

Q. What is Coenobium? Describe the structure and methods of reproduction in VOLVOX.

Ans: A definite number of identical, individual cells present in a colony is known as Coenobium. The colonial form may be non-motile (Hydrodictyon) or motile (Volvox). A ball like coenobium of Volvox consist of from 500 to 60000 cells which are placed at the periphery of hollow sphere. All the cells are physiologically similar and independent but mechanically held together in a gelatinous sheath and are intercalary inter-connected with cytoplasmic threads. The rolling movement of coenobium is an individual organism with the help of flagella and the direction of movement is takes place with the help of eye spot. In volvox a highly ~~evolved~~ evolved form of coenobium is found where ordinary cells are act as vegetative cells and specific cells are act as reproductive cells and individual cells of Volvox is quite similar to chlamydomonas cells but they are placed in different families.

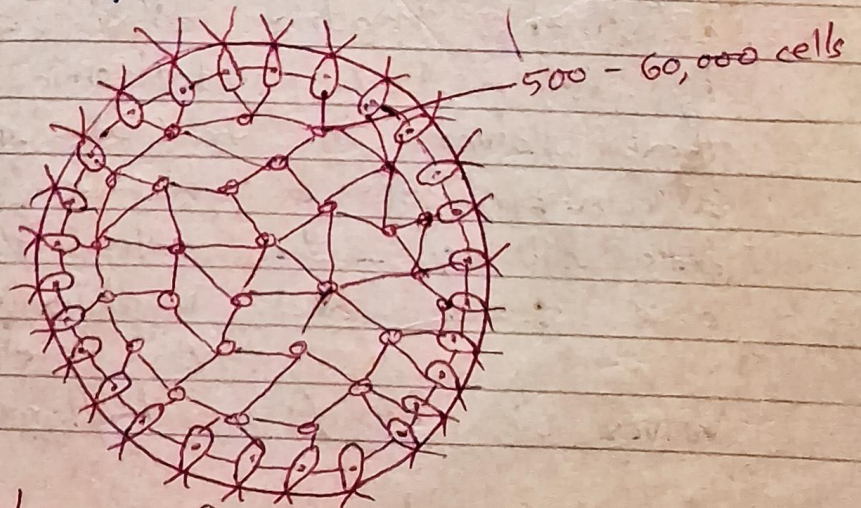


Fig - Structure of Volvox

## Occurrence and structure of the Thallus →

Volvox is a fresh water green algae which is known as rolling algae. Volvox plant looks very much like small, green, balls of pin head ~~the~~ size and they are freely suspended in water. Each ball consist of a colony of 500 to 60000 cells. And volvox plant is found always in coenobium form. The term coenobium denotes the organization of known number of identical flagellate individual cells in a colony. About 20 species so far been reported out of them. 3 species reported from India. The most common Indian species are Volvox globator, Volvox protificus and volvox africanus. Volvox are very common in spring season and rainy season on pools, ponds, lakes etc. Each colony is motile and shows characteristic swimming and rolling movement. This is why Volvox is called a rolling algae and is autotrophic. The individual cells are physiologically independent from one another and they are mechanically held together in a gelatinous matrix and are inter connected by means of cytoplasmic strands. This show that volvox is not an individual but an association of a number of independent cells. All of the cells of young colony are green and vegetative in function. An individual cells of Volvox is pyriform, biflagellate (at anterior end

## Volvox -

**Habit & Habitat** → It is green algae.

- It is fresh water algae found in pool, lake etc.
- It is a rolling algae.
- It appears as a green ball of pinhead size.
- Its favourable season is spring and rainy.
- In summer season it is found in the form of zygospore.

**Structure** → It is green colour algae, having number and arrangement of cells constant, such a type of colony is known as coenobium.

- It is the largest coenobium of the motile algae.
- Coenobium is hollow, spherical bounded by a delicate mucilaginous layer.
- Cell are arranged in a single layer along the periphery of the mucilage layer.
- Cavity of the coenobium is filled with the watery mucilage.
- The coenobium shows polarity at the time of asexual reproduction on the posterior side.
- All the cells of the coenobium are alike and they are chloromonas type.
- Respiration, excretion and nutrition of the individual cell are independent of each other.
- Each cell of the coenobium has its own mucinous covering inside the common gelatinous covering.
- Each cell of the coenobium is connected with its neighbouring cell by cytoplasmic strands or plasmodesmata.