

## PLANT LIKE PROTESTS

Plant like protests are classified into the following main groups:

### 1. Division: Euglenophyta (Euglenoids)

Euglenoids are the earliest free living eukaryotes having mitochondria.

**Habitat:** Euglenoids live in fresh water feed on prokaryotes. Some species live in marine water, moist soil. Some species are animals, plants and other protests parasites.

**Nutrition:** Two types of mode of nutrition:

**Autotrophic:** About 40 genera of euglenoids possess chlorophyll and are autotrophs.

**Heterotrophic:** Some members are heterotrophs, lack chloroplast and ingest their food.

Some members chloroplasts become non-functional in dark and become heterotrophs. However, when they are brought to light, they become green again in few hours and become autotrophic Example: *Euglena*

#### **Structure of *Euglena***

*Euglena* has oval shaped structure having two flagella attached at the base of a flask-shaped opening called the reservoir. One flagellum is long and protrudes out (come out) of reservoir. The other flagellum is short and never emerges out of reservoir.

**Locomotion:** The long flagellum is used for locomotion.

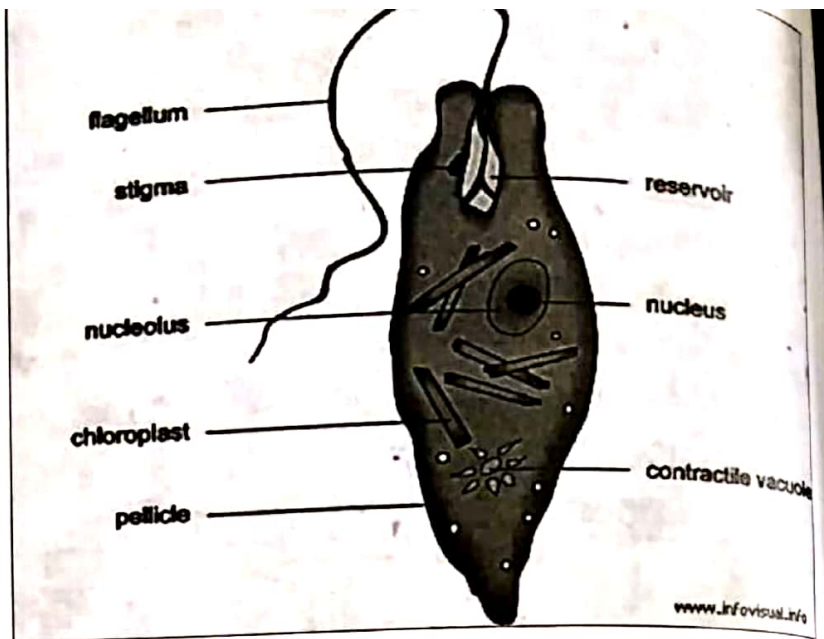
**Pellicle:** The body is enveloped by a flexible pellicle made of proteins and lies beneath the plasma membrane. Due to flexibility in pellicle, *Euglena* changes its shape.

**Contractile Vacuole:** *Euglena* possesses contractile vacuole for removal of waste products.

**Reserve Food:** The reserve food material occur in the form of paramylum bodies.

**Eye Spot:** Orange color eye spot is located on one side near the interior end. The eye spot is sensitive to light, detect the light and move away from it.

**Chloroplast:** Chloroplast is present and carries out photosynthesis.



Structure of *Euglena*

## 2. Division: Pyrrophyta (Dinoflagellates)

**Habitat:** The members are found in fresh water and marine water. Dinoflagellates are unicellular organisms. They possess chlorophyll "a", "c" and carotenoids.

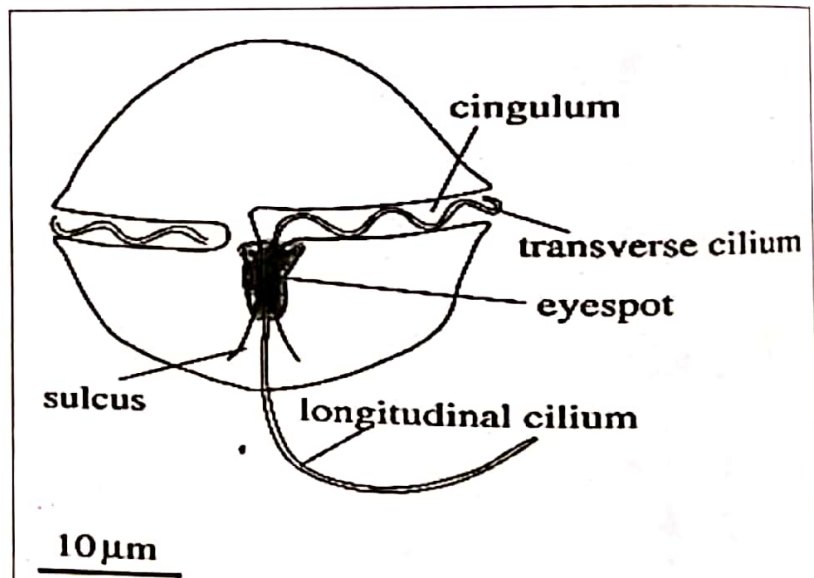
**Cell Wall:** The cell wall is generally absent but when present, it is hard and made up of cellulose.

