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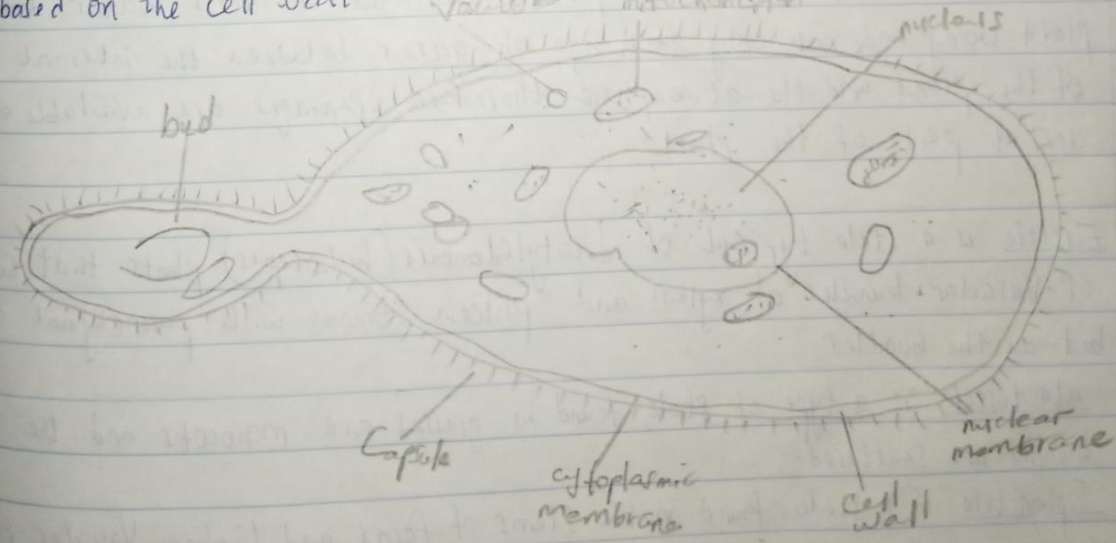
19/MHS01/421 ; MBBS ; BIO 102 Assignment

1) Importance of fungi to mankind

- Fungi are responsible for the mediation of decay of organic matter. They help in increasing the soil nutrient due to their saprophytic mode of life.
- Fungi eg yeast are important in food industry. They are utilized in the baking industry to make the "dough" rise.
- Some of them are edible eg mushroom.
- They are utilized in the production of drugs (antibotics) eg penicilin from penicilium.
- Some of them are pathogens (disease causing) of other organisms especially plants and animals.

2) cell structure of Saccharomyces cerevisiae

Saccharomyces cerevisiae can exist in two forms: haploid or diploid. It is usually found in diploid form. In exponential phase, haploid cells reproduce more than diploid cells. Haploid and diploid cells can reproduce asexually by budding. In addition to budding, diploid cells can undergo a meiotic process called sporulation to produce four haploid spores. As a eukaryote, S. cerevisiae contains membrane-bound organelles. Its chromosomes are located in the nucleus, and it uses mitochondria to conduct cellular respiration. Its shape is based on the cell wall.



The Structure of Saccharomyces cerevisiae

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3 Sexual reproduction in rhizopus stolonifer

Sexual reproduction occurs when two mating types of hyphae grow in the same medium. Chemical interaction in the two mating types of hyphae induces growths 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 (plasmogamy) and a zygote is formed which may undergo prolonged dormancy. The nuclei in the zygotes fuse in twos and undergo meiosis independently.

The zygote germinates under favourable conditions to produce a fruting which at maturity liberates the haploid spores.

4 Adaptations of bryophytes to land habitat

- They have definite structures for water and nutrient absorption 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 being exposed to the atmosphere demands some modifications that prevents excessive loss of water through the body surface.
- Some other modifications that permit elimination of excess water from the plant body and not only exchange of gases between the internal parts of the plant and the atmosphere therefore openings are available on the aerial parts of the plant.

