**NAME: IHEME CHIDERA NICOLE**

**COLLEGE: MEDICINE AND HEALTH SCIENCES**

**DEPARTMENT: PHARMACY**

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 **BI0 102 PLANT DIVERSITY ASSIGNMENT**

1. **CLASSIFICATION OF PLANTS ACCORDING TO EICHLER’S GROUPING OF 1883**

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|  DIVISION |  CLASS |
|  Thallophyta |  Phycotinae(Algae) Mycotinae(Fungi) |
|  Bryophyta  |  Hepaticae(Liverworts) Musci(Mosses) |
|  Pteridophyta |  Psilotinate(Psilotum) Lycopodinae(Lycopodium, Selaginella) Equisetinae(Horsetails) Filicinae(Ferns) |
|  Spermatophyta |  Gymnospermae(Gymnosperms) Angiospermae(Angiosperms) |

1. **IMPORTANCE OF ALGAE TO MAN**

It serves as food for people and livestock, thickening agents in ice cream and shampoo, drugs to ward off diseases. Brown algae yield alginic acid which is used to stabilize emulsions and suspensions; found in products such as syrup, ice cream and paint. Algae have high iodine content, it therefore prevent goitre in humans.

1. **UNICELLULAR FORM IN ALGAE- CHLAMYDOMONAS**

Chlamydomonas represents the unicellular and motile forms of green algae. They are found in stagnant water usually along with other forms. Flagella are the structures of 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 photoreception. The mitochondria mediate the elaboration of energy molecules. Manufactured sugar is processed into starch on the pyrenoid.

1. **REPRODUCTION IN UNICELLULAR ALGA**

Chlamydomonas carry out reproduction vegetatively i.e. asexually whereby two daughter cells called zoospores are produced by mitotic division. They also carry out reproduction sexually in unfavorable conditions in which four daughter cells are produced meiotic division.

1. **DIFFERENCES BETWEEN THE COLONIAL FORMS OF ALGAE- PANDORINA AND VOLVOX**
2. Greater levels of differentiation and specialization in volvox than in pandorina.
3. Pandorina have 16 cells, while the volvox has number of cells that may run into thousands
4. All cells in pandorina forms colony, but all cells in volvox do not form colony.
5. **COMPLEX FORM IN ALGAE- FUCUS**

The fucus is a genus of brown algae whose species are often found on rocks in the intertidal zone 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 are believed to aid the plant to float on the water. Various species of fucus exist; vary in size from a few centimeters to about 2meters in length.

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 (ostioles) 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 cell 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–– each becomes an egg which is the female sex cell.

Motile sperm cell from the antheridium move through the ostiole into the female conceptacle where the eggs are fertilized and diploid zygote are produced.

Apart from the antheridia and oogonia, sterile multicellular filaments (paraphyses) are also produced in the conceptacles which are dispersed among the antheridial and oogonial outgrowths and at the entrance into the conceptacles.

The diploid zygotes germinates into a new diploid Fucus plant making the diploid the dominant generation.