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ASSIGNMENT:

1) Classification of plants according to Eichler's grouping of 1883.

→ He classified the whole plant kingdom into two sub-kingdoms:

- Cryptogamae
(Gk. Kryptos = concealed;
gamos = marriage)
[Lower plants]
→ Algae;
→ Bryophytes; and
→ Pteridophytes.

- Phanerogamae
(Gk. Sperma = seed;
phyton = plant)
[Higher plants]
→ Gymnosperms (Gk.
gymno = naked; sperma = seed)
→ Angiosperms (Gk. angion =
hidden; sperma = seed).
~ It is further divided
into two: Dicotyledons
and Monocotyledons.

2) Importance of Algae to man:

a) Food for sea animals and fishes.

b) It contains high mineral contents useful for man and also animals.

c) Direct use of algae as food for man (In pre-historic times, several sea weeds have been used as direct source of food to human beings).

d) Used as a source of vitamins for man (Vitamins A, B and E can be sourced from sea weeds).

e) As a source of Agar - Which is used in the preparation of ice cream, jellies, deserts etc.

f) Can be used in the manufacture of iodine and medicines.

g) Can be used to manufacture soap and alums.

3) Unicellular form of algae.

- Euglenophyta

The Euglenophyta or euglenoids are 800 species of unicellular, protozoan-like algae, most of which occur in fresh waters. The euglenoids lack a true cell wall, and are bounded by a proteinaceous cell covering known as a pellicle.

Euglenophytes have one to three flagellae for locomotion and they store carbohydrates reserves as paramylon. The primary photosynthetic pigments of euglenophytes are chlorophylls 'a' and 'b', while their accessory pigments are carotenoids and xanthophylls; they can be photosynthetic and heterotrophic.

4) Reproduction in Euglenophyta

They reproduce asexually through binary fission, a form of cell division. Reproduction begins with the mitosis of the cell nucleus, following this is the division of the cell itself. They divide longitudinally, beginning at the front end of the cell with the duplication of the flagellar processes, gullet and stigma.

5) Differentiating between the two types of colonial forms of algae.

Pandorina

→ The colony consists of 16 cells attached to one another

→ They are achieved by anisogamous pairing

→ The colony may be unisexual - only 1 kind of gamete produced in some species or bisexual

Volvox

- There are more cells in the colony, number may run into thousands and are held by cytoplasmic strands.

- Sexual reproduction is Oogamous.

(male & female gametes produced)

→ Less evolved than Volvox

- Colonies may either be unisexual or bisexual.

- More evolved than Pandorina.

5) Description of a named complex form of algae.

→ Gonium

It is a small, motile, colonial green alga consisting of biflagellate cells in a flat plate. The cells use their pair of flagella to swim with a rotating motion. Different species may have 4, 8, 16 or 32 cells that are ovoid or angular in shape. Each cell has an eyespot, two contractile vacuoles at the base of the flagella and a large cup shaped chloroplast with at least one pyrenoid.