# ATOMIC ENERGY CENTRAL SCHOOL

# BIOLOGY

# STANDARD XI

# CHAPTER 2.

## MODULE 4/4


## UNIT 1 :

## DIVERSITY IN THE LIVING WORLD

## CHAPTER 2:

# BIOLOGICAL CLASSIFICATION

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## Kingdom Fungi

Heterotrophic, Multicellular and Eukaryotic organisms are grouped under Kingdom Fungi.

Their mode of nutrition is saprophytic as they use decaying organic matter as food.

On the basis of the organisation of the vegetative thallus, the morphology of reproductive structures, the way of spores production and particular life cycle involved the kingdom Mycota is classified into following divisions.

**Oomycetes**

Oomycetes range from a primitive unicellular thallus to a profusely branched filamentous mycelium.

Asexually they reproduce by biflagellate zoospores.

Sexual reproduction is oogamy that involves the fusion of male and female gametes to form oospore.

Example; Phytophthora infestans(causes potato blight)

**Zygomycetes**

The group is named zygomycetes because a diploid resting spore called the zygospore is formed during the life cycle.

The vegetative body is mycelium which is well developed, profusely branched and coenocytic.

Examples; Rhizopus, Mucor etc

**Ascomycetes**

The species of ascomycetes are called the sac fungi because they produce sexual pores within the sac-like ascus.

There is absence of motile cells.

Examples, Saccharomyces cerevisiae, Penicillium, Aspergillus etc.

**Basidiomycetes**

The members of basidiomycetes are saprophytic or parasitic. The group is named basidiomycetes as they produce the basidiospores at the club-shaped basidium during sexual reproduction.

Examples; Mushrooms, Puccinia, Ustilago etc.

**Deuteromycetes (The Imperfect Fungi)**

The fungi are saprophytes as well as parasites. Parasitic fungi cause serious diseases to plants, animals including human beings.

The asexual stage or imperfect stage in Deuteromycetes is well defined. But the sexual or perfect stage is absent in life cycle, therefore, they are called ‘Fungi Imperfecti’.

Example; Alternaria, Fusarium, Helminthosporium etc

## Kingdom Plantae

These are Eukaryotic, Multicellular organisms with a cell wall that is made up of cellulose.

They are autotrophs and synthesize their own food through the process of photosynthesis.

Based on the body differentiation and presence or absence of specialized vascular tissue, Kingdom Plantae is divided into different divisions, namely Thallophyta, Bryophyta, Pteridophyta, Gymnosperms, and Angiosperms.

Examples are Spirogyra, Ferns, Pines, and Mango Plant etc.

## Kingdom Animalia

This Kingdom includes organisms that are Multicellular, Eukaryotic, have a heterotrophic mode of nutrition.

Some organisms are simple while others have a complex body with specialized tissue differentiation and body organs.

The Animal Kingdom is divided into many phyla and classes.

Some of the phyla

are Porifera, Coelenterata, Arthropoda, Echinodermata, Chordata etc.

Examples – Hydra, Starfish, Earthworms, Monkeys, Birds etc.

## Viruses

Viruses are not included in the Five-Kingdom System of Classification because they are not living cells; they are acellular.

In some cases, species are subdivided into subspecies, their names consisting of a genus, a specific epithet, and a subspecific epithet (abbreviated “ssp.”) An example would be *H. influenzae* ssp. *aegyptius*, the most common cause of “pinkeye.”

## LICHENS

**Lichens are dual organisms or entities which contain a permanent association of a fungus or mycobiont and an alga or phycobiont.**

The fungal partner is usually an Ascomycota and sometimes, a basidiomycete. The algal partner is mostly a green alga or a cyanobacterium (blue-green alga).

The term lichen was coined by **Theophrastus (370-285 B.C.).**

## Limitations or Objections to the Five Kingdom System of Classification

Each group has so many diversities that it is difficult to keep them together. For example, monera and Protista contain both walled and wall-less organisms. Photosynthetic and non-photosynthetic organisms, cellular or filamentous organism.

Virus has not been included in this kingdom.

Archaebacteria differ from other bacteria in structure, composition and physiology.

Mycoplasma are quite different form bacteria where they have been placed along with prokaryotes.

## References


1. NCERT. BIOLOGY TEXTBOOK FOR CLASS XI
2. CONCEPTS OF BIOLOGY (R.L. KOTPAL / BENDRE/TYAGI)
3. https://www.ruf.rice.edu/~bioslabs/studies/invertebrates/kingdoms.html