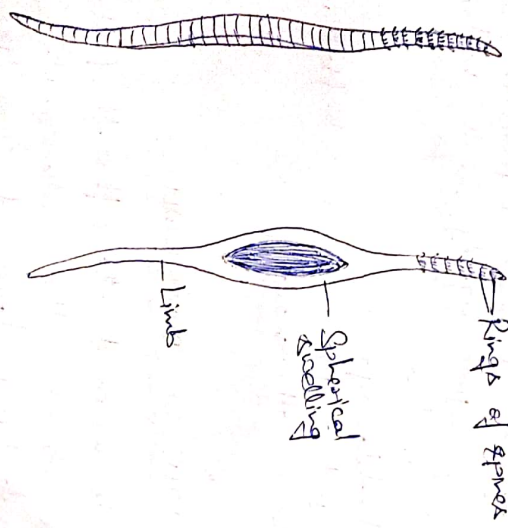
① Microscleles :- There are small spicules made up of

3-4 link-like a distinct knob. It is elongated, body is 5-20 rings of spines directed towards the knob.

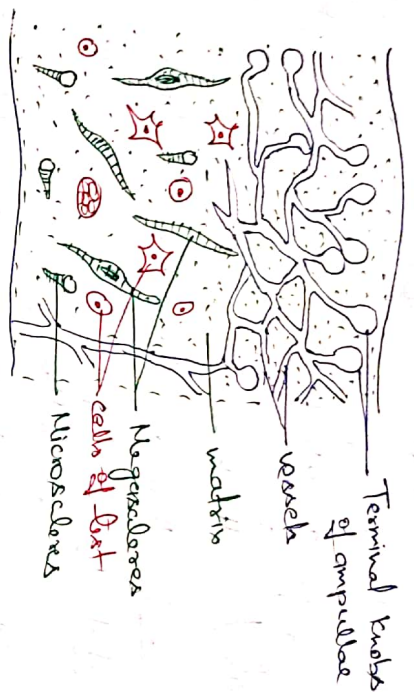
② Megascleles :- These are longer & of 2 types -

i) Spirally shaped - one of 1.5-2.5 mm long & usually not in bundles.

ii) Pippetta-like - about 3.5 mm long & a swollen bulb in the middle. both possess several rings of minute spicules.



spicules provide an internal rigid supporting framework like endoskeleton.



Hermaphrodite: V.S. of foot

Functions of foot :- It forms a protective covering & gives rigidity to the body.

- It serves for respiration.
- It acts as tactile organ.
- It forms the foot & gives remains embedded in mud or sand & helps in attachment.

MANTE OR BODY WALL

When the foot is retracted, the soft wall of the body or mantle comes into view. The mantle consists of the ectoderm & underlying layers of con. tissue enclosing muscle-fibres.

1) Ectoderm :- is made up of a single layer of flat, large cells.

2) Mesoderm :- it consists of con. tissue fibres & muscle fibres. it is traversed by nerve fibres & blood sinuses.

Muscle fibres are arranged in an irregular network, crossing one another in all directions. They regulate closure of both the openings.

Abdominal Cavity - 2 in the body wall is a cavity, the abdominal or peribranchial cavity, communicating with the exterior through the abdominal aperture, this cavity is not the coelom.

Coelom is a space reduced due to overgrowth of abrium. Pericardial cavity which surrounds the heart is the only remnant of coelom in Hemichordata.

DIGESTIVE SYSTEM

Dig. Sys consists of ali. canal & digestive glands.

1) Alimentary canal → is coiled, tubular & is distinguished into -

Mouth, Buccal cavity, Pharynx, Oesophagus, Stomach, Intestine & Rectum & cloaca.

Mouth → The ali. canal starts from the abdominal aperture or mouth.