

## ALGAE: GENERAL FEATURE

1. About - 30,000 species, distributed all over the world.
2. Derived from Latin word - Algae = Sea Weeds
3. Study is called Algology or Phycology (Phycos = Sea Weeds = Algae)  
logos = to study
4. Body - chlorophyllous thallophytes.
  6. - Green, small and photosynthetic (= Autotrophic)
  - Vegetative structure shows a great variations - i.e.
    - \* Unicellular (motile - Chlamydomonas; Non-motile - Chlorella <sup>green algae</sup>)
    - \* Multicellular (Palmeloid - Colonial without fixed no. of cell - Trepostoma)
      - Coenobial form - Hydrodictyon, Volvox
      - Siphonocous form - Coenocytic - Vaucheria, Caulerpa
      - Filamentous - Spirogyra, Oedogonium - unbranched
      - Filamentous - Ectocarpus - Branched
      - Folioseous form or Parenchymatous - Ulva, Laminaria
5. Habitat :- Widely distributed
  - \* Aquatic - Floating or submerged
    - Fresh Water or marine
    - Grouped into -
      - (a) Phytoplankton - covering the surface of the water.
        - Eg - Diatoms, Chlorella, Chlamydomonas
        - Sometimes colour of the water is changed due to colour of phytoplankton.
        - Eg - Macrocytis, Red Sea is due to "Trichodesmium erythrium". They are called Blooms.
      - (b) Benthos - Bottom dwelling - Chara, Nitella.
  - \* Terrestrial Habitat -
    - Edaphophytes - on moist & aerated soil - Vaucheria.
    - Eg - Oscillatoria, Scytonema.
  - \* Special Habitat -
    - Thermophytes (70° - 85°) - Phormidium
    - Epiphytes - Oedogonium, Glotharia
    - Endophytes - Nostoc (inside Anthoceros)
    - Endozoo phytes - Chlorella within Hydra.
    - Symbiotic - Nostoc, Anabaena - Lichen
    - Parasitic - Cephalosporium causing red rust on Tea.
6. Reserve Food - Starch
7. Reproduction -
  - A) Vegetative -
    - Fragmentation - Spirogyra
    - Fission - by cell division.
  - B) Asexual :-
    - Zoospores - Motile spores (Chlamydomonas, Oedogonium)
    - Aplanospores - Non motile (Brown Algae)
    - Akinetes - Nostoc
  - C) Sexual :- During unfavourable condition.
    - Isogamous - Chlamydomonas
    - Anisogam - Chlamydomonas braunii, Spirogyra (isogamous)
    - Oogamous - ♂ gamete motile in auxtherioid ♀ gamete in oogonium - large.

### 8) Pigments:-

• Chlorophylls - 5 types (chl.a, chl.b, chl.c, chl.d; chl.e)

• Phycobilins - water soluble - 3 types

Phycocyanin - blue

Phycocerythrin - red

allophycocyanin.

• Carotenoids - Found in association of chlorophylls,

2 types -

- Carotenes - 6 types,

- Xanthophyll - 20 types.

• Other Pigments -

Phycobilins

Fucoxanthin

Diatom xanthin

### \* Def. of Pigments / What are Pigments?

Pigments are organic molecules with conjugated double bonds. Thus absorb visible light and are coloured.

### \* Pigments in different groups of Algae:-

1. Chlorophyceae (Green algae) - chl.a, chl.b,  $\beta$ -carotene & xanthophylls.

2. Xanthophyceae → chl.a,  $\beta$ -carotene, xanthophylls.

3. Bacillariophyceae → chl.a, chl.c,  $\beta$ -carotene

4. Phaeophyceae → chl.a, chl.c1, chl.c2, Fucoxanthin,  $\beta$ -carotene, xanthophylls.

5. Rhodophyceae → chl.a, chl.d,  $\beta$ -carotene, Phycocerythrin and Phycocyanine.

6. Myxophyceae → chl.a,  $\beta$ -carotene, Phycocyanine, and phycocerythrin.

\* Note - All algae possess → chl.a