5 a) Eustele is a stele typical of dicotyledonous (herbaceous) plants that consists of vascular bundles of xylem and phloem strands with parenchymal cells between the bundles.

b) atactostele is a type of stele, found in grasses and monocots and the vascular bundles are scattered.

c) Siphonstele is a stele found in the stems of ferns and higher vascular plants, it is a cylinder enclosing a parenchymatous pith.

d) dictyostele: a stele in which the vascular cylinder is dissected into a longitudinal network of vascular ~~bundles~~ strands around a pith.

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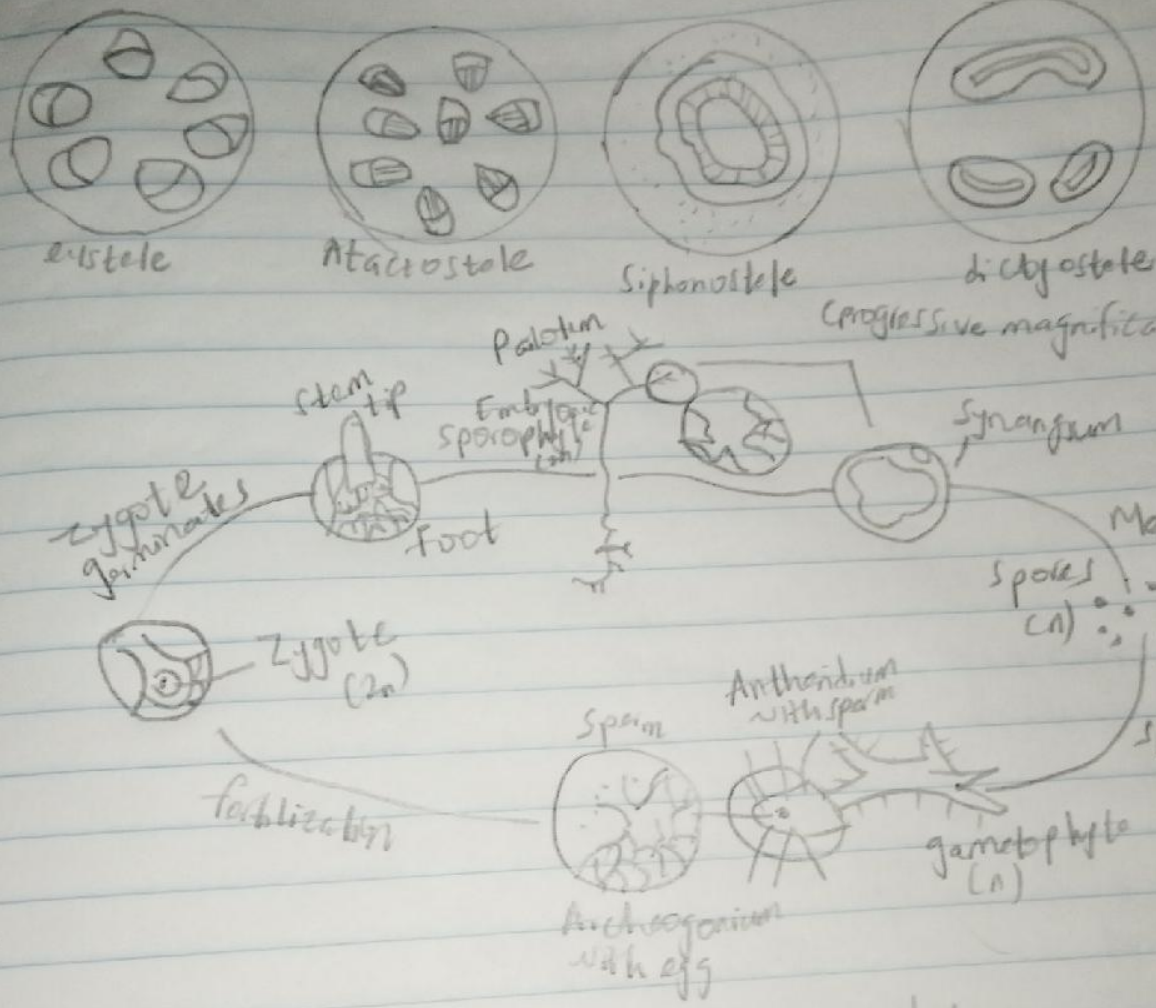

A life cycle of psilotum