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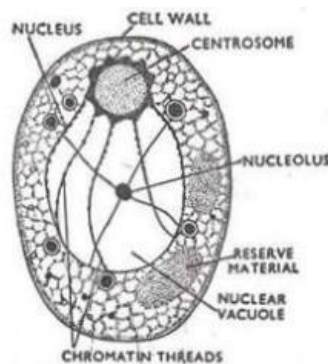
COURSE: BIO102

1. How are fungi important to mankind?

Answer:

- (I) The majority of grasses and trees require a mycorrhizal relationship with fungi to survive.
  - (II) Yeast have been used for thousands of years in the production of beer, wine and bread.
  - (III) Fungi not only directly produce substances that humans use as medicine, but they are also versatile tools in the vast field of medical research.
  - (IV) Some fungi attack insects and, therefore, can be used as natural pesticides.
2. Illustrate the cell structure of a unicellular fungus with a well labelled diagram.

Answer:



A WELL LABELLED DIAGRAM OF PART OF A YEAST CELL(FUNGI)

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

Answer:

- (I) Spores: They are usually single cells produced by fragmentation of the mycelium or within specialized structures. Spores may be produced either directly by asexual methods or indirectly by sexual reproduction.
  - (II) Fragmentation: In filamentous fungi, the mycelium may fragment into a number of segments, each of which is capable of growing into a new individual.
  - (III) Budding: This occurs in some filamentous fungi. In this process, a bud develops on the surface of either the yeast cell or the hypha, with the cytoplasm of the bud being continuous with that of the parent cell.
4. How do bryophytes adapt to their environment with the aid of waxy cuticle helped to protect the plant tissue from drying out and the gametangia provided further protection against drying out specifically for the plant's gametes.
5. Describe with illustration the following terminologies:
- (a) Eusteles: A type of siphonostele, in which the vascular tissue in the stem forms a central ring of bundles around a pith.

- (b) Atactostele: A type of eustele, found in monocots, in which the vascular tissue in the stem exists as scattered bundles.
- (c) Siphonostele: A stele in which the vascular tissue is in the form of a cylinder surrounding the pith, as in the stems of most ferns and other seedless vascular plants.
- (d) 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.

Answer:

The life cycle of seedless vascular plants is an alternation of generations, where the diploid sporophyte alternates with the haploid gametophyte phase. The diploid sporophyte is the dominant phase of the life cycle, while the gametophyte is an inconspicuous, but still-independent, organism.

Throughout plant evolution, there is a clear reversal of roles in the dominant phase of the life cycle.