

Division: *Ochrophyta*

As a result of the molecular analysis, the algae belonging to this division, which had the same structure and showed gene sequence, were previously under different divisions.

Members of the division are ranging from flagellate unicells to giant kelps, colonial, filamentous and parenchymatous thalli. They are characterized by the presence of chlorophylls a and c in their plastids as well as xanthophylls and other carotenoids that mask the chlorophylls. Cell walls contain cellulose, and in certain species they contain silica.

Class: *Chrysophyceae*

Members of the class are mostly unicellular and flagellate, some are amoeboid or coccoid. Most of them inhabit in freshwater, some are strictly marine algae and part of the nanoplankton. The chloroplasts are parietal and usually only a few in number, often only one or two. Chlorophyll a and chlorophyll c are present. The chloroplasts are surrounded by two membranes of chloroplast E.R., the outer membrane of which is usually continuous with the outer membrane of the nuclear envelope. The thylakoids are usually grouped three to a band. Pyrenoids are common in chloroplasts of the class. Most members of the class have a tinsel flagellum that is inserted at the anterior end of the cell parallel to the cell axis and a whiplash flagellum that is inserted approximately perpendicular to the tinsel flagellum.

Class: *Bacillariophyceae*

Bacillariophyceae members are known as diatoms. They are unicellular organisms that are important components of phytoplankton as primary sources of food for zooplankton in both marine and freshwater habitats. Most diatoms are planktonic, but some are bottom dwellers or grow on other algae or plants. Except for their male gametes, diatoms lack flagella. Instead many diatoms achieve locomotion from controlled secretions in response to outside physical and chemical stimuli. Diatoms have unique shells, which serve as their cell

wall. The overlapping shells or frustules that surround the diatom protoplasm are made of polymerized, opaline silica. Bacillariophytes have brownish plastids containing chlorophylls a and c and fucoxanthin. Diatoms can live anywhere there is water and light, including lakes, streams, estuaries, oceans, puddles and wet rocks or soil.

Class: *Synurophyceae*

Members of the class are previously placed in *Chrysophyceae*; silica-scaled; unicellular or colonial flagellates sometimes alternating with capsoid benthic stage; cells covered with elaborately structured silica scales.

Class: *Eustigmatophyceae*

Eustigmatophyceae is a small class which contains fewer than 15 species. The class includes marine, freshwater, and soil-living species. Members of the class are unicellular, with coccoid cells and polysaccharide cell walls. They contain one or more yellow-green chloroplasts, which contain chlorophyll a and the accessory pigments violaxanthin and β -carotene.

Class: *Pinguiphyceae*

The class includes five species of unicellular organisms with a high concentration of polyunsaturated fatty acids in the cytoplasm. The members are the lack of cell wall and the tendency for flagella loss even on the stage of zoospore. Only one species (*Polypodochrysis teissieri*) inhabits benthic substrates. The other species live in the plankton.

Class: *Dictyochophyceae*

The class members are characterized by being spherical and having tentacles or axopods supported by triads of microtubules that start from the surface of the cell nucleus and radiate around the cell. Another distinctive feature is the presence of a single flagellum supported by an internal axis that extends in the form of a wing and whose root lacks the structure found in

other groups with which they are related. They live in both continental and marine waters and on the ground.

Class: *Pelagophyceae*

They can be single-celled palmelloid or filamentous. Some members belong to picoplankton, and some other are macroscopic attached organisms.

Class: *Bolidophyceae*

Bolidophyceae are very close to the diatoms (Bacillariophyceae) but lack characteristic theca or silica structures. They have been proposed as an intermediate group between the diatoms and all other heterokonts.

Class: *Raphidophyceae*

Raphidophyceae is a small class that includes both marine and freshwater species. Members of the class are unicellular, with large cells. Raphidophytes possess a pair of flagella, organized such that both originate from the same invagination. One flagellum points forwards and is covered in hair-like mastigonemes, while the other points backward across the cell surface, lying within a ventral groove. The class contains numerous ellipsoid chloroplasts, which contain chlorophyll a, chlorophyll c. They also make use of accessory pigments including β -carotene and diadinoxanthin.

Class: *Xanthophyceae*

The Class contains approximately 118 genera and 600 species. Most of the 600 known *Xanthophyceae* members live in freshwater and moist soil, and only a few are marine species. Morphologies of the class members are ranges from free-living or attached unicells to colonies and unbranched or branched filaments and siphons. They are characterized by possession of chlorophylls a, c 1, and c 2 and a range of xanthophylls, but not fucoxanthin, in generally yellowish-green, discoidal, parietal chloroplasts.

Class: *Phaeothamniophyceae*

The includes freshwater filamentous forms, which can be simple or branched, without chrysolaminarin. They produce biflagellate zoospores as in Phaeothamnion. The class Phaeothamniophyceae is most closely related to the Xanthophyceae and Phaeophyceae and the cytology of these three classes is similar. The *Phaeothamniophyceae* is the only class of algae where fucoxanthin and heteroxanthin occur together.

Url 1. <http://tolweb.org>.

Url 1. ifeofplant.blogspot.com.