

# **General classification of plants**

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**Fungi**

**Ferns**

**Algae**

**plants**

**Mosses**

**Angiosperms**

**Gymnosperms**

## Characteristics of Mosses

- Mosses are non-flowering spore bearing plants with no roots.
- have a multicellular rhizoid, a root like subterranean tissue that absorbs water and nutrients from the soil.
- Mosses have radial symmetry.
- Mosses are unique bryophytes because of presence of stomata.
- Mosses do not have true leaves or stems.
- Their leaf-like structures are called psyllids.



## Characteristics of Ferns

- Ferns are non-flowering spore bearing plants having roots.
- A fern plant generally consist of one or more fronds attached to rhizome. A frond is simply a leaf of a fern.
- Ferns has true roots attached to it.
- Size of ferns varies among different species.
- Tree ferns of the Cyatheaceae family are largest ferns.
- The structure of the frond and rhizome are important characteristics for the specie identification.



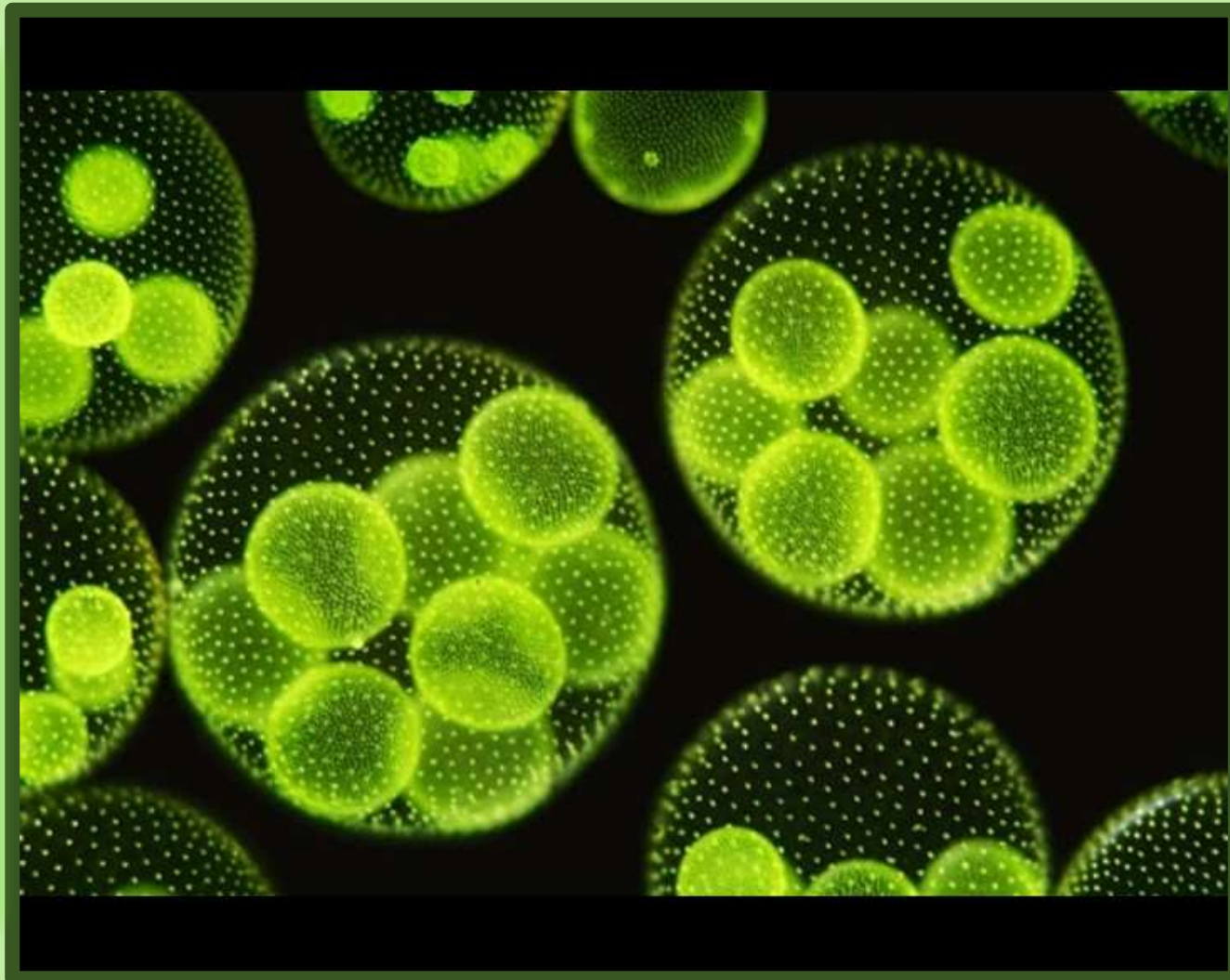


# Characteristics of Algae

- **Their body is relatively simple unicellular or multicellular thallus, not differentiated into roots, stems and leaves.**
- **Cells are covered by a rigid cellulose cell wall.**
- **Cells contain plastids.**
- **The reserve food includes mostly starch and oils.**
- **Vascular and mechanical tissues are absent.**
- **Lamina, stipe and holdfast are present.**



- Asexual reproduction is by motile zoospores.
- Sexual reproduction may be isogamous.
- Embryo is not formed after gametic fusion.



- Generally mushrooms are called fungi.
- Fungi are eukaryotic.
- Fungi have cell walls.
- Fungi cell walls are composed of a carbohydrate called chitin.
- Fungi lack chlorophyll.
- They are incapable of photosynthesis.
- Glycogen is present as energy storage molecule.
- Fungi are heterotrophs.

## Characteristics of fungi







# Characteristics of gymnosperm

- These are seed producing non-flowering plants.
- Seeds of gymnosperms are naked and are found on scales, leaves or as cones.
- Gymnosperms are evergreen.
- They have haploid tissues.
- Their reproductive system is present in cones and are unisexual.
- Their leaves are scale-like or needle-like.
- Cotyledons are absent.
- They have soft wood.



# Characteristics of Angiosperms

- These are seed producing flowering plants.
- Their seeds are enclosed inside an ovary, usually in a fruit.
- They are seasonal (die during autumn/fall).
- Their tissues are triploid.
- Their reproductive system is present in flowers and can be unisexual or bisexual.
- Their leaves are flat.
- Cotyledon is present.
- They have hardwood



Angiosperm  
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graph TD; A[Angiosperms] --- B[Monocots]; A --- C[Dicots]
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Monocots

Dicots

- They have one cotyledon in the embryo.
- Their leaf veins are parallel.
- They have isobilateral leaves.
- Monocots leaves have stomata on both the upper and lower surface.
- They have bulliform cells on leaves to regulate the loss of water.
- They have fibrous roots.
- Secondary growth is absent.

## Characteristics of monocots



- Bundles of vascular tissues are scattered throughout the stem.
- These are both herbaceous.
- They have 1 seed leave.
- For example grain, sugarcane, banana etc.

- Dicot embryo has two cotyledons.
- Their leaf veins are branched.
- They have dorsiventral leaves.
- They have stomata only on one surface of leaves.
- Dicots do not have bulliform cells
- They have taproot system.
- Secondary growth is often present.

## Characteristics of dicot



- Bundles of vascular tissues are arranged in a ring.
- They are both herbaceous and woody.
- They have two seed leaves.
- For example mint, tomato, oak etc.