1. INVERTEBRATES

Invertebrates account for 95% of known animal species. The invertebrates include the following major phyla:

1. PHYLUM PORIFERA

Latin Porous → pore
ferra → to bear

Animals in this phylum bear small holes or pores all over the body. These pores are called **ostia.**

SPONGES

Porifera are the most primitive metazoans and are commonly called as sponges.

HABITAT

Sponges have over 7000 species. Sponges are all aquatic, mostly marine, some found in fresh water.

CHARACTERISTICS

1. Sponges are sessile, attached to the rocks at the bottom of water.
2. Larvae are motile.
3. Body is multicellular and not organized as tissue or organs.
4. Body lacks symmetry.

SIZE

They range in size from a few millimetre wide to more than a metre long.

STRUCTURE

Body of porifera is tubular which is opened at its anterior end called **osculum.**

CAVITY / SPONGOCOEL

The cavity present in the body is called as spongocoel.

DERMAL LAYERS

The sponges consist of outer dermal layer called pinacoderm. Pinacoderm is made of flattened cells called pinacocytes whereas the inner layer choanoderm is made of flattened collar cells called choanocytes. The middle region is called mesenchyme.

FLAGELLA

Flagella of these cells keep beating to create water currents which not only bring food to the spongocoel but also remove excretory material from it.

AMOEBOCYTES

It contains special mobile cells called amoebocytes which are not only nutritive but ova and sperms also develop from certain amoeboid cell.

DIGESTION

The ostia are part of canal system in which water circulates and brings food to the body. Intracellular as well as extracellular digestion may occur.

The intracellular digestion occurs in food vacuoles within choanocytes.

Extracellular digestion may occur in the spongeocoel (cavity).

TRANSPORTATION GASEOUS EXCHANGE

Transportation takes place through water current and diffusion. The water current system has greatly enlarged area for the feeding and gaseous exchange.

EXCRETION

Excretion takes place through diffusion and outgoing water-current.

NERVOUS SYSTEM, Sensory Cells

A sponge lacks nervous system. Neuro- and neurons Sensory cells probably seem to coordinate the flow of water.

NUTRITION

Food of porifera includes phytoplanktons, zooplanktons, protozoans, crustacea and other small organisms but the major part (80%) of the food is comprised of dead decaying organic matter.

SKELETON

All sponges except class mykospongida have skeleton. The skeleton may consist of carbonate of lime or silicon in the form of spicules or of Spongin (a fibrous protein) in the form of fibres.

REPRODUCTION

Asexual reproduction takes place by budding or gemmules. Buds develop into new sponges. Sexual reproduction takes place by egg and sperm. Sexes may be

Separate or hermaphrodite. The embryo development includes free swimming ciliated larval stages.

REGENERATION

Sponges have remarkable ability of regeneration from a small fragment.

IMPORTANCE OF SPONGES

1. Sponges are economically important animals as they are used for washing and bathing by human beings from ancient times. Sponges found in the warm waters of Mediterranean Sea are commercially more important.

2. Sponges are used in surgical operations bcz of their ability to absorb blood and other fluids.

3. To reduce the noise pollution and to make the buildings sound proof, sponges are used to absorb sound waves.

EXAMPLES

1. Sycon (a common marine sponge)
2. Spongilla (a freshwater sponge)
3. leucoselenia (a tubular marine sponge)
4. Euplectella or Venus flower basket (a very beautiful, delicate, siliceous sponge appear

to be made of glass framework)

5. Leucosolenia

6. Acropora

7. Tubipora