

## **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.

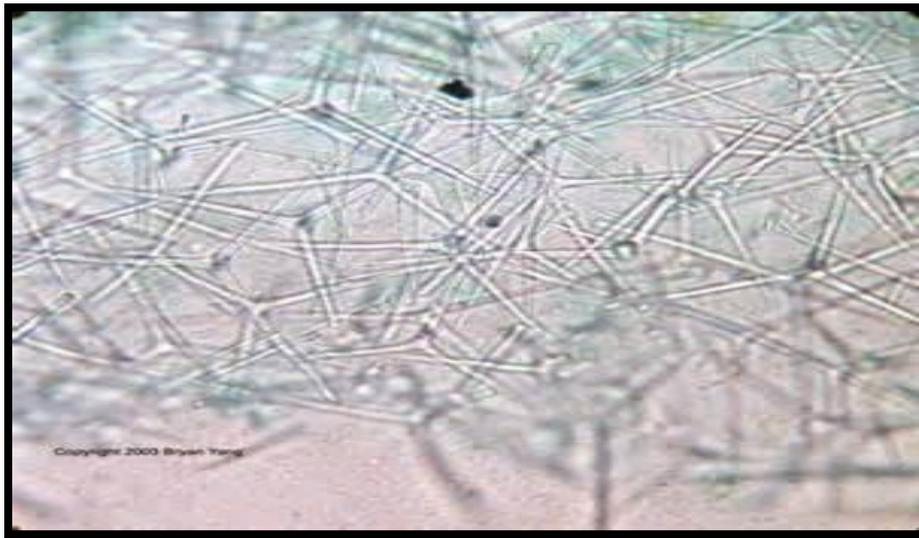
-Calcareous spicules ( made of calcium carbonate ) are Monaxon or Triaxon .

-Choanocytes are lined spongocoel

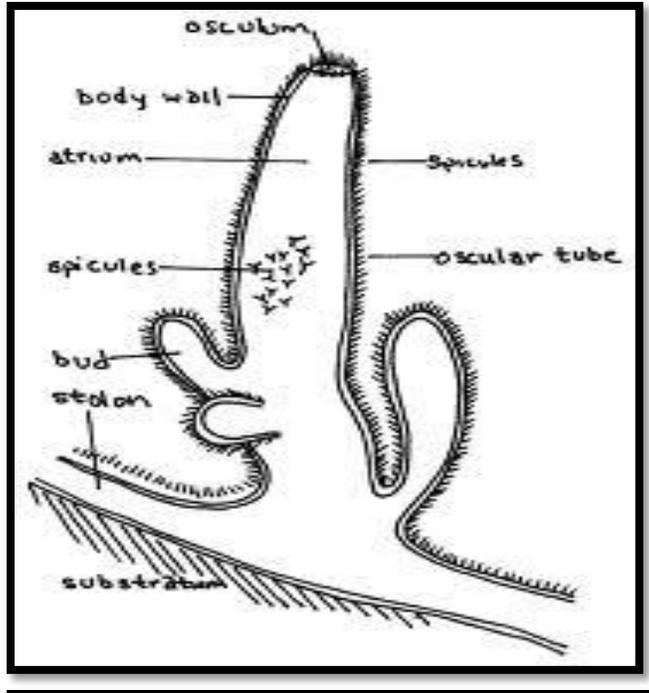
**-Canal system is of the simplest type . water enters through :  
Ostia → Spongocoel → Osculum**



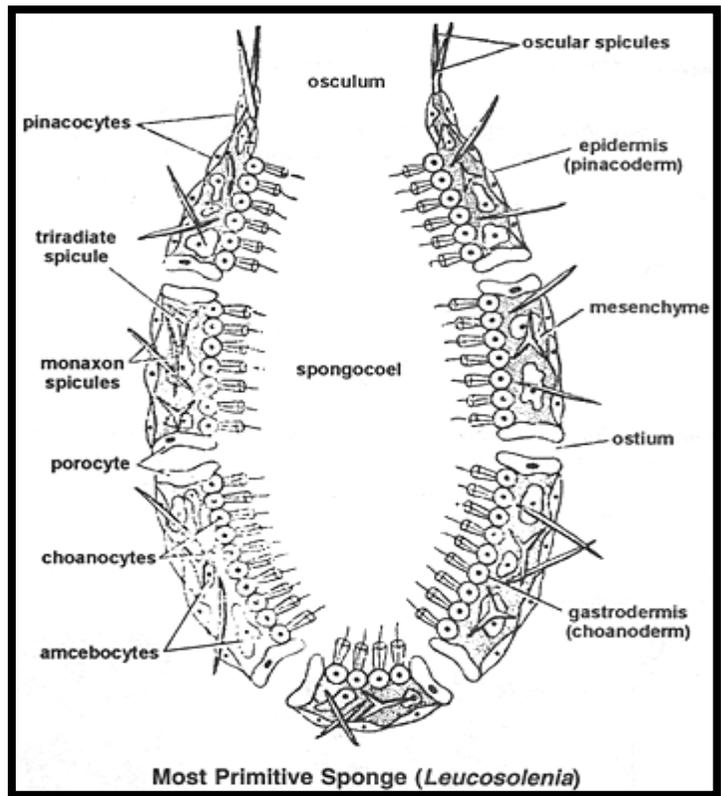
*Leucosolenia* sp.



