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**Matric number: 19/MHS01/007**

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# Classify plants according to Eichlers grouping of 1883.

ANSWER

Eichelrs classified plant kingdom into sub-kingdom, they are;

1. Cryptogamae (**Gk. Kryptos=concealed; gamos= marriage):**

***Flowerless and seedless plants (Thallophytes, Bryophytes, Pteridophytes) e.g. Algae, Mosses, Ferns, Liverworts, Psilotinate, Lycopodinae etc.***

1. phanerogamae(**Gk. Sperma=seed; phyton=plant):**

***They are seed bearing bearing plants also known as spermatophytes e.g Gymnospermae, Angiospermae***

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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 | Gymnospemae(Gymnosperms)  Angiospemae(Angiosperms) |

# 2) How are algae of importance to man?

ANSWER

1. Serve as food for fishes, people and livestock.
2. Thickening agents in ice cream and shampoo.
3. Serves as drugs to ward off diseases and illness e.g. cough, gout, hypertension, gallstones etc.
4. They are considered very nutritious because of their high protein content and high concentration of minerals, trace elements, vitamins.
5. Algae have high iodine content, therefore they can prevent goitre.
6. Brown algae yield alginic acid which is used to stabilize emulsion and suspension.

# 3) Describe a unicellular form of algae.

Chlamydomonas

* Chlamydomonas represent the unicellular form of algae.
* They are plant like autotrophs and they contain chlorophyll
* They have no roots, stem or leaves
* They are mostly aquatic
* Reproduction can either be vegetative (asexual) or sexual
* Vegatative reproduction in Chlamydomonas: The production of daughter cells which the amount and quanlity of generic material in the nucleus of the mother cell is maintained in the successive daughter cells. **Mitotic division is essential and significant.**
* Sexual reproduction: caused by unfavorable weather condition, this is the union of sex cells (gametes). It is different from vegetative reproduction because the zygote undergoes meiosis, a type of cell division that reduces the genetic content by half. This pairing is isogamous because the cells (i.e. gametes) are morphologically identical.

# 4)how does this unicellular algae described in question 3 carry out its reproduction?

* The unicellular algae in question 3 carry out reproduction in two ways;

1. **Vegetative (asexual) reproduction:** This is the type of reproduction which results in the production of daughter cells, mitotic division maintains the quantity and quality of the generic material in the daughter cell from the mother cell. When a cell is about to divide, it looses its flagella and divides into two nuclei, the cell walls are elaborated which delimits around each of the nucleus meaning two daughter cells are released.
2. **sexual reproduction**: It involves the union of sex cells (gametes). This type of reproduction occurs at certain environmental conditions mostly unfavorable in nature, here the haploid daughter cells form gametes that have two different mating strain. It is different from vegetative reproduction because the zygote undergoes meiosis, a type of cell division that reduces the genetic content by half. During the process, Plasogamy and karyogamy is said to occur respectively in which the flagella is lost and after karyogamy the zygotes undergoes two cell divisions, (1.) The reduction division and (2.) a normal mitotic division. This process would therefore end up releasing four cells which would be finally released as haploid zoospores. Note that pairing is isogamous because the cells (i.e. gametes) are morphologically identical.

# 5)Differentiate between the two types of colonial form of algae.

|  |  |
| --- | --- |
| **PANDORINA** | **VOLVOX** |
| Sexual reproduction is anisogamous | Sexual reproduction is oogamous |
| Unicellular motile thallus | Multicellular motile thallus |
| It’s a genus of green algae | It’s a complex form of pandorina |

# 6)describe a named complex form of alga.

**Fucus**

It’s a genus of the brown Algae whose species are found on rocks in the intertidal zones of the sea shores. The body of the plant is flattened, dichotomously-branched thallus with a mid rib, a vegetative apex (reproductive apex when its mature) and a multicellular disk with which plant is attached to rock surface. The plant body has air bladders which is believed to aid the plant to float on the water. It varies in size from a few centimetres to about 2 metres in length. Sexual reproduction is oogamous, sex cells are produced in conceptacles which have openings (ostioles) on the surface of the thallus.

During reproduction, The male conceptacles undergoes meiosis, the meiotic product undergoes several mitotic division to produce antheridium having 64 cells that will develop into a biflagellate sperm, while the female conceptacles similar to the same process of the male conceptacles leads to the production of an 8 celled oogonium where each would later develop to an egg, motile sperm cell from the antheridium move through the ositole 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.