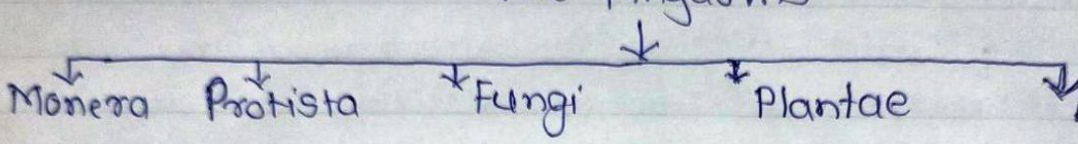
Chapter No-2
Biological Classification

Q.1 Explain the charectenistics feature of the Five kingdoms in detail.?

→ The R.H Whittaker (1969) proposed a five kingdom classification.



- The main criteria for classification used by him include cell structure, body organisation, mode of nutrition, reproduction and phylogenetic Relationship.
- The classification system included bacteria, blue green algae, fungi, mosses, ferns, gymnosperms and angiosperms under 'plants.'.
- The charecter that unified this whole kingdom was that all the organisms included had a cell coall in their cells.
- All prokaryotic organisms were grouped together under kingdom monera and the unicellular eukaryotic organisms were placed in kingdom protista.

- (a) kingdom monera :-
- kingdom monera comprise of unicellular organisms with a prokaryotic cell organization.
- They are the most abundant micro-organisms.
- Nuclear membrane is absent.
- They lack well-defined cell structures including the nucleus and other cell organelles.
- Mode of Nutrition are Autotrophic. they synthesise their own food from inorganic substrates.
- eg cyanobacteria bacteria & mycoplasm are few members of this kingdom.

Kingdom Protista :-
rotista includes unicellular eukaryotes.
Nuclear membrane present.
mode of nutrition Autotrophic.
Locomotion by Flagella & cilia.
All the members of protista kingdom produce through an asexual mode of production. either through binary fission ore formation.
eg. Euglenoids, chrysophytes.

Kingdom Fungi :-
The Fungi constitute a unique kingdom of eterotrophic organisms.
Nuclear membrane present
plant cells, Fungi have cell walls made of complex sugar called chitin.
They have heterotrophic mode of Nutriti
eg. yeast molds.

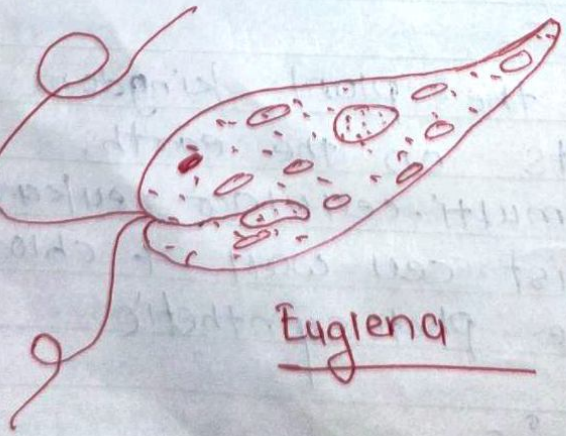
) Plantae :-
plantae is the plant kingdom which incl all the plants on the earth..
They are multi-cellular eukaryotes.
They consist cell wall & chlorophylls.
plants are photosynthetic

) Animalia :-
This kingdom is characterised by heterotroph

- They are multicellular & their cells lack cell walls.
- They Directly or indirectly depends on Plants for food.
- Heterotrophic mode of Nutrition.

Q. 2. What are the characteristic features of euglenoids ?

- They are unicellular protists, commonly found in freshwater.
- The cell membrane is rich in proteins and is known as pellicle which makes their body flexible.
- They have two flagella short & long.
- Two flagella are present on the anterior end of the body.
- They are photosynthetic in the presence of sunlight. when deprived of sunlight they behave like heterotrophs by predating on other smaller organisms
- They are known as the connecting - link between plants and animals because they possess feature common to both plants & animals.
- The pigments of euglenoids are identical to those present in higher plants.
- example :- Euglena.



Euglena

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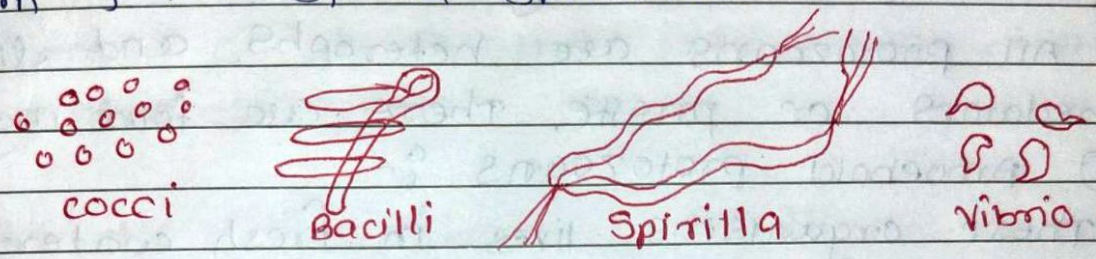
Q.No 3. Explain The Bacteria in kingdom Monera ?

- Bacteria are the sole members of kingdom monera
- Bacteria are grouped under four categories based on their shape ; the spherical coccus, the rod-shaped Bacillus, the comma-shaped Vibrium & the Spiral Spirillum.



