

Lab (3)

Kingdom: Animalia

Characteristics of animals:

- Multicellular**
- Eukaryotic organisms**
- Cells with out cell wall**

Animalia is divided in two group :

A/ Invertebrate (animals with out backbones) .

B/ Vertebrate (animals with backbones) .

Invertebrate classified in to eight phylum :

1-Phylum: Porifera (Sponges)

2- Phylum: Cnidaria (Coelentrata)

3- Phylum: Platyhelminthes

4- Phylum: Nematoda

5- Phylum: Annelida

6- Phylum: Mollusca

7- Phylum: Arthropoda

8- Phylum: Echinodermata

9-Phylum: Chordata

Phylum : Porifera (Sponges)

1-Class : Calcarea

a/Order :Homocoela

e.g. *Leucosolenia* sp.

b/ Order : Heterocoela

e.g. *Sycon* sp. , *Grantia* sp.

2-Class : Demospongiae

a/Order : Monaxonida

e.g. *Spongilla* sp.

b/Order : Keratosa

e.g. *Euspongia* sp.

3-Class : Hexactinellida

Order : Lyssacinosidae

e.g. *Euplectella* sp.

Phylum : Porifera

- **Pore bearing animal which are commonly called sponges .**
- **Aquatic mostly marine .**
- **Asymmetrical (have irregularly shaped).**
- **Body is supported by a skeleton made up of (calcareous spicules or siliceous spicules or sponging fibers) .**

- They have three types of canal system (Asconoid or Syconoid or Leuconoid) .
- Body wall is composed of , Outer dermal epithelium (Pinacocytes), Middle mesenchyma layer (Mesoglea) have amoeboid cells and spicules , Inner spongocoel cavity lined with (choanocytes) have flagella to filter out food from water .
- Gastric cavity (Spongocoel) opens to the exterior by osculum.
- Nutrition , Respiration and Excretion by canal system .
- Asexual reproduction by budding.
- Sexual reproduction by ova and sperms.
- Regeneration (can grow back missing body parts) .
- Hermaphrodite (both sexes in same organism).

1- Class : Calcarea

Calcareous spicules present

a/ Order : Homocoela

Asconoid type canal system

Genus : *Leucosolenia* sp.

-Colony is composed of whitish vertical cylinders and tubes about 25 m.m. long .

-Vertical tubes of the colony are joined together by horizontal tubes at the base , sessile to substratum.

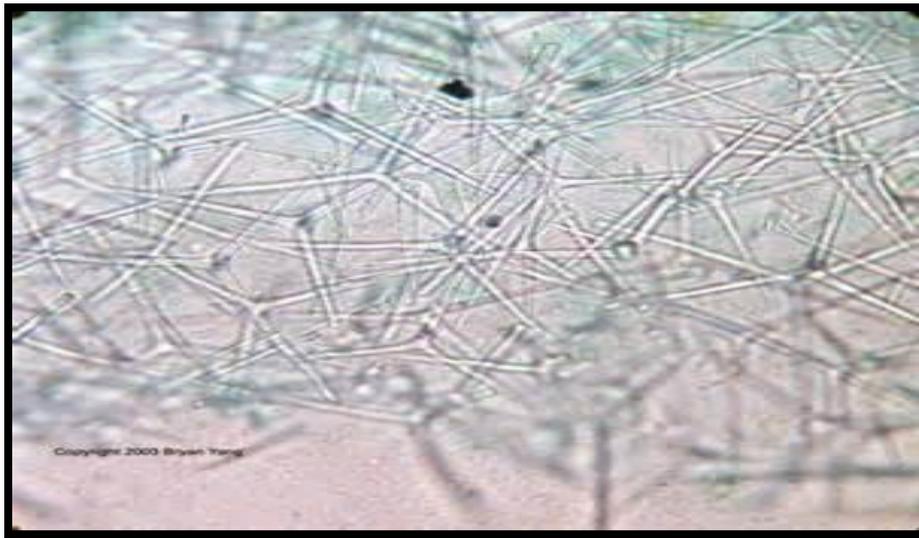
-Calcareous spicules (made of calcium carbonate) are Monaxon or Triaxon .

