

Classification of Algae

Algae are divided into various classes based on pigmentation, stored food and flagellation. The three main classes are Chlorophyceae, Phaeophyceae and Rhodophyceae.

i. Class-Chlorophyceae (Green Algae)

The members of Chlorophyceae are commonly called green algae. There are about 7000 species in this class. The reserve food material is starch.

The characteristic features of Chlorophyceae are discussed below

(a) Habitat These are mostly marine forms, only some are freshwater. *Chlorella* can tolerate moderately warm waters. Snow dwelling forms are called cryophytes, e.g., *Chlamydomonas nivalis*, *Scotiella*, etc.

(b) Cell Organisation These are unicellular, colonial, coenocytic and multicellular forms. Cell walls contain cellulose (inner layer) and pectose (outer layer) in most of the green algae. The chloroplasts may be discoid, plate-like, reticulate, cup-shaped, spiral or ribbon shaped.

The chloroplasts contain pigments. Most of the members have one or more storage bodies called pyrenoids located in the chloroplasts. Pyrenoids contain protein besides starch. Some algae may store food in the form of oil droplets also.

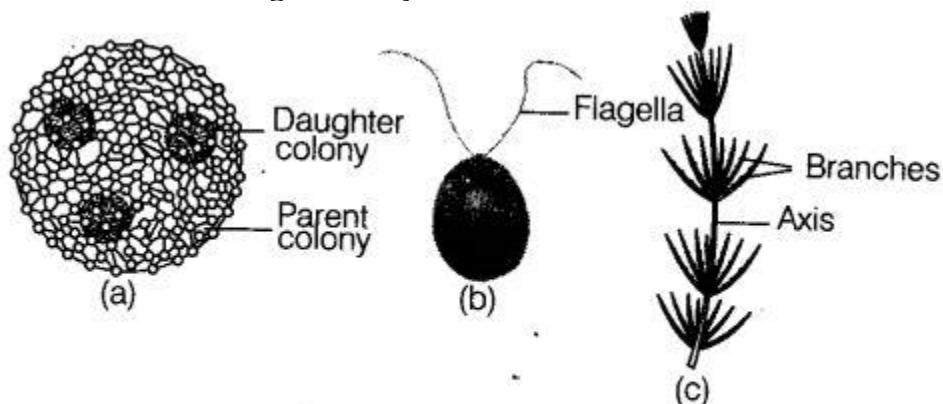


Fig 3.2 Green algae (a) *Volvox* (b) *Chlamydomonas* (c) *Chara*

(c) Thallus Unicellular green algae can- be flagellate, (*Chlamydomonas*), unicellular, non-

flagellate

(Chlorella).

Acetabularia (umbrella plant) has unicell upto 10 cm long with distinction of nucleus containing rhizoid, elongated stalk and umbrella like cap. A colony for fixed number of individual unicells (Volvox) is called coenobium. Coenocytic or siphonaceous thallus occurs in Caulerpa. Unbranched filamentous thallus in Ulothrix and Spirogyra, Cladophora, heterotrichous in Stigeoclonium and parenchymatous in Ulva.

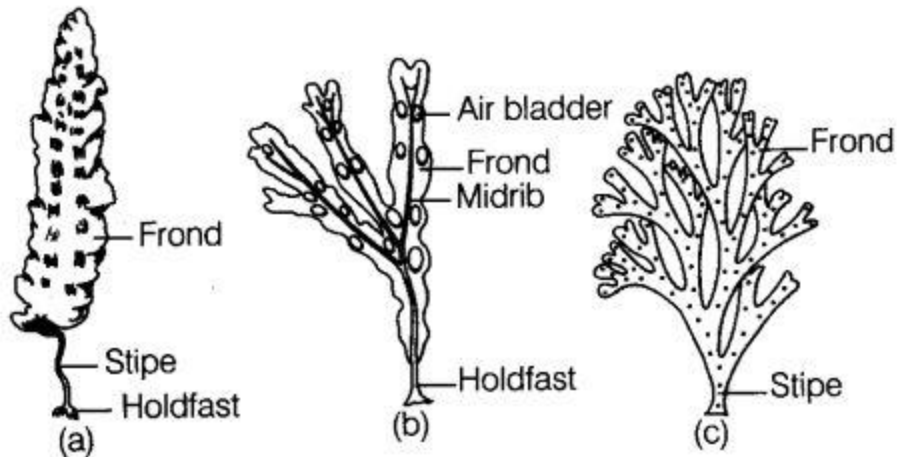


Fig 3.3 Brown algae (a) *Laminaria* (b) *Fucus*
(c) *Dictyota*

(d) Reproduction The members of Chlorophyceae reproduce vegetatively, asexually and sexually by various methods.

* Vegetative reproduction occurs through cell division (unicellular forms), fragmentation, stolons, tubers, storage cells, etc.

* Asexual reproduction occurs by zoospores, aplanospores, hyphospores, akinetes and daughters colonies.

* Sexual reproduction may be isogamous, anisogamous or oogamous.

(e) Life Cycle It can be haplontic, diplontic and diplohaplontic. In haplontic life cycle, there is a single somatic phase, which is haploid. Diploid stage is represented by a single cell or zygote, e.g., In Spirogyra.