- Archaebacteria :-
- These bacteria are present in the harshest environmental condition, such as salty, marshy & in hot Spring.
- They are known as halophiles, methanogens and Thermoacidphiles.
- Archaebacteria differ from other bacteria in having different cell wall Structure & this feature is responsible for their survival in extream condition.

- Eubacteria :-
- These are true bacteria & have a rigid cell wall.
- motile organisms have flagella.
- Photosynthetic Autotrophs - They include, cynobacteria (Blue-green algae) They have chlorophylls & carotenoids.

- They are unicellular filamentous or colonial.
- Chemosynthetic autotroplus :- bacteria oxidise various inorganic substances such as nitrates, nitrites & ammonia & use the released energy for their ATP production.
- Heterotrophic bacteria :- They are most abudant in nature.
- They act as a decomposer.
- They are used for various purpose such as nitrogen-fixing, curd & antibiotic production.

Q.4 Explain 4-major groups of protozoans ?

→ All protozoans are heteroths and live as predators or parsite. There are four major groups.

(a) Amoeboid protozoans :-
- These organisms lives in fresh water, Sea water or moist soil.
- They are charecterised by presence of pseudopodia & catching of prey. eg Amoeba.
- marine amoeboids have a silica shells.
- Some of the amoeboids are parasites.
- eg. Entamoeba histolytica.

(b) Flagellated protozoans :-
- The member of these group are either free living or parasitic.
- They have flagella.
- Some of them are paeasites causing various diseases.
- eg Trypanosoma cause sleeping sickness.

(c) Ciliated protozoans :-
- They have thousands of cillia on their body surface.
- they have a canity that opens to the outside of

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the cell surface.
- The coordinated movement of cilia helps in steering the water having food into the gullet.
- eg. paramoecium.

(d) Sporozoans :-
- They are characterized by the formation of spores, which is the infectious stage.
- eg. plasmodium

Q.5 Discuss the Silent features of Viruses with the help of a diagram.
- The viruses are acellular structures and therefore do not find a place in Whittaker's Five kingdom classification.
- They consist of nucleic acid (either DNA & RNA) that is surrounded by a protein coat.
- The name virus that means venom or poisonous fluid was given by Dmitri-ivanowsky.
- These viruse can grow and mutiply only within a host cell.
- A viruses that infect plants have single stranded RNA & viruses that infect animals. have either single or double stranded RNA & double stranded DNA.
- The protein coat called capsid made of small subunits called capsomeres, protects the nucleic acid.

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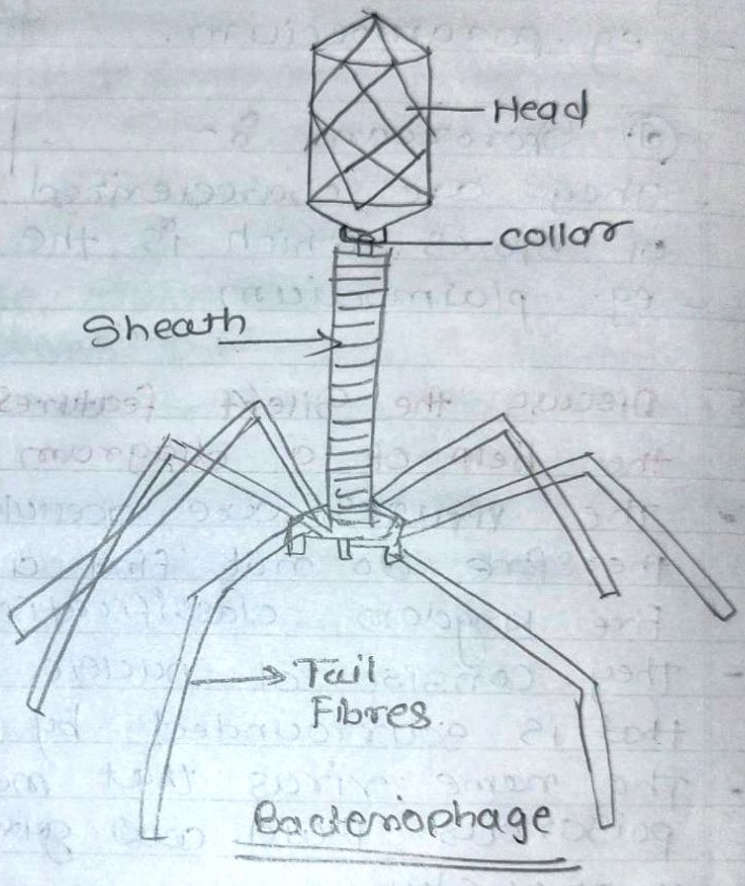
- These capsomeres are arranged in helical or polyhedral geometric forms.
- ~~These capsomer~~ Viruses causes diseases like mumps, small pox, herpes & influenza.
- AIDS in human is also caused by a virus.



Viroids :

- They are the smallest known infectious structure & consist only of nucleic acid without a protein shell.
- The RNA of the viroids cons of low molecular weight.

Prions :

In modern medicine certain infectious neurological diseases were found to be transmitted by an agent consisting of abnormally folded

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protein.
- The agent was similar in size to virus.
- These agents were called prions.

- Lichens :-
- They are known to be the symbiotic associate of algae & fungi
- The algal component are autotrophic & synthesize & provide food.
- The algal componert know as phycobiont & fungal component called as mycobiont.

Sundaram

Teacher's Sign.: