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**COURSE: BIO 102 ASSIGNMENT**

**MATRIC NO: 19/MHS01/356**

1. Classifying 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 include:
2. Algae are considered nutritious because of their high protein content and high concentration of minerals, trace elements and vitamins.
3. They have high iodine content therefore prevent goitre.
4. Red algae provides agar and carrageen used for the preparation of various gels used in scientific research.
5. Brown algae yield alginic acid which is used to stabilize emulsions and suspensions , found in products such as syrup, ice cream and paint.
6. Algae have been used for centuries, especially Asian countries, for their purported powers to cure or prevent illnesses e.g cough, gout, hypertension etc
7. A unicellular form of algae: CHLAMYDOMONAS-

It is found in stagnant water, have flagella for mobility, the cell is bounded by a cellulose cell wall and it contains organelles. Chlamydomonas reproduce either asexually or sexually ( by a process called isogamy )

1. **VEGETATIVE REPRODUCTION**: The call about to divide loses its flagella, the cell undergoes mitotic division leading to 2 nuclei cells, cell walls are elaborated which delimit cytoplasm around each nucleus i.e. 2 daughter cells ( zoospores )are released.

**SEXUAL REPRODUCTION**: Under certain environmental conditions, instead of forming into spores, the haploid daughter cells form gametes that have 2 different mating strains which are structurally similar and are positive and negative strains. Opposite mating strains fuse in a process called isogamy to form diploid zygote, which contains 2 sets of chromosomes. After a period of dormancy, the zygote undergoes meiosis, a type of cell division that reduces the genetic content of a cell by half. This meiotic division produces 4 haploid cells that eventually grow into mature cells.

1. **DIIFFERENCES BETWEEN PANDORINA AND VOLVOX**

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| **PANDORINA** | **VOLVOX** |
| 1. Consists of 16 cells | Consists of thousands of cells in the colony |
| 1. Sexual reproduction is by anisogamous pairing | Sexual reproduction is oogamous |
| 1. Less advanced and complex | More advanced and complex |
| 1. All 16 cells form new colonies | Only gonidia divide and form new colonies |
|  |  |

1. Complex form of algae: **FUCUS—**

A genus of brown algae 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 it attaches to rock surfaces. The plant body also has air bladders which is believed to aid the plant to float on the water. They vary in size from a few centimeters to about 2m in length. Sexual reproduction is oogamous.