Thallus organization in Algae

The plant body in algae is always a thallus. It is not differentiated in root, stem and leaves. Algae range in size from minute unicellular plants (less than 1 μ in diameter in some planktons) to very large highly differentiated multicellular forms e.g., some sea-weeds. Their forms may be colonial, filamentous , septate (branched or un-branched), non-septate or branched, multinucleate siphonaceous tube where the nuclear divisions occur without usual septa formation.

Structural and cellular organizations are important characters in the classification of algae and in establishing the inter-relationship among them. Similarities of some morphological structures are seen among various classes of algae.

The range of thallus organization in algae

1. Unicellular
Motile and non-motile
2. Aggregates
Palmelloid and Dendroid
3. Colonial
(a) Colony motile
(b) Colony non-motile
4. Filamentous
(a) Un-branched
(b) Branched
(i) Simple
ii) Heterotrichous
(iii) Pseudoparenchymatous.
5. Siphonaceous.
6. Parenchymatous.

1)Unicellular motile: The body consists of a single cell. In these algae, movement takes place byflagella such as chladomonas.

a)Motile This is the simplest form of algae. They are unicellular with a rounded, pear-shaped body structure and two flagella at their anterior region. They are motile i.e., they are capable of changing their position. Example: *Chlamydomonas*,

b) Unicellular non-motile Algae of this type are unicellular, small, more or less spherical, non-flagellate and are non-motile. Example: *Chlorella*,

3. Multicellular motile:

In this type, a large number of flagellated unicellular algae are embedded together in the gelatinous sheath forming a rounded motile colony. Example: *Volvox, Pandorina,* etc.

Multicellular non-motile:

In this type, a large number of non-flagellated unicellular algae are arranged in a single layer along the long axis and thus they are non-motile. Example: *Hydrodictyon, pediastrum,* etc.

. Palmelloid:

It is a temporary stage that are formed in some alga where the daughter cells are embedded within a common gelatinous envelope formed by the gelatinisation of the parent cell wall. This daughter cells then divide further forming numerous cells within the matrix which later on become motile by the formation of flagella. Example: *Chlamydomonas* and *Chromulina.*

6. Dendroid:

Dendroid means tree-shaped. In this type, the algal body looks like a microscopic tree. Example: *prasinocladus, Ecballocystis,* etc.

7. Filamentous:

In this type of thallus organisation, cells are arranged upon one another in a row or in several rows to form a filamentous appearance. This filamentous type may be branched or unbranched. Example: *Ulothrix, Oedogonium,* etc.

9. Heterotrichous:

The term 'heterotrichous' is derived from two words 'hetero' which means different and 'trichous' which means trichome or filament. In this type of thallus organisation the algal body is differentiated into a prostrate branched filaments growing along the substratum and erect branched filaments growing away from the substratum. Example: *Stigeoclonium, Draparnaldia,* etc.

10. Parenchymatous:

In this type, repeated septation of algal filaments and cell division occurs in two or more planes which results in the formation of parenchymatous thallus like body. Example: *Chara, Fucus,* etc.