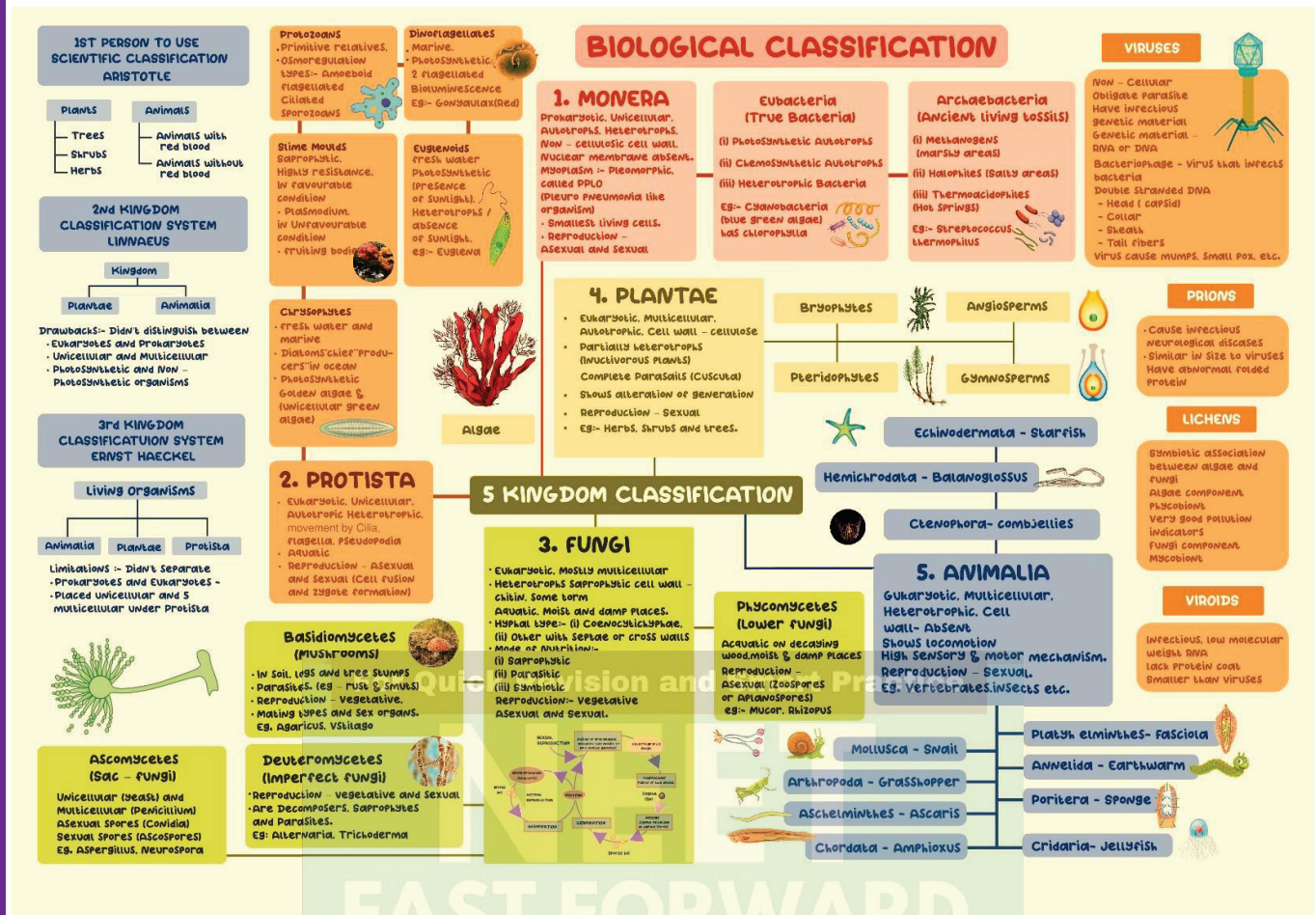


BIOLOGICAL CLASSIFICATION



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Biological classification is defined as the process of grouping organisms according to certain similarities. India's First e - Magazine with Live Testing

Linnaeus proposed the two kingdoms of classification, He classified organisms in the animal kingdom as Animalia and in the plant kingdom as Plantae. There were certain limitations related to biological classification. Classification of two kingdoms as it does not distinguish between eukaryotes and prokaryotes, unicellular and multicellular organisms, and photosynthetic and non-photosynthetic organisms. Also, the organisms that are aware and are conscious of their surroundings will be living organisms.

