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COURSE CODE: BIO 102

ASSIGNMENT.

1. Eichler's grouping of plants 1883:

DIVISION	CLASS
THALLOPHYTA	Phycotinae(Algae) Mycotinae(Fungi)
BRYOPHYTA	Hepaticae (Liverworts) Musci (Mosses)
PTERIDOPHYTA	Psilotinate (Psilotum) Lycopodinae (Lycopodium, Selaginella) Equisetinae (Horsetails) Filicinae (ferns)
SPERMATOPHYTA	Gymnospermae (Gymnosperms) Angiospermae (Angiosperms)

2. Importance of algae to man:

i. They serve as thickening agents in ice-creams and shampoos, drugs to ward off diseases.
ii. Due to their high iodine content, they prevent goitre.
iii. Due to their high protein content, they are considered to be very nutritious.
iv. Brown algae yield Alginic acid which is used to stabilize emulsions and suspensions; found in products such as syrup, paint and ice cream.

3. A unicellular form in the algae: **CHLAMYDONAS.**

- They are usually found in stagnant water.
- They use their flagella for locomotion.
- They use the stigma or eyespot for photoreception
- The nucleus is carries the genetic makeup of the cell.
- The cell is bound by a cellulose cell wall which contains organelles such as; the mitochondria, stigma/ eyespot, a cup-shaped chloroplast, etc.
- The pyrenoid processes manufactured sugar to starch.

4. Mode of reproduction in the chlamydonas:
They undergo both asexual and sexual reproduction.

Vegetative (Asexual) Reproduction:

Here, the mother cell undergoes mitotic division; which entails that, the number and quality of genetic materials in the mother cell is the same as that of the daughter cell. In the chlamydonas, when a cell is about to divide, it loses its flagella. The cell undergoes mitotic division as thus releasing two nuclei, two daughter cells (zoospores) are released as well. Repeated mitotic divisions increases the population of cells in a colony.

Sexual Reproduction:

Here, meiotic division takes place. They undergo isogamous pairing of morphologically identical cells. The cytoplasm of the pairing cells fuse and they lose their flagella. The two nuclei fuse (karogamy); after karogamy, the zygote undergoes two successive cell divisions. The first division restores the haploid condition by halving the nuclear material in the two resulting nuclei while in the second division, each haploid nucleus undergoes a normal mitotic division. Both division end up with four cells and n quantity of genetic materials.

5. Differences between Pandorina and Volvox:

S/N	PANDORINA	VOLVOX
i	Each colony consists of 16 cells	Each colony consists of more than a thousand cells
ii	Unicellular motile thallus	Multicellular motile thallus
iii	Sexual reproduction is anisogamous.	Sexual reproduction is oogamous.
iv	It's a genus of green algae	It is a complex form of pandorina.

6. A complex form of algae: **FUCUS.**

It is a genus of brown algae whose species are often found on rocks in the intertidal zones of the sea shore. It has a flattened body with a dichotomously branched thallus with a mid-rib, a vegetative apex, a reproductive apex at maturity and a multicellular disk with which the plant holds on to the rock surface. They possess air bladders which is believed to aid the plant float on the water. Sexual reproduction is oogamous where sex cells are produced in conceptacles which have openings (ostioles) on the surface of the thallus.