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# **5- Kingdom classification**

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## 5- Kingdom classification

(Based on NCERT)

- Biologists, such as Ernst Haeckel (1894), Robert Whittaker (1959) and Carl Woese (1977) have tried to classify all living organisms into broad categories, called kingdoms.
- The classification Whittaker proposed has five kingdoms: Monera, Protista, Fungi, Plantae and Animalia, and is widely used.
- These groups are formed on the basis of their cell structure, mode and source of nutrition and body organisation.
- The modification Woese introduced by dividing the Monera into Archaeobacteria (or Archaea) and Eubacteria (or Bacteria) is also in use.
- Thus, by separating organisms on the basis of a hierarchy of characteristics into smaller and smaller groups, we arrive at the basic unit of classification, which is a 'species'.
- The important characteristics of the five kingdoms of Whittaker are as follows:

### Monera

- These organisms do not have a defined nucleus or organelles, nor do any of them show multi-cellular body designs.
- On the other hand, they show diversity based on many other characteristics. Some of them have cell walls while some do not.
- The mode of nutrition of organisms in this group can be either by
- Synthesising their own food (autotrophic) or - getting it from the environment - (heterotrophic). This group includes bacteria, Blue-green algae or cyanobacteria, and mycoplasma.

### Protista

- This group includes many kinds of unicellular eukaryotic organisms.
- Some of these organisms use appendages, such as hair-like cilia or whip-like flagella for moving around.
- Their mode of nutrition can be autotrophic or heterotrophic.



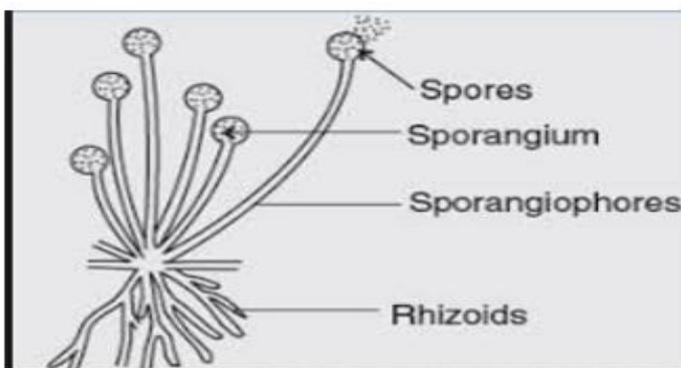
- Examples are unicellular algae, diatoms and protozoans.

## Fungi

- These are heterotrophic eukaryotic organisms.
- They use decaying organic material as food and are therefore called saprophytes.
- Many of them have the capacity to multicellular organisms at certain stages in their lives.
- They have cell-walls made of a tough complex sugar called chitin.
- Examples are yeast and mushrooms
- Some fungal species live in permanent mutually dependent relationships with blue green algae (or cyanobacteria).
- Such relationships are called symbiotic.
- These symbiotic life forms are called lichens.
- We have all seen lichens as the slow-growing large coloured patches on the bark of trees.

## Phycomycetes (Lower Fungi)

- Saprolegnia
- Rhizopus
- Mucor
- Albugo
- Pythium



## Ascomycetes (Sac fungi)

- Yeast
- Aspergillus
- Penicillium
- Neurospora
- Peziza



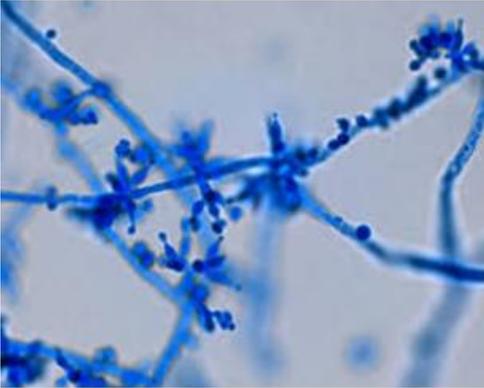
## Basidiomycetes (Gill fungi / Bracket Fungi)