-Choanocytes are lined spongocoel

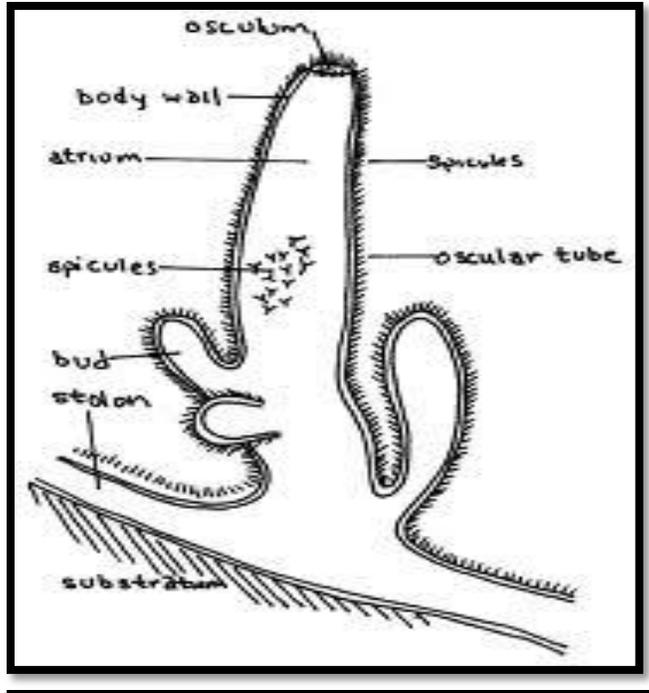
**-Canal system is of the simplest type . water enters through :
Ostia → Spongocoel → Osculum**



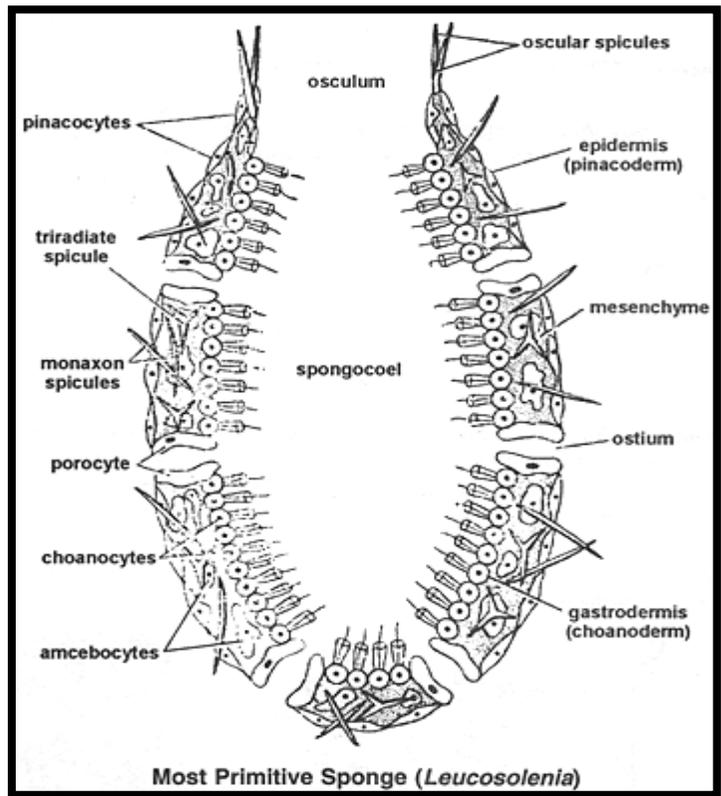
Leucosolenia sp.



Tri- radiate spicules



Leucosolenia sp.



Asconoid type

b/Order : Heterocoela

Syconoid type canal system with internal folds .

Genus : *Sycon* sp.

-Complex vase shaped body , measuring (20-25) m.m. in length and (5-6) m.m. in diameter .

-At the distal free end there is a large osculum encircled by monaxon spicules forming funnel shaped collar or oscular fringe .

-Body wall is thick through which monaxon , triaxon and tetraaxon spicules project .

-Choanocytes are restricted to radial canals .

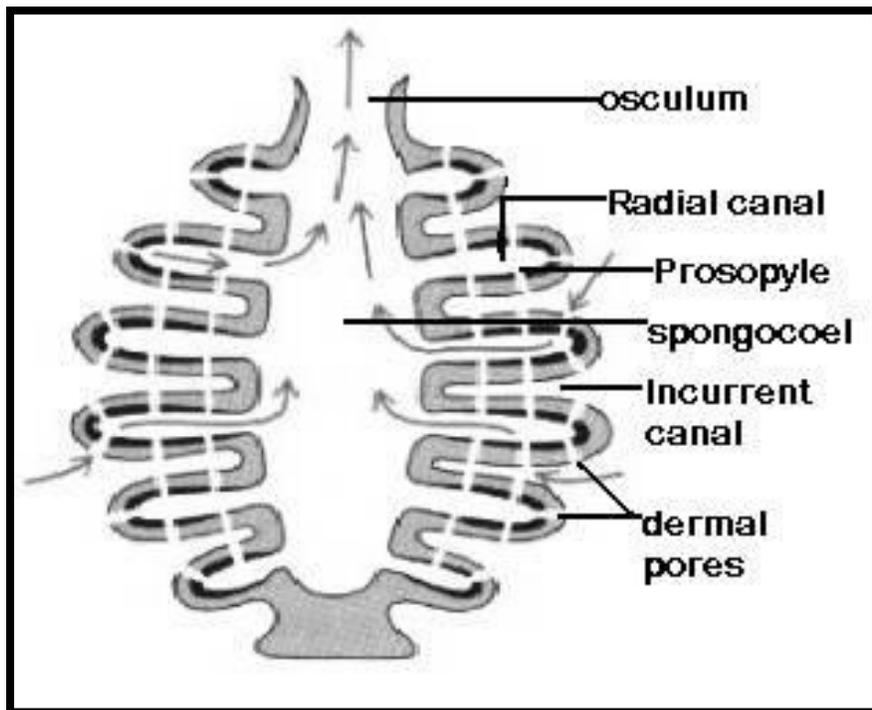
-Canal system is syconoid type , water inters through :