Five Kingdoms Rankings

RH Whittaker suggested the five rankings. The classification of these five kingdoms is as follows: Monera, Protista, Fungi, Plantae, and Animalia. The classification was based on the organization of the thallus, the cell structure, the diet, the phylogenetic relationship, and the reproduction.

Kingdom Monera

Kingdom Monera is considered as the most primitive group of organisms and monerans are most abundant of all. It generally comprises unicellular organisms with a prokaryotic cell organization. They lack well-defined cell structures including the nucleus and other cell organelles.

They consist of prokaryotes which include species like the Cyanobacteria, archaeobacteria, mycoplasma, and bacteria are a few members of this kingdom.

The general features of Monerans are:

- Monerans are present in both aerobic and anaerobic environment.
- Some have rigid cell walls, while some do not.
- The membrane-bound nucleus is absent in monerans.
- Habitat - Monerans are found everywhere in hot or thermal springs, in the deep ocean floor, under ice, in deserts and also inside the body of plants and animals.
- They can be autotrophic, i.e., they can synthesize food on their own while some others have a heterotrophic, saprophytic, parasitic, symbiotic, commensalistic and mutualistic modes of nutrition.
- Locomotion is with the help of flagella.
- Circulation is through diffusion.
- Respiration in these organisms vary, few are obligate aerobes, while some are obligate anaerobes and facultative anaerobes
- Reproduction is mostly asexual, and few also reproduce by sexual reproduction. Sexual reproduction is by conjugation, transformation, and transduction. Asexual reproduction is by binary fission.



Kingdom Protista

All unicellular eukaryotic organisms are placed under the Kingdom Protista.

The term Protista was first used by Ernst Haeckel in the year 1886. This kingdom forms a link between other kingdoms of fungi, plants, and animals.

Kingdom Protista is an important phase in early evolution and the very first protist probably evolved 1.7 billion years ago.

Kingdom Protista is a very large group comprising of at least 16 phyla. Many species of this kingdom are the primary producers in the aquatic ecosystem, and some are responsible for serious human diseases like malaria.

General features of Kingdom Protista are as follows:

- They are simple, unicellular, eukaryotic organisms.
- Most of the protists live in water, some in moist soil or even the body of human and plants.
- These organisms have a membrane-bound nucleus, endomembrane systems, mitochondria for cellular respiration and some have chloroplasts for photosynthesis.
- Nuclei contain multiple DNA strands, and the number of nucleotides is significantly less.
- Respiration – cellular respiration is the primarily aerobic process, but some living in the moist soil underneath ponds or in digestive tracts of animals are facultative anaerobes.
- Locomotion is often by flagella or cilia.
- Nutrition- include both heterotrophic and autotrophic.
- Reproduction – Some reproduce sexually and others asexually.
- Some protists are pathogens of both plants and animals. Example: Plasmodium falciparum causes malaria in humans.

KINGDOM PROTISTA



Kingdom Fungi

Fungi are a group of organisms that are found everywhere from air, water, land to the soil. They are also found in plants and animals.

Some fungi are microscopic, and others are gargantuan – almost extending over a thousand acres. And even though fungi appear like plants, they are in fact closely related to animals.

Fungi have great economic importance and show a great diversity in morphology and habitat. More than 70,000 species of fungi have been recognized and the organisms of kingdom fungi include mushrooms, smuts, yeasts, puffballs, rusts, smuts, truffles, morels, and moulds

General features of fungi are as follows:

- Fungi are eukaryotic, non-vascular and non-motile organisms.
- The growth rate of fungi is slower than that of bacteria
- Fungi grow best in an acidic environment.
- The Kingdom Fungi consist of both unicellular (e.g.: Yeast, Molds) and multicellular (e.g.: mushrooms) organisms.
- Like plant cells, fungi have cell walls made up of complex sugar molecules called chitin. But unlike plants, they do not undergo photosynthesis.
- The cell wall is composed of chitin. The vegetative body of the fungi may be unicellular or composed of microscopic threads called hyphae.
- They have a heterotrophic mode of nutrition. Few species are saprophytes i.e., they feed on dead and decaying organic matters.
- Some fungi are parasitic while some are symbionts. They can live in a symbiotic



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