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**DEPARTMENT: MEDICINE AND SURGERY**

**COURSE CODE: BIO102**

1. Eichler’s Grouping of 1883

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| Phylum | Class |
| Thallophyta | Phycotinae (Algae)  Mycotinae (Fungi) |
| Bryophyta | Hepaticae (Liverwort)  Musci (Mosses) |
| Pteridophyta | Psilonate (Psilotum)  Lycopodinae (Lycopodium, Selaginella)  Equisetinae (Horsetail)  Filicinae (Ferns) |
| Spermatophyta | Gymnospermae  Angiospermae |

1. How are algae of importance to men.
   * It serves as food for people and livestock.
   * It is used as a thickening agent in ice cream and shampoo.
   * It is used as a drug to ward of diseases.
   * Seaweed is a source of three chemical extracts used extensively in the food, pharmaceutical, textile and cosmetics industry.
   * Brown algae produce alginic acid which is used to stabilise emulsion or suspension in products like syrup, ice cream, paint etc.
2. Describe the unicellular form of algae.
   * The unicellular form of algae is the **Chlamydomonas**
   * The cell is bounded by a cellulose cell wall which contains organelles such as nucleus, mitochondria, stigma , chloroplasts etc.
   * Presence of flagella for movement.
   * Presence of nucleus to carry genetic material
   * Presence of mitochondria for respiration.
   * Presence of stigma for photo reception.
   * Manufactured sugar is processed into starch by the pyrenoid.
3. How does the unicellular algae in question 3 carry our its reproduction.
   * Vegetative reproduction: The cell loses its flagella then undergoes mitosis division leading to the formation of two daughter cells (Spores) with the same genetic material as the parent cell.
   * Sexual reproduction: In Chlamydomonas, sexual reproduction is said to be Isogamous because the mating cells are morphologically identical. The mating cells pair by their flagellated ends then the process of Plasmogamy (fusion of cytoplasm) and Karyogamy ( Fusion of the nucleus) occur. This leads to the formation of a zygote. After a period of dormancy, the zygote undergoes a semiotic division to reduce to haploid form and a mitotic division. This leads to the formation of 4 daughter cells.
4. Differentiate between the two types of colonial algae.
   * Pandorina; Pandorina is a genus of green algae composed of 8, 16, or sometimes 32 cells, held together at their bases to form a sack globular colony surrounded by mucilage. Asexual reproduction is by simultaneous division of all cells of the colony to form autocolonies that are liberated by a gelatinization of the colonial envelope. Sexual reproduction occurs by division of each cell of the colony into 16-32 zoogametes.
   * Volvox: It is a multicellular alga having multicellular motile thallus. Sexuall reproduction is oogamous.
5. Describe a named complex form of alga.
   * The complex form of the algae is the Fucus.
   * It is found in rocks in intertidal zones.
   * It possesses air bladders for floating.
   * There are various species ranging from a few centimetres in length to 2 metres.
   * Sexual reproduction is oogamous. The sex cells are produced in Conceptacles which have openings know as the Ostioles on the surface of the thallus.
   * The male gametes is called the Antheridium while the female gametes are called the Oogonium.