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College: College of Sciences

Department : Microbiology

Course: Bio 102

1.Eichler's Grouping of 1883

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)

2.Importance of Algae to man

● Certain species of algae are harvested for food and cosmetics

● It serves as thickening agents in ice cream and shampoo

● It is used to produce drugs to ward off diseases

● Algae have high iodine content therefore prevent goitre

● Seaweed are sources of three chemical extracts used extensively in the food, pharmaceutical, textile and cosmetic industries

● Brown algae yield Alginic acid which is used to stabilize emulsions and suspensions.

3. Description of the unicellular form of algae

● Chlamydomonas represents the unicellular and mobile forms of green algae found in stagnant water. They posses flagella for mobility. The cell is bounded by a cellulose cell wall, containing organelles e.g nucleus, mitochondria, stigma, paranoid e.t.c. The nucleus carries the genetic programme of the cell. The stigma is for photoreception. The mitochondria mediates the elaboration of energy molecules.

4. Reproduction of the unicellular alga

Reproduction in Chylamdomonas can either be vegetative (asexual) or sexual. Vegetative reproduction results in production of daughter cells in which the amount and quality of genetic materials in the nucleus of the mother cell is maintained in the daughter cells. Thus, if the amount of genetic material in the mother cell nucleus is n,the daughter cells also have n quantity of genetic material.

Sexual reproduction is triggered by certain enviromental conditions. Instead of forming spores, the haploid daughter cells form gametes that have two different mating strains which are structurally similar. Opposite mating strains fuse in a process called isogamy to form a diploid zygote. After a period of dormancy, the zygote undergoes meiosis, a type of cell division that reduces the genetic content of a cell by half.

5. Differences between the two types of colonial form of algae

Volvox Pandorina

Sexual reproduction is oogamous Sexual reproduction is anisogamous

Volvox forms spherical colonies of up to 50,000 cells Pandorina is composed of 8,16 or sometimes 32 cells

6. The complex form of algae

The fucus is a genus of the brown algae whose species are often found on rocks in the internal zone of the sea shores. The plant body is flattened, dichotomously branched phallus with a mid rib, a vegetative apex, a reproductive apex at maturity and a multicellular disk with which the plant is attached to the 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. They vary in size from a few centimeters to about two meters in length.