

B.Sc-I (Zool Honr),
Paper-I A,
(Non Chordate.)
Date-13/06/2021

Dr. Pritam Kumar
Dept of Zoology,
Sersha College, Sadaram,
V.K.S. University, Ara.

PORIFERA

Character, classification and types:-

General Characters:-

- (1) Poriferans constitute the first group of multicellular organisms and are popularly called sponges. An English naturalist John Ellis (1765) was the first man to suggest that these are animals on the basis of the water current flowing through their body. The name porifera for these organisms was given by Robert E. Grant (1836).
- (2) Mostly marine, a few freshwater, all aquatic.
- (3) Solitary or colonial; all sessile, leading a sedentary life.
- (4) Body form vase-like, cylindrical, tubular, cushion-shaped, etc.
- (5) Body wall diploblastic with outer pinacoderm (dermal epithelium), inner choanoderm (gastral mesenchyme) in between; mesenchyme consists of skeletal elements and free amoeboid cells.
- (6) Body with many pores (ostia), canals and chambers that serve for the flow of water. Flagellated cells in special chambers.
- (7) Skeleton of calcareous or siliceous spicules or of spongin fibres or of both or no skeleton.
- (8) Digestion intracellular; no respiratory or excretory organs; contractile vacuules in some freshwater forms.
- (9) Primitive nervous system of neurons arranged in a definite network of bipolar or multipolar cells in some, but is at doubtful status.
- (10) All sponges hermaphrodite but cross fertilization is the rule.

(11) Asexual reproduction by budding, fission or gemmule formation, sexual reproduction by gametogony. All show regenerative power.

(12) Cleavage holoblastic, development indirect through a free-swimming ciliated larva, the amphiblastula or parenchymula.

(13) All sponges have great power of regeneration.

(14) Most sponges are monoecious and some may be dioecious.

(15) Asexual reproduction occurs by budding, fission or gemmule formation.

(16) Sexual reproduction occurs by syngamy, fertilization is internal and cross. Cleavage is holoblastic.

(17) Diploblastic body has outer ectoderm composed of dermal epithelium mainly protective in function and inner endoderm composed of special type of flagellated cells called choanocytes mainly nutritive in function.

In b/w these 2 layers lies a layer of non-cellular gelatinous mesenchyme which contains many types of spicules of endoskeleton and free moving cells such as scleroblast for the production of spicules & Archaeoblasts or archaeocytes for the production of gonads.

(18) Sponges areacoelomates. The single cavity enclosed by the endodermal layer is called Spongocoel. The body wall is perforated by numerous pores known as ostia. Ostia are connected with Spongocoel ~~by~~ through characteristic canal system. The biggest pore located on the free distal end is known as osculum. A continuous current of water flows in the body, entering through the ostia and leaving through osculum. Passing through canal system and Spongocoel.