

CLASSIFICATION OF ALGAE

In 1753, Linnaeus placed algae in the class cryptogamia together with mosses, vascular cryptogames and fungi in his *Species Plantarum*. He did not classified algae further. Since then classification of algae has been continually modified. Vaucher (1803) was perhaps the first to propose a system of classification of algae. He recognized three groups, *Conferves*, *Ulves* and *Tremelles*.

Algae along with fungi were grouped under Thallophyta, a division created by Eichler (1836). Engler and Prantle (1912) proposed a system of classification which is summarized as follows-

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| 1. Schizophyta | 2-Phytosarcodina |
| 3. Flagellata | 4-Dinoflagellata |
| 5- Bacillariophyta | 6- Conjugatae |
| 7- Chlorophyceae | 8- Charophyta |
| 9- Phaeophyceae | 10-Rhodophyceae |
| 11- Eumycetes | |

A brief account of characteristics of the 11 classes of algae as proposed by Fritsch (1945):

1-Chlorophyceae: Members of this class are green in colour because of chlorophyll a and b, associated with some amount of yellow pigment. Pyrenoids are also present in all the members (except member of the order Siphonales) of this class. Starch is the chief food reserve. Majority of these algae are fresh water, also includes terrestrial and marine forms. These green algae reproduce by vegetative, asexual and sexual means.

2- Xanthophyceae: Algae of this class are yellow-green in colour because of the presence of xanthophylls pigment. They lack pyrenoids. Reserve food material in the form of oil drops. These are fresh water algae but few are marine. Reproduce sexually by means of microscopic gametes with unequal cilia. (Cilia are active organelles that are used by most eukaryotic organisms to move fluids).

3-Chrysophyceae: These are unicellular forms which possess orange colour due to the presence of phycochrysin pigment. Reserved food is in the form of oil and leucosin. These are fresh water and marine forms.

4-Bacillariophyceae (Diatoms): These algae are yellow, golden-brown, or olive green in colour. The chief pigment is Diatomin. These are unicellular forms which sometimes form small colonies. Pyrenoids are present and hence the reserve food material is starch. They inhabit fresh and marine water.

5-Cryptophyceae: The members of this class greatly vary in the colour of their plant body. These are usually brown, red or even blue green in colour. The real nature of the pigment or pigments which render such a variety of colours is not definitely known. These are fresh-water and marine forms characterized by the presence of two large parietal chloroplasts.

6-Dinophyceae: The members of this class are brown or dark yellow in colour. The chief pigment is Pyrrophyll which is a combination of yellowish green pigment chlorophyll, dark-red peridinin and red phycopyrrin. These forms are characterized by the presence of several discoid chloroplasts and large, prominent nucleus. Reserved foods in the form of fat and starch.

7-Chloromonadineae: These are bright green which consist excess of xanthophylls pigment. These are characterized by the presence of many discoid chloroplasts. Reserved food is in the form of fat.

8-Euglinineae: These are naked flagellates which according to Fritsch " show a more definite trend in the direction of animal organization". Majority of them lack chromatophores.

9-Phaeophyceae: The members are generally known as brown algae. Structurally these are the most complex algae. Pigments include chlorophyll a and c, β - carotene and xanthophylls. The brown colour is due to excess fucoxanthin. Commonly algae are called sea weeds. They are marine forms. Reserve food material is in the form of laminarin and mannitol. Algin and fucoidin is present in cellulosic cell wall. Reproduction is by vegetative and sexual both. Sexual reproduction ranges from isogamy to oogamy. Motile cells are biflagellate with unequal length. Flagella are unequal and are attached laterally.

10-Rhodophyceae: Majority of the forms are marine and only few are fresh water forms. Members are called red algae. Major pigments include chlorophyll a and d, β - carotene, xanthophylls and phycobilins- r-phycoerythrin, r-phycoerythrin and allophycoerythrin. The colour of algae is red due to the presence of excess r-phycoerythrin. Reserve food material is floridean starch.

Thallus is organized and possess complexity. Plasmodesmata is present in the cells except in the members of Protofloridae. Sexual reproduction is specialized and oogamous. Motile cells are altogether absent.

11-Cyanophyceae or Myxophyceae- The members are called blue green algae. Members are prokaryotic. Thallus is simple unicellular, colonial or multicellular bodies. Pigments are not in organized bodies as in other cases. Principle pigments are chlorophyll a, α -carotene, β - carotene, xanthophylls and phycobilins- c-phycoerythrin and c-phycoerythrin. The colour of algae is due to the presence of excess c-phycoerythrin. Reserve food material is cyanophycean starch. The cell wall is made up of mucopeptide. Most of the members are embedded in mucilaginous sheath. False branching and special cells heterocysts are characteristics of several members. Motile cells are altogether absent in life cycle as in the case of Rhodophyceae.