

18. Compare phyla of Kingdom: Fungi

| | Chytridiomycota | Zygomycota | Ascomycota | Basidiomycota |
|------------------------------|-----------------|------------|------------|---------------|
| Habitat | | | | |
| Septae | | | | |
| Unicellular multicellular | | | | |
| Flagella | | | | |
| Asexual reproduction | | | | |
| Sexual reproduction | | | | |
| Examples | | | | |



TRULY AMAZING
BIO CLASS
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Biology
ENGLISH MEDIUM

Unit 3
Evolution and Diversity of
Living Organisms

3.10 Explores Evolution of Life
3.14 Explore diversity within Kingdom: Fungi

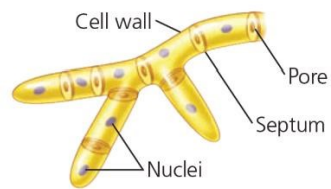
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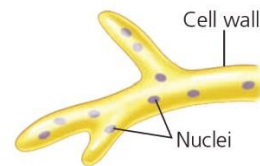
Kingdom Fungi

Characteristic features of Kingdom Fungi

- Eukaryotic
- Cell walls are made up of chitin a strong but flexible polysaccharide.
- They are absorptive and heterotrophs - many of them secrete extra cellular enzymes which aid in the breaking down of complex molecules into small molecules.
- Different species live as decomposers, parasites or mutualistic.
- Few are unicellular, others forming multicellular filaments called hyphae .
- Septa can be found in hyphae. (division of hyphae into cells by septa — cross Walls).

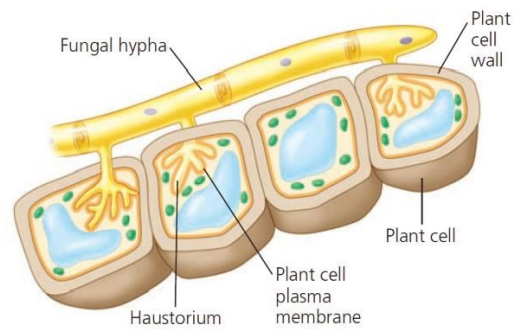


(a) Septate hypha



(b) Coenocytic hypha

- Septum has a hole which enables the movement of mitochondria, ribosomes, nuclei etc.
- Fungi lack septa are known as coenocytic fungi (with many nuclei)
- Fungal hyphae produce mycelium
- Some fungi produce haustoria (to penetrate and absorb or exchange nutrients between plants and the fungi)
- Multicellular fungi produce mycelia. (a network of branched hyphae adapted for absorption of nutrition)
- They show sexual and asexual reproduction.
- They produce spores.



2. What is a fungal mycelium

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3. What is the part played by fungi to maintain balance of an ecosystem?

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4. What are the four phyla of the kingdom : Fungi

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8. Binucleated stage is absent in

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9. Most advanced form of fungi

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10. Septae present in

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11. Coenocytic fungal Phyla.

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12. Multinucleate fungal Phyla.

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13. Aquatic fungi.

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14. Fungal phyla with unicellular members

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15. Fungal phyla with parasitic members.

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16. Fungal phylum without common asexual reproducing structure

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17. Fungal phyla with terrestrial members

