CLASSIFICATION OF LIVING THINGS II: KINGDOM PLANTAE; KINGDOM ANIMALIA week 4

CONTENT

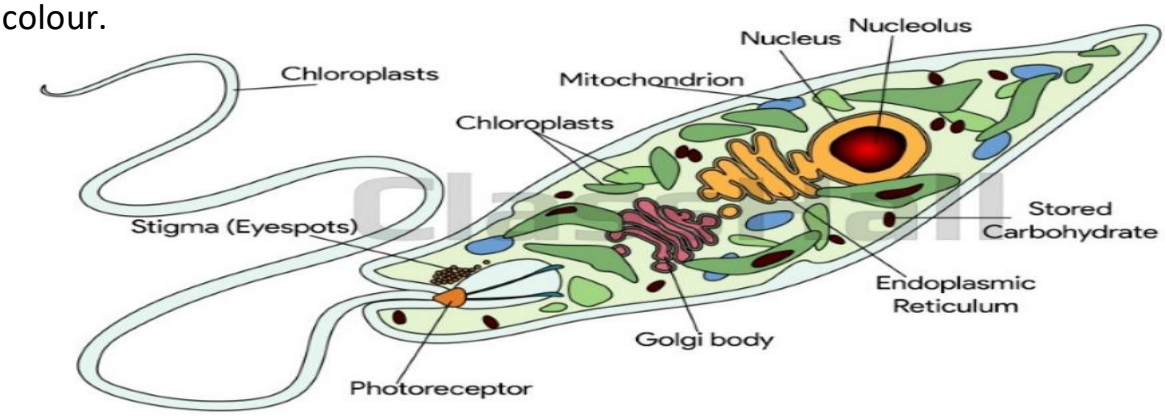
1. Kingdom Plantae
2. Kingdom Animalia

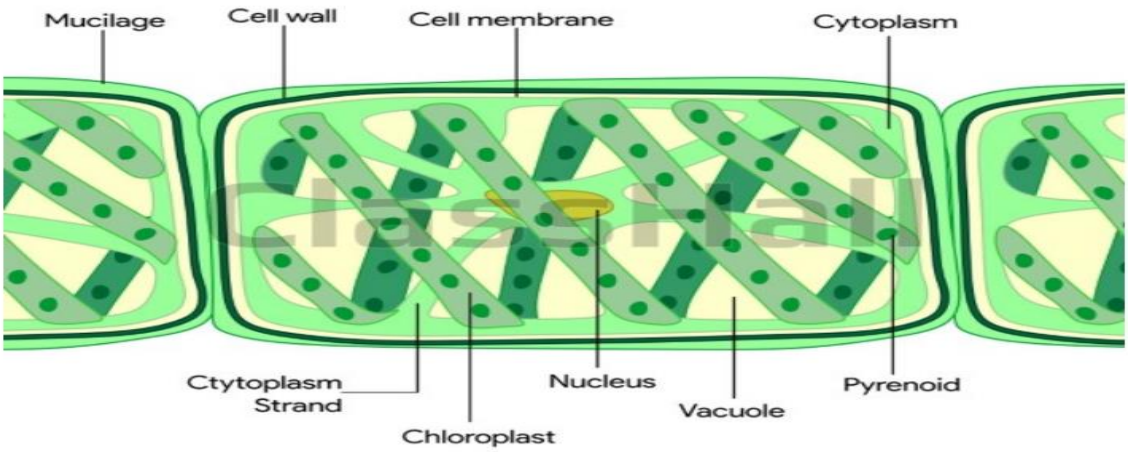
Kingdom Plantae

(i) They are mainly non-motile
(ii) They are all autotrophic

1. DIVISION THALLOPHYTA (ALGAE):

E.g. pondweeds, seaweeds, diatoms
(a) They are nearly all aquatic
(b) Some are unicellular e.g. Chlamydomonas and diatoms some are filamentous e.g. spirogyra while some have flat body called a thallus e.g. seaweeds.
(c) The body is simple in structure. They have no true roots, stems, leaves or specialized conducting systems.
(d) All have chlorophyll and they photosynthesis. However, some have other pigments which mask the green colour of chlorophyll e.g. seaweeds may be brown, red, and green in colour.





Spirogyra

2. DIVISIONS OF EMBRYOPHYTA

(I) BRYOPHYTA E.g. mosses and liverworts.

(a) The cells are differentiated into tissues.

(b) There are no specialized conducting tissues.

(c) They are terrestrial and most live in deep and shady places.

(d) They need moisture for fertilization.

(e) They exhibit asexual reproduction by spores in which there is alteration of generation.

(II) TRACHEOPHYTA (VASCULAR PLANTS)

(a) Pteridophyta: E.g. ferns

(i) They re more complex in structure than Bryophytes.
(ii) They have proper roots, stems and leaves and a well-developed conducting system (i.e they are vascular green plants).
(iii) They are non-flowering and non-seed producing plants.
(iv) A large number of spores develop on the under surface of the leaves (or ponds) which are dispersed by wind.
(v) They need moisture for fertilization.
(vi) Nearly all ferns are terrestrial, growing in damp and shady places. Many tropical ferns grow as epiphytes on palms and other trees.
(vii) Most are herbs but a few are small trees.

(b) Spermatophyta: E.g. all seed-bearing plants.

(i) They are multicellular, seed producing plants.
(ii) They have true roots, stems and leaves.
(iii) They have well developed vascular tissues.
(iv) They reproduce sexually and do not need water for fertilization.
(v) They are mainly terrestrial plants.

