**BIO 102 (ASSIGNMENT)**

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1. **Plants according to Eichler’s grouping(1883):**
2. Thallophtya: Phycotinae ( Algae)

Mycotinae (Fungi)

1. Bryophyta: Hepaticae (Liverworts)

Musci (Mosses)

1. Pteridophyta: Psilotinate (Psilotum)

Lycopodinae (Lycopodium, Selaginella)

Equisetinae (Horsetails)

Filicinae (Ferns)

1. Spermatophyta: Gymnosperms

Angiosperms

1. **Importance of Algae to man:**
2. Algae have high Iodine content therefore prevents goitre.
3. Seaweeds are source of three chemical extracts used extensively in the food, pharmaceutical, textile and cosmetics industries.
4. It serves as thickening agents in the shampoo and ice cream industries.
5. It serves as food for people and livestock.
6. Algae are important as food for fishes.
7. **Unicellular form of algae:**

Chlamydomonas represents the unicellular and motile forms of green algae found in stagnant water usually along with other forms. It uses flagella for mobility. The cell is bounded by a cellulose cell wall and it contains organelles such as nucleus, mitochondria, stigma (eyespot), cup-shaped chloroplast, pyrenoid, etc.

1. **Reproduction in Unicellular algae:**

It undergoes both asexual and sexual mode of reproduction.

**Asexual**: In this mode, it loses it flagella and undergoes mitosis in which both the cytoplasm and nucleus divides to give two daughter cells called **ZOOSPORES.**

**Sexual:** In this mode, the algae experiences unfavourable environmental conditions such as lack of nutrients, inadequate moisture, etc. which enables it to develop gametes. Instead of forming spores, it forms gametes and these gametes are called mating strains. Two opposite mating strains fuse together by a process called ISOGAMY to form a diploid zygote. It does not develop an embryo. The zygote may be dormant but after dormancy, the zygote undergoes meiosis to give four daughter cells.

1. **Difference between the two colonial forms of algae:**

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| VOLVOX | PANDORINA |
| 1. It is evolutionarily more advanced than pandorina. | It is less advanced than volvox. |
| 1. Their cells run in thousands. | They have 8, 16 or sometimes 32 cells in their colony. |
| 1. Only mature cells divide during cell division called GONIDIA | All 16 cells divide during cell division |

1. **Complex form of algae:**

Example: FUCUS (Brown algae). It is 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 (hold fast) 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.