**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 .**

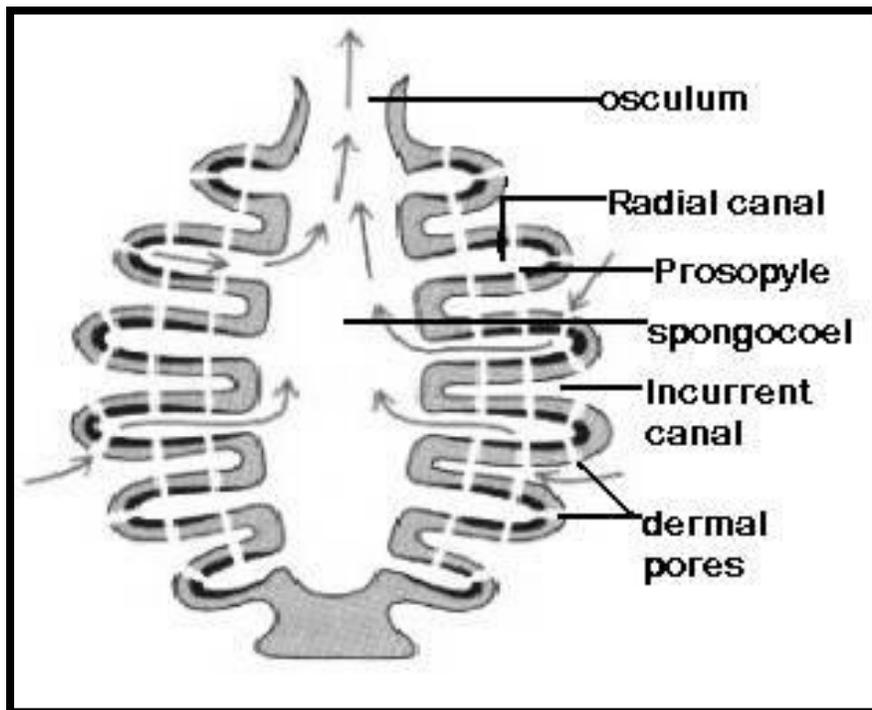
**-Canal system is syconoid type , water inters through :**

**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.**

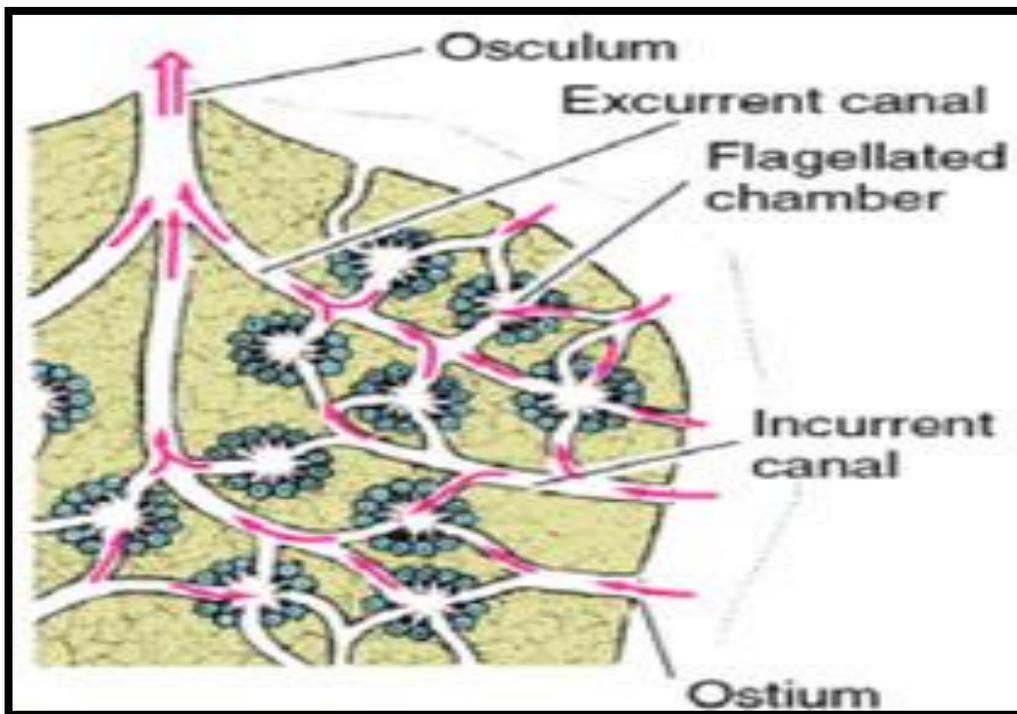
**-Choanocytes are restricted to flagellated chamber**

**- 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. indiameter .**

**-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.**