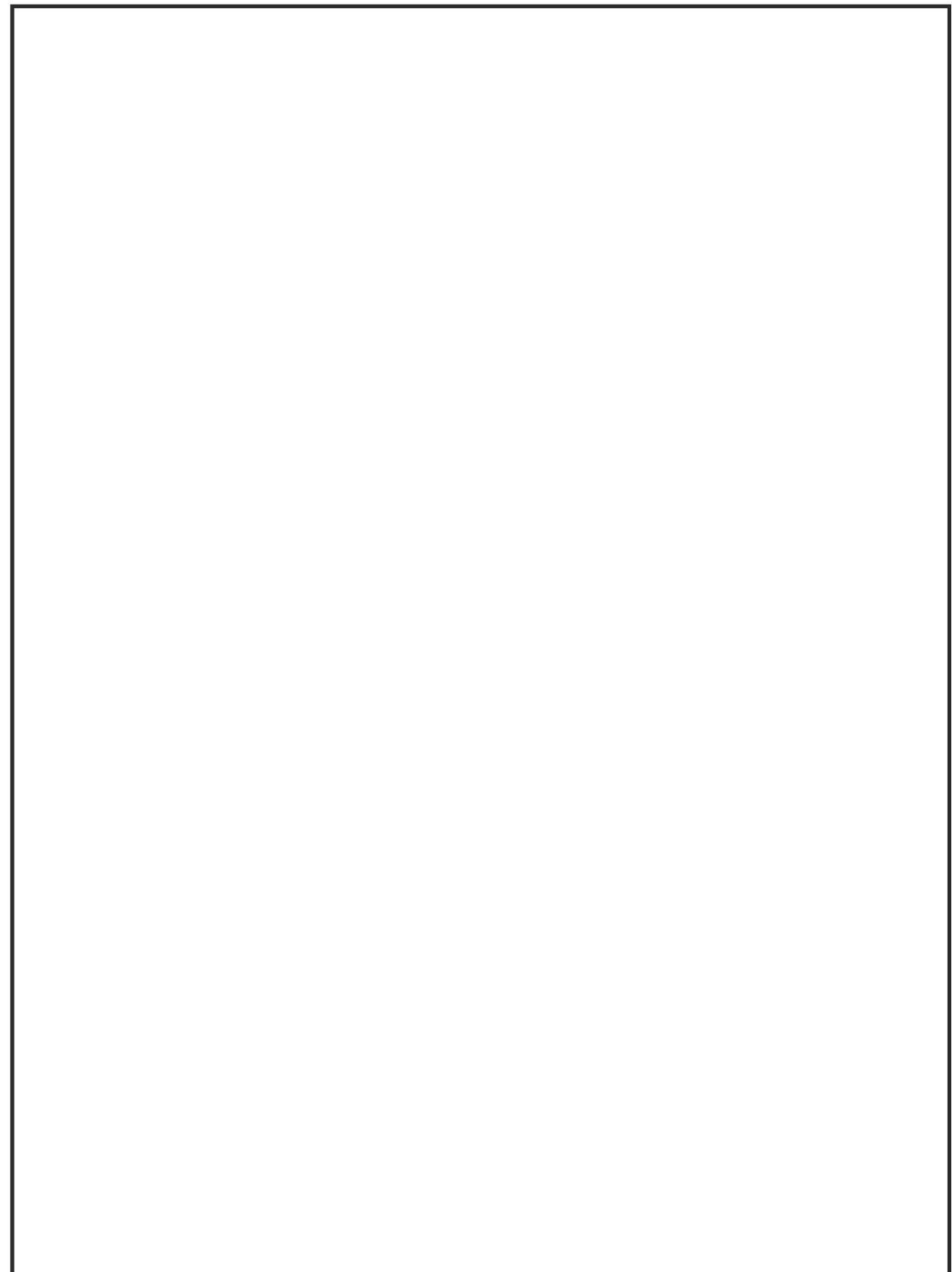
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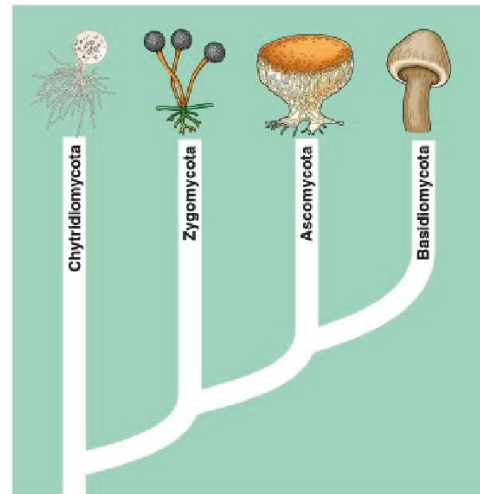
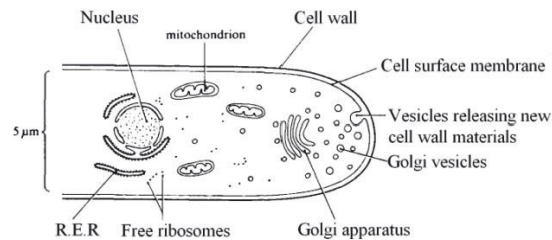
10. Which of the following statement/statements are true regarding Mycorrhizae.
 (A) They help plant nutrition (B) Some support germination of certain orchid species
 (C) They fix atmospheric nitrogen (D) They are good examples of mutualistic relationships
 (E) It is formed between high plant root and fungi
11. Zygosporangium in Zygomycota: (1) Is always metabolically active (2) Produces genetically identical spores (3) Is resistant to unfavorable conditions (4) Is formed during asexual reproduction (5) Lacks multinucleated structure
12. In Kingdom Fungi, which is true about septa? (1) All fungi possess septa (2) They block movement of cell organelles (3) Coenocytic fungi have septa (4) They divide hyphae into compartments (5) They are absent in reproductive structures
13. The characteristic features of Basidiomycota include: (1) Marine habitat (2) Presence of dikaryotic mycelium (3) Common asexual reproduction (4) Endogenous spore production (5) Absence of fruiting bodies
14. Which is correct about fungal nutrition? (1) They secrete intracellular enzymes (2) All are decomposers (3) They break down complex molecules externally (4) They are autotrophs (5) They don't form parasitic relationships
15. Which statement about fungal reproduction is true?
 (1) All fungi reproduce only sexually (2) Basidiomycota commonly reproduce asexually
 (3) Zoospores are found in all fungal groups (4) Both sexual and asexual methods exist
 (5) Spores are always produced endogenously

