**Divisions of Algae and their Main Characteristics**

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| **Classes**  **(Common**  **Name)**  *Common*  *members* | **Reproduction** | | | **Algal body** | **Major**  **Pigments** | **Chloroplasts** | **Stored Food** | **Cell**  **Wall** | **Number and position of flagella** | **Habitat** |
| **Asexual reproduction** | | **Sexual reproduction** |
| **Vegetative**  **reproduction** | **Spore**  **formation** |
| **Chlorophyceae**  **(Green algae)**  *Chlamydomonas,*  *Volvox,*  *Ulothrix, Spirogyra*  *Chara* | By fragmentation | By  Flagellated  zoospores  produced in  zoosporangia. | Various modes of sexual reproduction are observed as follow;  **Isogamous**  **Anisogamous** **Oogamous** | Unicellular  Colonial  Filamentous | Chlorophyll a, b | Discoid  plate  like  reticulate, cup shaped,  spiral  ribbon shaped | **Starch,**  **Pyrenoids**  *(contains protein)* located in the  chloroplasts,  Some may store food in the form of oil droplets. | **Rigid cell wall** *(with inner layer of*  *cellulose and an*  *outer layer of pectose)* | 2-8, equal  apical | Fresh water, brackish  water (fresh water + salt  water,  <saline than sea water, say, Water in estuaries),  salt water |
| **Phaeophyceae**  **(Brown algae)**  *Ectocarpus,*  *Dictyota,*  *Laminaria,*  *Sargassum and Fucus* | By fragmentation | By biflagellate pear shaped zoospores bearing two unequal  laterally  attached  flagella | Isogamous,  anisogamous or  oogamous are observed.  Fertilisation occur in water or within the oogonium. The pyriform (pear shaped) gametes bear two laterally attached flagella. | Simple branched,  Filamentous forms  (*Ectocarpus*)  Profusely branched  forms like kelps (*wih height = 100 metres*).  The plant body is  usually attached to the substratum by a  **holdfast** and has a  **stipe** (*stalk*) and **frond** (*leaf like photosynthetic*  *organ*) | Chlorophyll a, c, Fucoxanthin  (shade olive  green to brown), carotenoids and xanthophylls, | Chloroplasts  (*with four*  *surrounding*  *membranes,*  *thylakoids in*  *stacks of three*) | Mannitol,  Laminrin | Cellulosic  wall  Usually  covered by algin  (gelatinous coating) | 2, unequal,  lateral | Mostly  marine,-  Brackish  water, salt  water, Fresh water (rare), |
| **Rhodophyceae (Red algae)**    *Polysiphonia,*  *Porphyra,*  *Gracilaria and Gelidium* | By fragmentation | By non- motile spores | Oogamous  Observed complex post fertilisation developments. | Multicellular red thalli.  Some of them have  complex body  organisation. | Chlorophyll a, d, phycoerythrin | Rhodoplasts  (*red chloroplasts*)  have a double  membrane with an  intermembrane space | Floridean starch (*similar to amylopectin and glycogen in*  *structure*) | Cellulose | Absent | Prefer  warmer  areas, Mostly salt water  (marine),  Fresh water  (some),  brackish water, |

**\*Isogamous** *(fusion of two gametes which are similar in morphology)*  \***Anisogamous** (fusion of two gametes which are dissimilar in morphology). \***Oogamous** *(fusion of large, immotile female gametes with small motile male gamete)*

  