Ostia → Incurrent canals → Prosopyle → Radial canals →

Apopyles → Spongocoel → Osculum .



Sycon sp.



Syconoid type

2-Class : Demospongia

- Spongin fibres or siliceous spicules .

-Leuconoid type canal system .

a/Order : Monaxonida

Spongin may or may not be present spicules monaxon .

Genus : *Spongilla* sp.

-Commonly known as fresh water sponge .

-Body wall consists of very thin dermal layer . Perforated with dermal pores or ostia.

-Skeleton is composed of sponging fibres , the siliceous spicules are in the form of network embedded in the sponging.

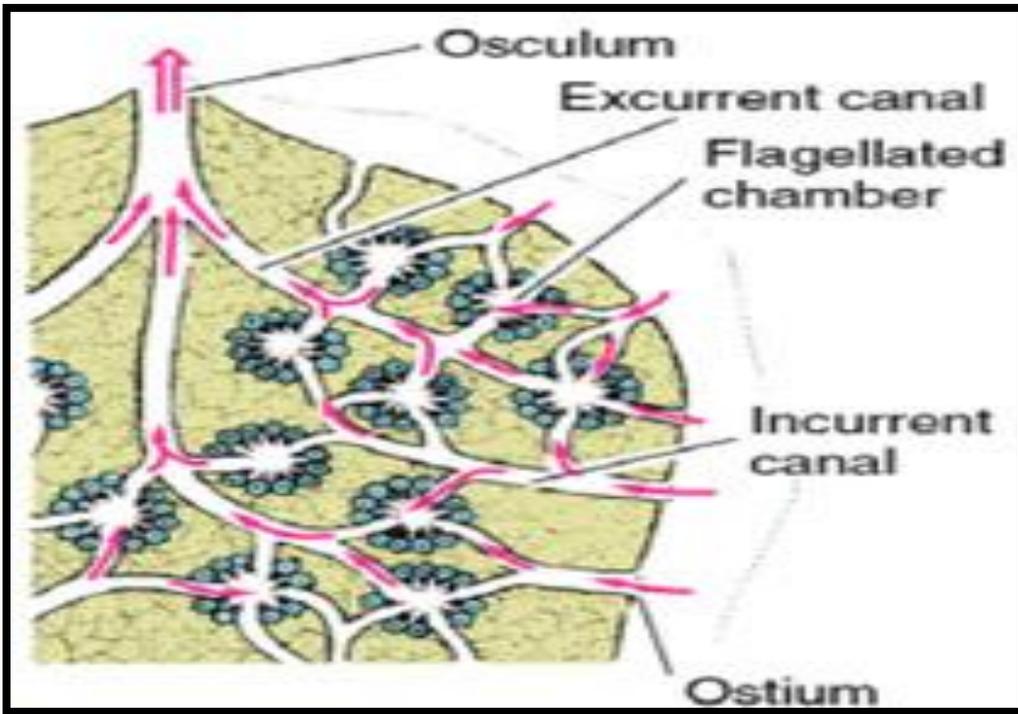
-Choanocytes are restricted to flagellated chamber

- Canal system is of the complex leuconoid type , water inters through :

Ostia → Incurrent canals → prosopyle → Several flagellated chamber → Apopyle → Excurrent canal → Spongocoel → Osculum .



Spongilla sp.



Leuconoid type

b/ Order : Keratosa

Skeleton of sponging fibers only .

Genus : *Euspongia* sp.

- Commonly called as bath sponge attached to rocky substratum .**
- Complex type of sponge , in which there is a further increase in the folding of the body wall .**
- Surface of the body contains large opening called as oscula and small opening called as inhalant canals .**



***Euspongia* sp.**

3- Class : Hexactinellida

Glass sponges with siliceous spicules of triaxon or six rays .

Order : Lyssacinosidae

Genus : *Euplectella* sp.

-Commonly called as (Venus's flower basket) due to it's beautiful elegant glossy shape like knitted elongated basket .

-Animal measures (15-30) c.m. in length and (2-3) c.m. in diameter .

-Body is long ,rigidly curved and cylindrical .

-Spicules are joined together forming a network .

-Osculum is closed in a bove with a sieve plate .

-Canal system is of simple sycon type .



***Euplectella* sp.**