- Agaricus
- Polyporus
- Puccinia
- Ustilago
- Lycoperdon



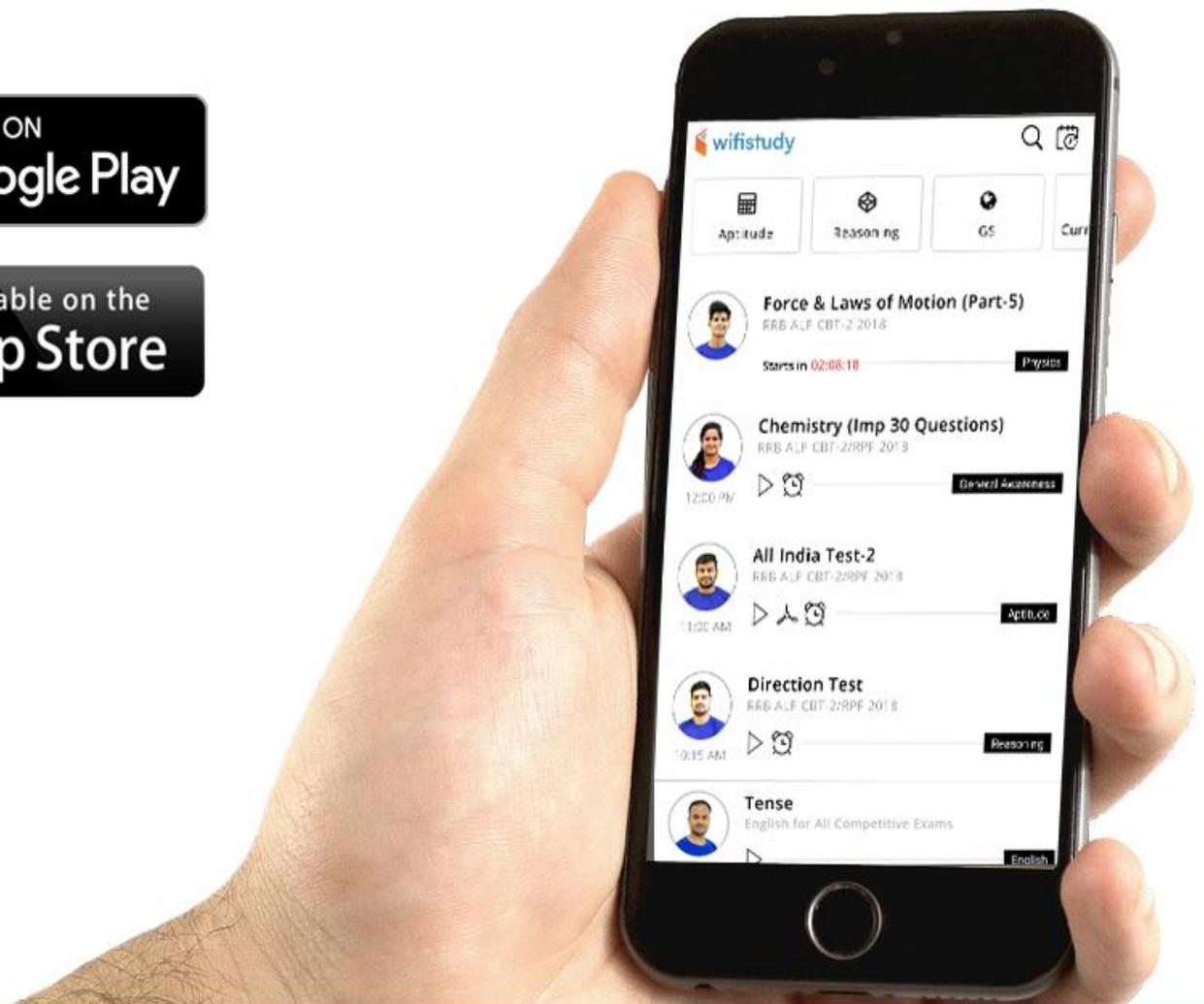
## Deuteromycetes (Fungi imperfecti)

- Cercospora
- Collectotrichum
- Trichoderma
- Pyricularia
- Fusarium





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