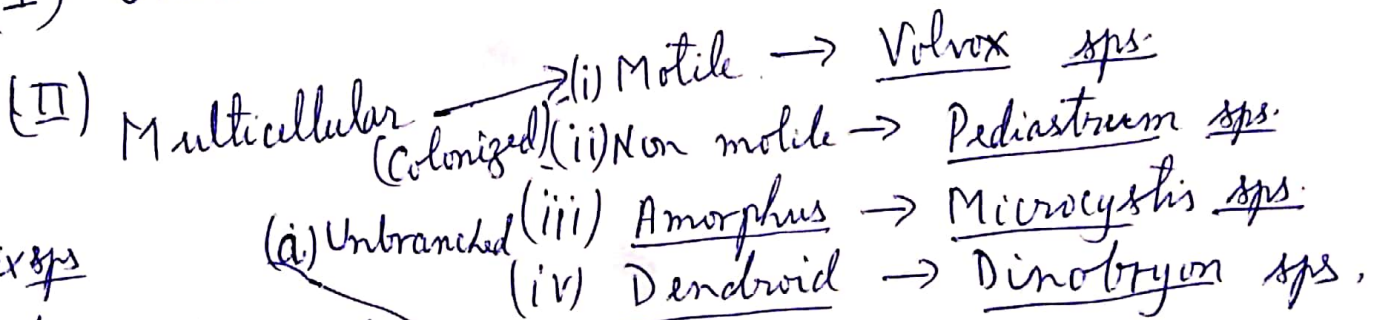
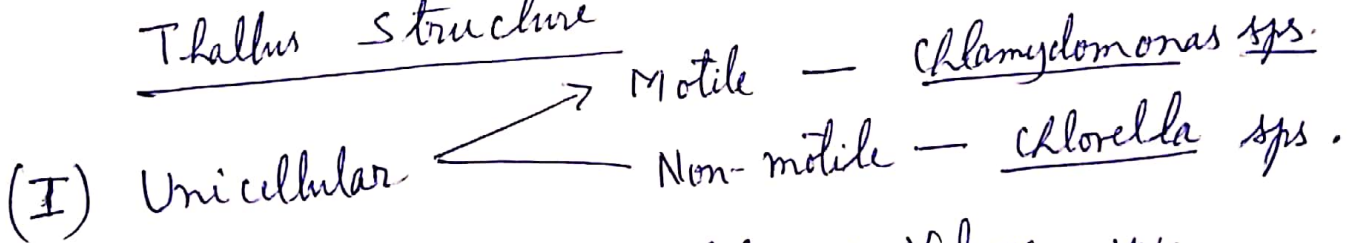


# Range of Vegetative Structure in Algae.

The members of algae are highly variable prokaryotic to eukaryotic, motile to sessile, simple palmelloid to coccoid, filamentous, siphonoid and pseudohyaloid etc. Broadly we may group them as follows.

- [A] Motile
- [B] Palmelloid
- [C] Coccoid
- [D] Filamentous
- [E] Siphonoid
- [F] Advance

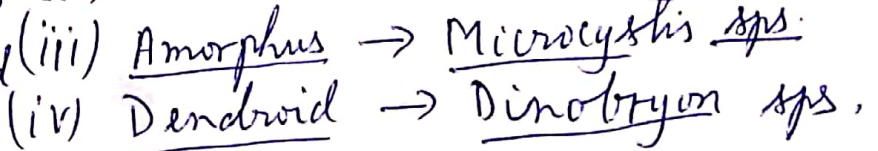
## Thallus structure



Ulothrix sps

Cladophora sps (a) Simple branched

(a) Unbranched



Scytonema sps (c) Pseudobranched

(c) Pseudobranched

I → UNICELLULAR: These are single celled algae.

They are of two types on the basis of motility.

i) Motile → They are motile. They possess flagella. They vary greatly in shape and size. They may be spherical, oval, pear shaped and oblong.  
e.g. Chlamydomonas sps.

(ii) Non-motile: They are single celled. They lack flagella and other locomotory organs. They are ~~not~~ non-motile.  
e.g. Chlorella sps.; Synechococcus sps.

II → Multicellular: They are made up of more than one cell. The number of cells may be limited or not. They are further divided into —

i) Motile: There are more than one cell forming a colony often known as Coenobium. They are interconnected showing division of labour. The cells have flagella.  
e.g. Volvox sps.; Gonium sps.

(ii) Non-motile: There is aggregation of cells, lacking flagell and other locomotary organ. The shape of the colony and the number of cells forming it is always constant. Such structure is known as coenobium. The shape and the number are identifying features of the species.  
e.g. Pediastrum sps. Scenedesmus sps.

(iii) Palmelloid: The shape, size and number of cells are not constant, but each one is embedded in a mucilagenous matrix. The cells are non-motile but independent.  
e.g. Tetraspora sps. Palmella sps.  
Chlorosaccus sps.

(iv) Dendroid: When seen in microscope, they look branched <sup>or unbranched</sup> and seems as a tree. Mucilage is found at the base of the colony. e.g. Ectalloctetis sps.  
Dinobryon sps.

v) Filamentous : In these forms cells are arranged just one after another. They have been originated from motile ones which lack their motility. The cell division is restricted in only one plane. Initially there are mucilaginous discs between the cells. Later on the discs disappear. Then the cells look like attached to each other.

There are quite variations found in these :

— a) Unbranched : Cells are one after the other forming a filament. They lack branching. e.g. Spirogyra sps. (Free floating); Ulothrix sps., Oedogonium sps. → basal cells are specialized as Hold fast.

b) Branched : Branching are seen. It is generally dichotomous.

e.g. Bulbochaete sps., Cladophora sps., Pithophora sps.

c) Pseudobranched : There is no branching but looks branched due to close association of different filamentous e.g. Syntonema sps.

vi) Heterotrichous : There are presence of more than one (of different) type). The main body is prostrate from which some are projected system as erect ones. This projection may be primary, secondary and even tertiary. e.g.

Draparnaldia sps. Draparnaldopsis sps.  
Frittschiella sps. in Chlorophyceae  
Ecotocaryus sps in Phaeophyceae.

vii) Siphonous : There are no septation after cell division resulting in multinucleate protoplasm. Such It is known as Coenocytic form. During reproduction cell wall may appear e.g.

Caulerpa sps. ; Codium sps. ; Vaucheria sps.  
Batrachium sps. , Bryopsis sps.

viii) Pseudoparenchymatous : Cell differentiation is reported due to close juxtaposition of cells. They may be & further divided into.

a) Uniaxial : There is a single main axis. Branches are ~~juxtaposed~~ forming one main axis. A Rest of others may be side branches.  
 e.g. Batrachospermum sps.  
Dumontia sps.

ii) Multiaxial Form : More than one (many) pseudoparenchymatous filamentous, threads appear as more than one axis  
e.g. Chondrus sps. Polysiphonia sps.

(ix) Parenchymatous : Cell division takes place in more than one plane (many) and form multicellular parenchymatous structure. They may be flat and foliose (leafy)  
e.g. Chara sps. ; Dictyota sps., Fucus sps.  
Laminaria sps., Macrocystis sps.

x) Highly advanced : They may possess structure like higher plants, such as sieve tube like structure.  
e.g. Microcystis sps.

Conclusion : Algae possess a huge number of members ranging from unicellular motile to highly advanced higher plant like structure through non-motile, multicellular, unbranched or branched filamentous, siphonous, pseudoparenchymatous and parenchymatous.