

OMORAGBON OSAFURE FAVOUR

19/MHS01/344

MEDICINE AND SURGERY

BIO 102 ASSIGNMENT

1, classify plants according to Eichler's grouping of 1883

Eichler's grouping of 1883 classified plants into four divisions with classes underneath

The four divisions were

- Division Thallophyta with the classes phycotinae(algae) and mycotinae(fungi)
- Division Bryophyta with the classes hepaticae(liverworts) and musci(mosses)
- Division pteridophyta with the classes psilotinae(psilotum), lycopodiinae(Lycopodium, Selaginella), Equisetinae(horsetails) and filicinae(ferns).
- Division spermatophyta with the classes Gymnospermae and angiospermae

2, How are algae of importance to man

Algae are small thalloid chlorophyll bearing organisms and they are of vast importance to man some are

- Algae make up a part of people's diet and they also serve as food to many animals which humans consume
- Algae serve as producers in most aquatic food chains and food web
- Algae can be used to purify water instead of dangerous chemicals because they absorb CO₂ emissions
- Algae is used to produce agar which is great in the laboratories but also used to produce jams and jellies
- Algae is used to produce clinical iodine
- Algae can be used as a source of various minerals and vitamins
- It is used also in the production of soap
- Some algae have ornamental uses

3, describe a unicellular form of algae

An example of a unicellular algae form is the *Chlamydomonas* it is unicellular and motile and contains chlorophyll. It is shaped like a round button with two flagella at the posterior end for mobility. It possesses a pyrenoid which it processes manufactured sugar into starch. Some of its characteristic features are eyespots(stigma), mitochondria, cellulose cell wall, nucleus, cupshaped chloroplast, starch grains, vacuole and pyrenoid. It can reproduce both sexually under harsh environments and asexual reproduction by repetitive mitotic division. *Chlamydomonas* are found in aquatic environments usually stagnant water.

4, describe how the unicellular form in the question above carry out its reproduction

Reproduction is either sexual or asexual

- Asexual reproduction is carried out by successive mitotic divisions. First of all the cell about to divide loses its flagella and mitosis follows with elaborated cell walls which delimit cytoplasm around each daughter cells. This kind of division produces daughter cells with the equal amount and quality of genetic material in the mother cell
- Sexual reproduction occurs during harsh environment and here haploid daughter cells instead of spores form gametes. These gametes are produced in two different mating strains although structurally similar. Opposite mating strains fuse in a process called isogamy to form a diploid zygote which contains two sets of chromosomes after a period of dormancy the zygote undergoes meiosis dividing its genetic content by half and produces four genetically unique haploid cells that will develop into mature Chlamydomonas.

5, differentiate between the two types of colonial forms of the algae.

<i>Pandorina</i>	<i>Volvox</i>
The colony usually consists of 16 cells	The colony can be made up of thousands of cells
Sexual reproduction is by anisogamous pairing	Sexual reproduction is oogamous
All cells form new colonies	Not all cells form new colonies only the large cells at the posterior ends.
It is a very simple colonial algae form with no division of labour	It is a complex colonial algae form showing division of labour among cells

6, describe a named complex form of alga

Fucus (brown algae) they are brown algae which are usually found in rocks in intertidal zones of the sea shores. The plant is flattened with a branched thallus with a midrib and a vegetative apex which becomes a reproductive apex at maturity. They usually float on water because of their air bladders and vary in size from a few centimetres to about 2 metres in length. They can be unicellular or bisexual with the sexual chambers on different plants or on the same plant. Both sexual chambers have openings called ostioles. Sexual reproduction is oogamous.