Structured Essay

1. Compare

| Bacteria | Fungi |
|----------|-------|
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Characteristic features of Phylum Chytridiomycota

Eg: *Chytridium*, *Allomyces*

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MCQ

1. *Mucor*, *Saccharornyces* and *Penicillium* are classified under the Kingdom: Fungi because
 - (1) all have cellulose cell walls. (2) mode of nutrition in all is absorptive. (3) all are filamentous. (4) all have sexual spores. (5) all have antheridia.
2. Which of the Following statement/s is/are correct regarding Ascomycetes?
 - (A) They produce asexual spores exogenously (B) Some of its members are unicellular (C) 4 endospores are formed (D) In sexual reproduction they produce asci (E) Members of Ascomycetes do not produce flagellated reproductive bodies.
3. Which of the following statement is false regarding fungi?
 - (1) All are heterotrophic (2) Mycelium is the growing part (3) Some causes disease to human (4) They are important in decomposing (5) They improve the soil nitrate content.
4. Which of the following statement is incorrect regarding *Saccharomyces*?
 - (1) Used in bakery industry (2) Facultative anaerobic microorganisms (3) Normal reproduction through budding (4) Important in yoghurt industry (5) Eukaryotic organism
5. All fungi are
 - (1) parasitic (2) able to live on dead organic matter (humus). (3) pathogens of plants, animals or bacteria. (4) able to undertake photosynthesis in certain conditions. (5) heterotrophic.
6. Which of the following is a feature of both fungi and bacteria?
 - (1) The absence of a cell wall. (2) Ability of some species to undertake photosynthesis. (3) Ability to exist in both unicellular and multicellular forms. (4) The absence of internal membrane bound organelles such as mitochondria. (5) Ability of some species to form symbiotic relationships with plants.
7. Which of the following is false about Chytridiomycota
 - (1) Aquatic or terrestrial or parasitic (2) Multicellular or unicellular when multicellular it is coenocytic. (3) They produce zoospores which are flagellated. (4) Cell walls are made up of cutin. (5) Some of them form colonies with hyphae while others exit as single spherical cell.
8. Which of the following is correct regarding Ascomycotes.
 - (1) Unicellular or filamentous, multicellular, multinucleated. (2) In sexual reproduction produces conidia at the tip of the conidiophores which are specialized hyphae. (3) In asexual reproduction they produce sac like structures called, asci. (4) Conidia are produced inside these asci. (5) All of these fungi produce fruiting bodies called ascocarps.
9. A characteristic feature of fungi is
 - (1) having cell walls made up of glycopeptides. (2) having heterotrophic absorptive nutrition. (3) ingestion of food and digestion. (4) storing food as starch. (5) reproduction by endospores. (2018/38)

PRACTICAL NO.13

- Observation of characteristic features of organisms of phyla Chytridiomycota, Zygomycota, Ascomycota and Basidiomycota

Objectives

- Students should be able to
1. Identify *Allomyces*, *Mucor*, *Aspergillus* and *Agaricus* using diagrams/slides /specimens,
 2. List characteristic features of above mentioned organisms,
 3. Record the observations.

Materials and equipment

- Diagrams/slides/specimens of *Allomyces*, *Mucor*, *Aspergillus* and *Agaricus*
- Light Microscopes
- Slides and cover slips

Instructions

- Allow students to observe the diagrams/ slides/ specimens of *Allomyces*, *Mucor*, *Aspergillus* and *Agaricus*.
- Let the students list characteristic morphological features of above mentioned organisms and identify each of them
- Let students record their observations.

Note

- Fungal growth rate is higher in dark places.
- Mycelia of *Mucor* can be obtained
 1. - by making a thin layer of moistened flour on a glass slide and keeping the slide inside a Petri dish
 2. - or by keeping moistened bread covered with a glass jar.

