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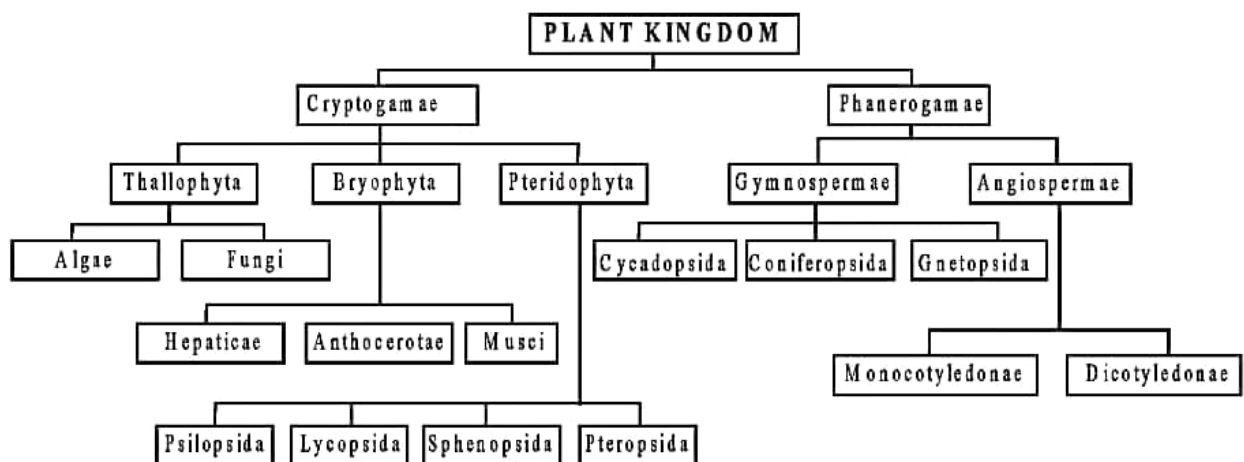
Matric Number: 19/mhs02/014

Department: Nursing

Course Code: BIO 102

ASSIGNMENT.

1. CLASSIFICATION OF PLANTS ACCORDING TO EICHLER'S GROUPING OF 1883



2. IMPORTANCE OF ALGAE TO MAN

a. **Mineral content:** Seaweeds that are found in algae has a high mineral content making it a unique supplement for a well balanced diet. iodine which is present in seaweed in an ionic form.

b. **As food for man :** Several freshwater algae have been used in the preparation of various kinds of vitaminized foods. since algae are rich in vitamins and minerals all the deficiency are overlooked by the use of algae as food as a source of vitamins.

c. **As a source of vitamins to man:** The marine algae are the richest source of vitamins (A,B and E) which are found abundantly in seaweeds.

d. **Source of agar:** Agar obtained from marine algae is used in the preparation of ice cream, jellies, desserts, etc. It is also used in preparing shaving creams, cosmetics and shoe polishes. The agar is also used in biological laboratories for media preparation.

e. **Medicine and Minerals:** Iodine gotten from seaweed is the most important element which enables the thyroid glands to secrete the thyroxine which contains 60% iodine.

f. Manufacture of soap and alum: By burning seaweeds on the sea coast, the alkalis are prepared from seaweed ashes which are employed in the manufacture of soaps and alums used by man.

g. Used as fertilizers: Due to the presence of potassium chloride in seaweeds they are used as fertilizers in many countries. Seaweed manure have increased resistance to diseases and also hold water and air at the same time thereby enriching the soil for use by man.

h. Ornamental uses: Some algae e.g. spirogyra are grown in the garden ponds because of their good look.

3. UNICELLULAR FORM OF ALGAE.

Unicellular forms of algae are also called acellular algae as they function as complete living organisms. The chlamydomonas represent the unicellular and motile forms of green algae with the following characteristics.

a. found in stagnant water and on damp soil.

b. They have flagellum for mobility.

c. The cell is bounded by cellular cell wall which contains organelles e.g. nucleus, mitochondria, stigma, cup shaped chloroplast, pyrenoid, etc. The nucleus carries the genetic program of the cell, while the mitochondria is the power house of the cell. The stigma receives light stimuli which helps the chlamydomonas to swim towards the light. The pyrenoid promotes photosynthetic fixation of CO₂ where sugar is converted into starch.

4. REPRODUCTION IN CHLAMYDOMONAS

In chlamydomonas reproduction can be vegetative (asexual) reproduction or sexual reproduction.

a. Vegetative (asexual) reproduction.

Chlamydomonas asexual reproduction occur by **zoospores**. This results in production of daughter cells in which the amount and quality of genetic in the nucleus of the mother cell is maintained in the daughter cells. Chlamydomonas undergo mitotic divisions which is a kind of cell division that maintains the quantity and quality of genetic materials. In chlamydomonas a cell about to divide loses its flagella, the cell undergo mitotic division leading to two nuclei, cell walls are elaborated while the two daughter cells (zoospores are released)

b. Sexual reproduction

The chlamydomonas sexual reproduction occurs through **isogamy**. In this type of reproduction instead of forming two spores the haploid daughter cells form gametes that have two different mating strains which then fuse in this process called isogamy to form a diploid zygote which contains two sets of chromosomes. Sexual reproduction involves union of sex cells (gamete). In chlamydomonas, aggregation of cells in a colony occurs under favourable conditions. These cells paired by their flagellated ends which is isogamous in nature because the pairing cells are similar in shape and size. The cytoplasm of the pairing cells fuse (plasmogamy) and the flagella are lost. The two nuclei fuse (karyogamy) so that a zygote is formed, the zygote secretes a thick cell wall called zygospore. After karyogamy which is the fusion of two nuclei, the zygote undergo two successive

cell division which end up with four cells in a process called meiosis. The four product of meiosis are released as haploid zoospores.

5. DIFFERENCES BETWEEN THE TWO TYPES OF COLONIAL FORM OF ALGAE.

Pandorina	Volvox
1. The colony consist of 16 cells.	1. The colonies has many cells that runs into thousands.
2. Sexual reproduction is by anisogamous pairing (pairing by the flagella ends).	2. Sexual reproduction is oogamous.
3. It has a unicellular motile thallus	3. It has a multicellular motile thallus.
4. It's a genus of green algae.	4. It's complex form is pandorina.

6. MORE COMPLEX FORM OF ALGAE

A named complex form of algae is a **fucus**.

It is a brown algae and are often found on rocks in the intertidal zones of the sea shores. The plant body is flattened, dichotomously (branched thallus with a mid rib, a vegetative apex, a reproductive apex at maturity) and a multicellular disk (hold fast) with which plant is attached to rock surface. The plant body also has air bladders which is believed to aid the plant to float on the water. Various species of fucus vary in size from a few centimetres to about 2 metres in length. Sexual reproduction is oogamous, sex cells are produced in conceptacles which have openings (ostioles) on the surface of the thallus. In the male conceptacles one of the diploid cells undergoes meiosis, the product gotten from meiosis undergo mitotic divisions to produce antheridium having 64 cells of which cells develop into a biflagellate sperm that swims out of the conceptacles through the ostioles in the female conceptacle the process is like that happens in the main conceptacles but it leads to the production of 8 celled oogonium it becomes an egg which becomes an egg which is the female sex cell. Motile sperm cell from the antheridium will move to the ostioles into the female conceptacles where the eggs are fertilized and diploid zygote are produced which germinate into a new diploid fucus plant making the diploid dedominante generation.