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COURSE CODE: BIO 102

MATRIC NUMBER: 19/MHS06/012

DEPARTMENT: MEDICAL LABORATORY SCIENCE

ASSIGNMENT

1. Eichler's grouping of 1883 can be shown below:

THE PLANT KINGDOM

DIVISION	CLASS
Thallophyta	Phycotinae(Algae) Mycotinae(Fungi)
Bryophyta	Hepaticae(Liverworts) Musci(Mosses)
Pteridophyta	Equisetinae(Horsetails) Filicinae(Ferns)
Spermatophyta	Gymnospermae(Gymnosperms) Angiospermae(Angiosperms)

2. Importance of algae to man are as follows:
    - Production of food
    - Production of cosmetics
    - It serves as drugs to ward off diseases
3. UNICELLULAR FORM IN THE ALGAE
   CHLAMYDOMONAS
   Chlamydomonas represents the unicellular and motile forms of green algae.It is found in stagnant water usually with other forms.The flagella are the structures for mobility.The cell is bounded by a cellulose cell wall;contains organelles e.g nucleus,stigma,pyrenoid,etc.The nucleus carries the genetic programme of the cell.The stigma is for

photorecption.The mitochondria mediate the elaboration of energy molecules.Manufactured sugar is processed into starch on the pyrenoid.It undergoes Vegetative and Sexual reproduction.

4. REPRODUCTION OF CHLAMYDOMONAS
   In chlamydomonas,reproduction can either be vegetative or sexual
   VEGETATIVE REPRODUCTION
   It involves the production of daughter cells that have the same quantity and quality of genetic material as the parent cell.It is responsible for the increase in the number of cells in unicellular organisms through mitotic divisions.Firstly the parent cell looses its flagella and divides into 2 nuclei through mitosis.This demerits the cytoplasm around each nucleus and releases the daughter cells(zoospores)
   SEXUAL REPRODUCTION
   It occurs when conditions are favourable.It involves fusion of the sex cells.It is done by clumping together by pairing of prosterior flagella ends.This fusion is isogamous i.e the gamete are morphologically identified.The two nuclei fuse called karyogamy.The cytoplasm also fuses called plasmogamy.As they are fused the zygote secrete a thick wallcalled zygosphere.The zygosphere undergoes two cell division .The first one restores haploid condition through meiosis while the second one undergoes a normal mitotic division. This result in the formation of four daughters cells which are released as haploid zoospores.

5. COMPLEX FORM IN THE ALAGE(FUCUS)
   A genus of brown algae whose species 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 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. They also vary in terms of whether the sex cells are found in the same sexual chamber or in different sexual chambers on different plant bodies. Sexual reproduction is oogamous,sex cells are produced in conceptacles which have openings on the surface of the thallus.

In the male conceptacles, one of the diploid cells from outgrowth of the wall of the conceptacles undergoes meiosis, the meiotic product undergo many mitotic divisions to produce antheridium having 64 cells of which each cells develops into a biflagellate sperm that swims out of the conceptacle through the ostiole.
In the female conceptacle, similar to the situation in the male conceptacle,leads to the production of an 8 celled oogonium.Motile sperm cells from the antheridium move through the ostiole into the female conceptacle where the eggs are fertilized and diploid zygote are produced. The diploid zygote germinates into a new diploid Fucus plant making the diploid the dominant generation.

6. DIFFENENCES BETWEEN THE TWO TYPES OF COLONIAL FORM OF ALAGE

PANDORINA	VOLVOX
It contains 16 cells in a colony	It contains thousands of cells in a colony
Sexual reproduction is achieved by anisogamous	Sexual reproduction is achieved by oogamous
It has lower levels of differentiation and specialization	It has higher levels of differentiation and specialization