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NBBS

1) Eichler's Grouping of 1883

Division	Class
Thallophyta	Phycotinae (Algae) Mycotinae (Fungi)
Bryophyta	Hepaticae (Liverwort) Musci (Mosses)
Pteridophyta	Psilotinae Lycopodiinae Equisetinae Filicinae
Spermatophyta	Gymnospermae Angiospermae

2) Importance of algae to Man

- i) It ~~could be~~ is used as food for fish and livestock ^{and shampoo}
- ii) It is used as a thickening agent in ice cream ~~and shampoo~~
- iii) They have high iodine content therefore prevent goitre
- iv) Brown algae yield Alginate acid which is used to stabilize emulsions and suspensions e.g. Paint.
- v) Bacteria, fungi and cell cultures are commonly grown on agar jels. Agar is also used to stabilize pie fillings and preserve some canned foods e.g. fish & meat.
- vi) They are used in making cosmetics

3) Unicellular algae (Chlamydomonas)

- It is a unicellular motile form of green algae
Found in stagnant water
Flagella are the structures for mobility

- The
- Cell is bounded by a cellulose cell wall; Contains organelles e.g. nucleus, mitochondria, eyespot (stigma) etc
 - Nucleus carries the genetic programme of the cell
 - The stigma is for photoreception
 - Manufactured sugar is processed into starch on the pyrenoid

+) Chlamydomonas reproduce either asexually (vegetative) or Sexual

Asexual reproduction

In this reproduction, after cell division daughter cells maintain the quantity and quality of genetic material. Called mitotic division. In chlamydomonas, a cell ~~starts~~ about to divide loses its flagella. The cell undergoes mitotic division leading to two nuclei, cell walls are elaborated which delimit cytoplasm around each nucleus i.e. the two daughter cells (zoospores) are released. Increase in the population of cells in a colony is achieved by repeated mitotic division.

Sexual reproduction

Environmental conditions such as lack of nutrients or water causes production of gametes through sexual reproduction.

Gametes referred to as mating strains fuse in a process called isogamy to form a diploid zygote.

The zygote coats itself and becomes dormant. The zygote has two sets of chromosomes. The zygote undergoes meiosis which produces four (4) haploid daughter cells. In sexual, flagella is not lost and pairing is at flagellous end (posterior). They are isologous because they are morphologically identical. The process of fusion of cytoplasm is plasmogamy and fusion of nucleus is karyogamy.

5) The Pandonna consist of 16 cells while the Volvox consist of about a 1000-cells

ii) Volvox shows more Complexity than pandonna

iii) ~~All~~ ^{new} cells form colonies in pandonna but not all form new colonies in volvox

iv) sexual reproduction is oogamous in Volvox while sexual reproduction is anisogamous in pandonna

v) Colonies in volvox can be bisexual or Unisexual while colonies in pandonna are ~~unicellular~~ Unisexual.

vi) volvox show greater level of Differentiation and Specialisation compared to pandonna.

vi) in volvox, not all cells are involved in sexual reproduction like pandonna

6) Complex algae (fucus)

i) Found on rock surfaces in intertidal zones of the sea shores

ii) The plant body is flattened dichotomously-branched thallus with a midrib & a vegetative apex; a reproductive apex at maturity and a multicellular disk (hold fast) with which plant is attached to rock surface.

iii) The plant body also has air bladder which is believed to aid the plant to float on the water.

iv) They vary in size from few centimetres to about 2 metres in length

v) They also vary in terms of whether the sexual cells are

found in the same sexual chamber or in different sexual chambers on different plant bodies

vi) sexual reproduction is oogamous.

vii) zygote is diploid ($2n$)