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***MBBS/MHS***

***19/MHS01/307.***

1. CLASSIFY PLANTS ACCORDING TO EICHLER’S GROUPING OF 1883.

 DIVISION CLASS

Thallophyta \_ phycotinae[algae]

 Mycotinae {fungi}

Bryophyta \_ hepaticae[liverwort]

 Musci [mosses]

 Pteridophyta \_ psilotinate[psilotum]

 Lycopodinae[lycopodium, selaginella]

 Filicinae[ferns]

 Spermatophyta \_ gymnospermae[gymnosperms]

 Angiospermae[angiosperms]

Representative forms, genera and species of the plant kingdom shall be discussed;

Examine:

* The habitat
* Range of form
* The economic importance
* The reproductive systems
* Adaptive departures from lower levels of organisation among the plants.
1. IMPORTANCE OF ALGAE TO MAN.

Certain species of algae are harvested for food and cosmetics in the far-east. It serves as food for people, thickening agent in ice cream and shampoo, drugs to ward off diseases. Algae have high iodine content therefore prevent goitre. Brown algae yield alginic acid which is used to stabilize emulsions and suspension; found in man products such as syrup, ice cream and paint.

 Algae have been used for centuries, especially Asian countries, for their powers to cure illnesses. For example; cough, gout, gallstones, Goiter, hypertension, and diarrhoea. Algae also possess anticancer compounds.

1. DESCRIPTION OF UNICELLULAR FORM OF ALGAE

Unicellular form of algae could be described through an actual form of unicellular algae which is CHLAMYDOMONAS.

They are found in stagnant water usually along with other forms of algae, flagella are the structures for mobility, the cell is bounded by a cellulose cell wall; contains organelles E.G nucleus, mitochondria, stigma(eyespot), cup-shaped chloroplast, pyrenoid etc. The nucleus carries the genetic programme of the cell, the stigma is for the photoreception; the mitochondria mediate the elaboration of energy molecules; manufactured sugar is processed into starch on the pyrenoid .

1. REPRODUCTION IN THE UNICELLULAR FORM OF ALGAE

In CHLAMYDOMONAS, reproduction can either be vegetative or sexual.

Vegetative reproduction:

Results in production of daughter cells in which the amount and quality of genetic materials in the mother cells are maintained in the daughter cells, the kind of cell division that maintains the quality of genetic materials is called mitotic divisions. In chlamydomonas, a cell about to divide loses its flagella. The cell undergoes mitotic division leading to two nuclei, cell wall are elaborated which delimit cytoplasm around the each nucleus that is; two daughter cells (zoospores) are released. Increase in the population of the cells in a colony is achieved by repeated mitotic divisions.

 Sexual reproduction

Certain environmental conditions E.G lack of nutrients or moisture may trigger the haploid daughter cells to undergo sexual reproduction. Instead of forming into spores, the haploid daughter cells form gametes that have two different mating strain: Opposite mating strain fuse together in a process called isogamy to form two diploid zygote. After a period of dormancy, the zygote undergoes meiosis producing four haploid cells after karyogamy occurs (fusion of nuclei).

1. DIFFERENCES BETWEEN TWO COLONIAL FORMS OF ALGAE ( PANDORINA AND VOLVOX )

Pandorina usually occurs in water bloom. The colony consists of 16 cells attached to each other. Each cell has many attributes/ features in common with chlamydomonas that is nucleus, large chloroplast, pyrenoid, flagella, stigma ; While volvox is more complex than pandorina. There are more cells in the colony, number may run into thousands and are connected with cytoplasmic strands that runs through the cells. Not all cells form new colonies; but the larger cells at the posterior ends (gonidia).

 Sexual reproduction in pandorina are achieved by anisoogamous pairing ( pairing by flagellated ends). The volvox perform their sexual reproduction through oogamy ( the male gamete is motile while the female gamete is immotile.

1. DESCRIPTION OF THE COMPLEX FORM OF ALGAE

The most complex form of algae is the FUCUS, a genus of brown algae whose specie is often found on the 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 (hold fast) 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 water. Various species of fucus exist; vary in size from a few centimetres to about 2metres in length. They also vary in terms of whether the sex cells are found in the same sexual chamber or in different sexual chamber on different plant bodies.