**Flagellum:** The members have two unequal length flagella attached laterally. Two types of flagella occur in grooves.

- i. One flagellum encircling the cell like a belt.
- ii. Second flagellum is perpendicular to first one.

As the flagella beat, the encircling flagellum causes the organism to spin like a top. The perpendicular flagellum makes the organism to move in a particular direction.

**Red tides:** In the coastal areas, when dinoflagellates grow in abundance it changes the color of the water to red. This is poisonous and causes the death of millions of fishes.



Dinoflagellates member

## 3. Division: Chrysophyta (Diatoms)

Diatoms belong to division Chrysophyta (yellow, green and golden brown algae).

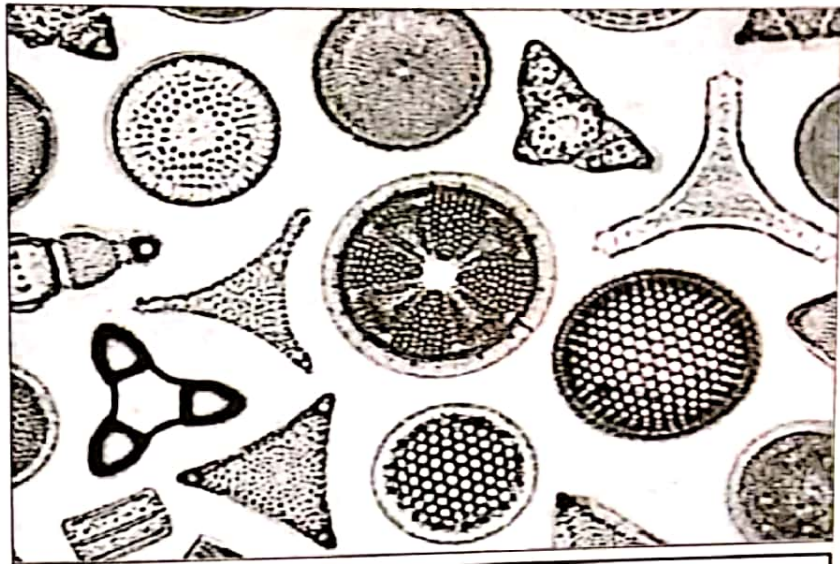
**Habitat:** Diatoms grow in fresh and marine water.

**Structure:** Diatoms are unicellular organisms. Diatom body is made up of two shells of silica. The shells of diatoms fit together like box with its lid.

**Pigmentation:** Diatoms contain chlorophyll "a", "c" and carotenoids.

**Diatomaceous earth:** The shells of diatoms often form thick deposits on the ocean floor, known as diatomaceous earth. Diatomaceous earth is used in: Filtering agents, paint remover, decolorizing and deodorizing oils, polishes, fertilizers and sound proof materials.

**Reproduction:** Diatoms reproduce asexually. Sexual reproduction is not common.



Diatoms

#### 4. Division: Phaeophyta (Brown algae)

**Habitat:** Brown algae grow in marine water i.e. sea and ocean. It is also known as sea weeds.

**Plant body:** Brown algae possess air bladders which help them in floating during high tides. Some members have height of about 100 meters. They are attached to the rocks on ocean floor through a root like structure called hold fast.

**Alteration of generation:** Brown algae show alternation of generation i.e. the life cycle consists of diploid sporophyte and haploid gametophyte.

**Source of food:** Kelps are brown algae having large leaf like thallus. They are important source of food for fishes, birds and other marine animals.

#### 5. Division: Rhodophyta (Red algae)

**Pigmentation:** The reddish color of red algae is due to red accessory pigment called phycoerythrin. Red algae also contain green pigment i.e. chlorophyll. Due to green pigment. Red algae do not always appear red. Some members show different colours depending upon the type and amount of photosynthetic pigments present in their chloroplasts.

**Coral reefs:** The red algae play a major role in the formation of coral reefs.

**Agar:** The red algae produce glue like substances such as agar and carrageenan.

#### 6. Division: Chlorophyta (Green Algae)

**Habitat:** Most members are aquatic some are found in moist places.

**Body:** Green algae include both unicellular and multicellular forms.

**Similarities to land plants:**

- i. Reserve food material is starch.
- ii. Cell wall is made up of cellulose.
- iii. Chloroplast containing chlorophyll "a" and "b".

Because of these similarities Green algae are considered ancestors of plants.

**Example:** *Chlamydomonas*, *Volvox*, *Spirogyra*

- *Chlamydomonas* is unicellular genus.

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- *Volvox* occurs in colonial form.
  - *Spirogyra* is multicellular, filamentous member, occur in fresh water. Each cell of *Spirogyra* contains one or more spiral shaped chloroplast.

**Reproduction:** Green algae reproduce both sexually and asexually.

Asexual reproduction: By Zoospores

Sexual Reproduction: By Conjugation.