

## Phylum - Porifera

The name porifera to this phylum was given by Robert E. Grant (1936). Porifera means pore bearers. Animals of phylum porifera are usually called sponges.

### Characters -

- ① All sponges are aquatic, mostly marine but few are fresh water.
- ② Lowly multicellular animal with cellular level of body organisation. No distinct tissue.
- ③ They are sessile, solitary or colonial.
- ④ Diploblastic, Asymmetrical or radially symmetrical bodies.
- ⑤ A large paragastric cavity or Spongocoel in the body.
- ⑥ Numerous ostia (pores) in the body wall that leads to paragastric cavity & large opening called osculum for the exit of water.
- ⑦ Body wall is traversed by canal which open into paragastric cavity. These canal system helps in feeding, respiration, excretion, reproduction.
- ⑧ Spongocoel is lined by choanocytes cells.
- ⑨ Skeleton consists of spicules (calcareous or silicious) or spongin fibres.
- ⑩ No mouth or Alimentary canal, hence digestion is intracellular.

- ⑪ Coelom, Nervous system, blood vascular system, excretory system absent.
- ⑫ Reproduction (a) Asexual by gemmules formation or budding or fission, (b) Sexual
- ⑬ All possess regenerating power.
- ⑭ All sponges are hermaphrodite.
- ⑮ Fertilization is internal, cross fertilization is rule.
- ⑯ Cleavage holoblastic
- ⑰ A free swimming ciliated larva (Amphiblastula or parenchymula) ~~forming~~ indirect development.

Classification

Phylum porifera has been subdivided into three classes based on the nature of the skeleton.

Class 1 - Calcarea

characters -

- Spicules are made up of calcium carbonate.
- Spicules are monaxon, triaxon or Tetraaxon
- Body is radially symmetrical, vase shaped bodies.
- Canal system - is Ascon or Sycon type or Leucon type.
- All are marine, mostly in shallow water
- Choanocytes lines the entire perigastric cavity or limited to flagellated chamber only.

Class Calcarea is divided into two orders

Order - 1 - Homocoela

- (i) The body is small, cylindrical and thin walled without internal folds.
  - (ii) The canal system is simple or ascon type.
  - (iii) The Spongocoel is lined throughout by choanocyte cells.
- Ex Leucosolenia

Order - 2 Heterocoela

- (i) The body is comparatively bigger vase like
  - (ii) canal system is sycon and leucon type.
  - (iii) Only the flagellated chambers are lined by choanocyte cells.
- Ex - Sycon, Grantia.

Class 2 - Hexactinellida

This class comprise glass sponges having triaxon or hexactinal spicule made up of silica.

Characters -

- Body shape is usually cylindrical, cut shaped or funnel shaped.
- The osculum is wide.
- The canal system is simple sycon type
- The choanocyte cells are restricted to finger like flagellated chambers.
- They are exclusively marine and usually solitary

Class Hexactinellida is divided into

two orders -

Order 1 - Hexasterophora -

v) The beautiful glass like body is cylindrical, very light and attached to the substratum directly

vi) The spicules are hexasters

(ii) The flagellated chambers are radially and regularly arranged

Ex - Euplectella (Venus's flower basket)

### Order-2 - Amphidiscophora

(i) The body is usually rounded or oval.

(ii) The spicules are amphidisc

(iii) The flagellated chambers are irregularly arranged.

Ex - Hyaloespongia (Glass rope sponge.)

### Class 3 Demospongiae

Conti - Next class