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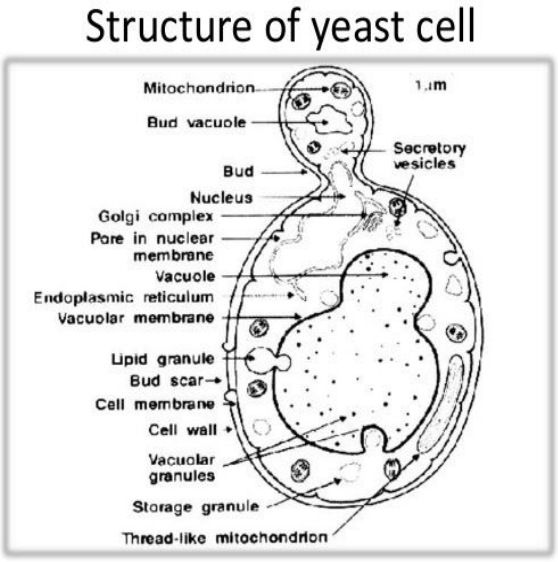
Department: Medicine and Surgery
Course: General Biology (BIO 102)

1.How are Fungi important to mankind?

- Fungi are responsible for the mediation of decay of organic matter.
- Mushrooms are eaten by many human societies.
- Many fungi species mediate the spoilage of wood, food, clothes and paper.
- Some fungi are parasites to some certain unbearable pests and therefore constitute important biological control agents in regard to such pests.
- Some species of fungi i.e *Penicillium notatum* produce important antibiotics.

2. Illustrate the cell structure of a unicellular fungus with a well labelled diagram.

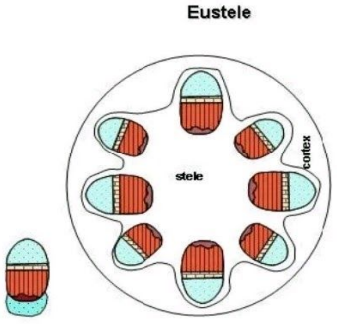


3. Outline the sexual reproduction in a typical filamentous form of fungi.

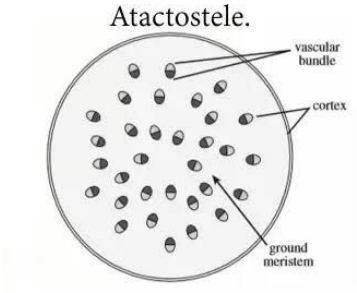
- Sexual reproduction in filamentous fungi occurs when two mating types of hyphae grow in the same medium. Chemical interaction in the two mating types of hyphae induces growth perpendicular to the hyphae in opposite directions. These growths are delimited by a wall such that many nuclei are isolated in what is called a gametangium. The two gametangia fuse through the process called plasmogamy and the zygote is formed which may undergo a state of prolonged dormancy. The nuclei in the zygote fuse in twos and undergo meiosis independently. The zygote terminates under favourable conditions to produce a fruiting which at maturity liberates the haploid spores.

4. How do bryophytes adapt to their environment?
   - Bryophytes possess definite structures for water and nutrient adsorption from the soil;therefore the plant body is divided into two (an aerial portion and a subterranean portion). The subterranean portion is the rhizoid and is not a true root as the case of land plants that are advanced.
   - The aerial portion begin exposed to the atmosphere demands some modifications that prevents excessive loss of water through the body surface i.e desiccation
   - Some other modifications that permit elimination of excess water from the plant body and not only exchange of gases between internal parts of the plant and the atmosphere therefore openings are available on the aerial parts of the plant.

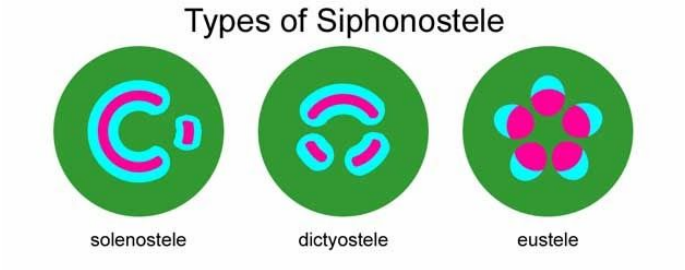
5. Describe with illustrations the following:
   - Eusteles: This is a type of siphonostele, in which the vascular tissue in the stem forms a central ring of bundles around a pith. In other words, it is an arrangement where the primary vascular tissue consists of vascular bundles, usually in one or two rings around the pith. In addition to being found in stems, the eustele appears in the roots of monocot flowering plants.



   - Atactostele: A type of eustele, found in monocots, in which the vascular tissue in the stem exists as scattered bundles. It is a variation of eustele found in monocots which has numerous scattered bundles in the stem.



   - Siphonostele: A type of stele in which the vascular tissue in the stem forms a cylinder surrounding a central pith and possessing leaf gaps. They have a region of ground tissue called the pith internal to xylem. The vascular strand comprises a cylinder surrounding the pith.



- Dictyostele: A type of siphonostele, in which the vascular tissue in the stem forms a central cylinder around a pith, but with closely spaced leaf gaps.

6. Illustrate the life cycle of a primitive vascular plant