There are two main sub-divisions namely:

(a) Sub-division Gymnospermae: All cone-bearing plants e.g. cycads, conifers and pines.
(i) They produce seeds in cones (naked seeds).
(ii) They do not form flowers and fruits.
(iii) All are woody plants and most are trees.

***(b) Sub-division Angiospermae*:** All flowering plants.
(i) Fertilized seeds are enclosed in fruits
(ii) They are nearly all terrestrial.

Angiosperms can be further divided into 2 classes according to the number of seed leaves (cotyledons). These are:

Dicotyledonous plants (Seed having two seed leaves) e.g. Cowpea, groundnut, etc.
Monocotyledonous plants (Seeds having one seed leaf) e.g. maize, millet, wheat, etc.

KINGDOM ANIMALIA

Classification of Animals

Types of Invertebrates (PCPNAMAE)

P – Porifera (sponges)
C – Coelenterata(Cnidaria)
P – Plathyhelminthes (flat worms)
N – Nemathoda (round worms)
A – Annelida (segmented worms)
M – Mollusca
A – Arthropoda
E – Echinodermata

1. P – Porifera (Sponges)

Features

1. They are simple aquatic invertebrates that are motile.
2. They are attached to rocks, shell or corals
3. They reproduce both sexually and asexually
4. They live in colonies
5. Most are hermaphrodites (i.e possess male and female sex organs)
6. They are primitive multicellular animals with asymmetrical bodies

Examples: Demosponge, calcareous sponge, hexactinellid, siliceous sponge, Purple and Yellow Tube Sponge

2. Coelenterata

Features

1. They are multicellular aquatic organisms
2. Have radially symmetrical bodies
3. They reproduce asexually
4. Have two body layers (diploblastic)
5. They have tentacles with stinging cells for capturing prey

Examples: Hydra, sea anemone, jelly fish.

3. Plathyhelminthes (flat worms)

They consist of three classes
Class i: turbelleria e.g planaria
Class ii: Trematoda e.g liver fluke
Class iii: Cestoda e.g tape worm.

General Features

1. Free living aquatic animals
2. They are parasitic
3. They are hermaphrodites and reproduce asexually

4. They have sac-like flat bodies
5. Bilaterally symmetrical bodies with definite head and a tail.

4. Nematoda (round worms)

Features

1. They have round bilaterally symmetrical bodies, with makes it advanced over flat worms.
2. Have gut that is a straight tube with mouth and anus at opposite end.
3. Some are parasites (e.g filarial worm causes elephantiasis also called filariasis) in animals while some are free-living
4. Some are hermaphrodites while some reproduce sexually
5. They have three body layers (triploblastic)

Examples: Hook worm, filarial worm, thread worm

5. Anellida (segmented worms)

They consist of three classes
Class i: polychaete e.g sea worm
Class ii: Oligochaete e.g earthworm
Class iii: hirudinean e.g leech

General Features

1. They posses long cylindrical bodies
2. Most are marine forms and others in fresh water or damp soil.
3. Have internal and external segmented bodies which enable the animals to grow bigger.
4. Their body is partitioned by means of a septa
5. Alimentary canal has two opening, mouth and anus.
6. Have a well developed nervous and circulatory system, have *nephrida* for gaseous exchange through moist skin.

6. Mollusca

They consist of three classes
Class i: Gastropoda e.g snail
Class ii: Pelecypoda e.g mussel
Class iii: Cephalopoda e.g Octopus

General Features

1. About half are marine organisms, others live in fresh water and on land
2. They posses soft unsegmented bodies
3. Some posses calcareous shells (secreted by the mantle) for protection against physical damage, predators and drying out period
4. They posses muscular foot adapted for crawling, burrowing and swimming
5. They posses tentacles
6. The anus open into mantle cavity

7. Insecta

They consist of four classes
Class i: Crustacea e.g crabs, lobster, prawns
Class ii: Insecta e.g grasshopper, praying mantis, cockroach
Class iii: Arachnida e.g spider, scorpion, mites, ticks
Class iv: Myriapodia e.g millipede and centepedes

General Features

1. They have segemented bodies with jointed appendages
2. They three body layers (triploblastic)
3. They have various means of respiration eg gills, trachea, lung-book and body surface
4. They exhibit moulting (shedding of exoskeleton at intervals to permit growth)

8. Echinodermata

1. They have radially symmetrical body
2. They are slow – moving marine animals living on the sea shore and sea beds
3. It has no head and brain
4. They are not segmented.
5. They are spiny – skinned animals.
6. They have tube feet used for movement

Examples: Sea urchins, sea cucumber, starfish.

PHYLUM CHORDATA – VERTEBRATES

Vertebrata is a subphylum of the phylum chordate. The chordates have a notochord, a flexible rod of tightly packed cells, a tubular nerve chord (dorsal)
and gill slit at some stage in their life history. The back bone or vertebral column replaces the notochord in vertebrates.

General Features of Vertebrates

Vertebrates are animals with back bone. All vertebrates have the following features

1. A well developed central nervous system
2. Two pairs of limbs
3. Well developed sense organs
4. An internal or external skeleton
5. A bilaterally symmetrical body divided into head trunk and tail

Classes of Vertebrates

There are five classes of vertebrates
Pisces, Amphibians, Reptiles, Aves, Mammals.

ASSIGNMENT

1. List the groups in the division embryophyta.
2. State the two groups of the animal kingdom and their respective phyla.
3. Enumerate the general characteristics of vertebrates and list the classes.