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LEVEL: 100 Level

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COURSE: General biology II , BIO 102

Assignment: General biology II

1. Classify plants according to Eichler’s grouping of 1883.

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| DIVISION | CLASS |
| Thallophyta | Phycotinae (Algae)  Mycotinae (Fungi) |
| Bryophyta | Hepaticae (Liver worth)  Music (Mosses) |
| Pteridophyta | Psilotinate (Psilotum)  Lycopodinae ( Lycopodium,selaginella)  Equisetinae ( horsetails)  Filicinae (ferns) |
| Spermatophyta | Gymnospermae (gymnosperms)  Angiospermae (angiosperms) |

1. How are Algae of Importance to man?

* It serves as food for people and livestock.
* Algae have high iodine content and therefore prevent goitre.
* It serves as a thickening agent in ice cream.
* Brown algae yield Alginic acid which is used to stabilize emulsions and suspensions.
* Algae is used in wastewater treatment facilities.
* Algae can be grown to produce biomass , which can be burned to produce heat and electricity.

1. Describe a unicellular form of algae.

Chlamydomonas

It is a unicellular form of algae, it possesses flagella for mobility. It is found in stagnant water. It has a stigma which is for photoreception. It’s cell is bounded by a cellulose cell wall which contains its organelles. Manufactured sugar is processed into starch on the pyrenoid. The nucleus carries the genetic programme of the cell. The mitochondria mediate the elaboration of energy nucleus.

1. How does thus unicellular algae in question 3 carry out its reproduction.

Reproduction in chlamydomonas.

Chlamydomonas undergoes two types of reproduction; asexual (vegetative) and sexual reproduction.

Asexual reproduction results in production of daughter cells which the amount and quality of genetic material in the nucleus of the mother is maintained in the daughter cells. The cell about to divide losses its flagella and then undergoes mitotic divisions leading to two nuclei, cell walls are elaborated, cytoplasm forms and two daughter cells will be released.

Sexual reproduction takes place during unfavorable conditions. This involves the union of sex cells (gametes). The gametes have two different mating strains, which are structurally similar and are positive and negative strains. Opposite mating strains fuse in a process called isogamy to form a diploid zygote which after a period of dormancy undergoes meiosis reducing the genetic content of the cell by half.

1. Differentiate between the two colonial forms of algae.

* Pandorina
* Volvox

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| Pandorina | Volvox |
| * Sexual reproduction is anisogamous. | * Sexual reproduction is oogamous. |
| * This colony is made up of 16 cells. | * Cells here may run into thousands. |

1. Describe a named complex form of algae.

Fucus

It is a genus of brown algae whose species are often found on rocks in the intertidal zones of the sea shores. Has a flattened body, dichotomously-branched thallus with a midrib, a vegetative apex, a reproductory apex at maturity and a multicellular disk (hold fast)with which the plant is attached to rock surfaces.it has air bladders which are believed to help the plant float water. There are various species of fucus. It undergoes sexual reproduction, oogamous.