Lab (1)

Kingdom :protista

Phylum : protozoa

1-Class: Flagellate

a/Order: Euglenoidina

e.g. *Euglena*

b/Order: Cryptomonadina

e.g. *Chilomonas*

c/Order:Volvocales

e.g. *Pandorina*

d/Order : Phytomonadina

e.g. *Volvox*

e/Order: Dinoflagellata

e.g. *Noctiluca , Ceratium*

Phylum : protozoa

A group of microorganisms that are called the Protozoa (proto – primitive; zoa – animal).

Characteristics of Protozoa are:

- **Unicellular organisms, some live in colonies.**
- **Aquatic habitats , Eukaryotic, lack a cell wall.**
- **Size microscopic (3 to 1,000 microns).**
- **with out tissues or organs.**
- **Locomotion by pseudopodia, flagella, or cilia (to help in movement).**

- **Body protoplasm is differentiated in to an outer ectoplasm and inner endoplasm.**
- **Symmetry all types (bilateral, radial or asymmetrical)**
- **Free living, Commensalism (one member benefits and host is not harmed) , Parasitism (live in or on a host that is usually Harmed) , or Mutualism (both species benefit).**
- **Mostly naked, but few have simple protective exoskeletons .**
- **Respiration and Excretion occurs by diffusion through general body surface.**
- **Nutrition may be holophytic (plant-like), holozoic (animal-like), saprozoic or parasitic.**
- **Asexual Reproduction by longitudinal and transverse binary fission, multiple fission or budding.**
- **Sexual Reproduction by gamete formation .**

Protozoa are classified based on the presence and type of locomotory organelle they possess:

Mastigophora (flagellate) : Have whip-like structures called flagella

-Locomotion through one or more flagella.

-Body covered with pellicle and has definitive shape.

-Nutrition may be Autotrophic (Holophytic) , heterotrophic (Holozoic, Saprozoic).

-Asexual reproduction is by longitudinal binary fission

-Mostly free living but some are parasites

Sarcodina :Have pseudopodia (false feet) cytoplasmic outflowings

- Body naked with out definitive shape or with external or internal skeletons, and solitary

-Usually one nucleus is present.

- Nutrition is Holozoic .

- Asexual reproduction is by binary fission and multiple fission.

-Mostly free living but some are parasites

<u>Ciliophora</u> : **Have short hair-like structures distributed over the surface**

-Simple and compound cilia.

-Two types of nuclei (Macronucleus) for controlling cell functions

(Micronucleus) for cell division.

-Reproduction by conjugation , Autogamy or Cytogamy.

Phylum : protozoa

1-Class:Flagellate

a/Order:Euglenoidina

e.g.Euglena .

- Solitary and Free living.

- Elongated oval shape with two flagella not equale in size

- Have eyespot (stigma) near the flagellum (detects light to help euglena find a sunlight for food production).

-Distinct cytosome (mouth)

- Have one nucleus

- Have chloroplasts with chlorophyll

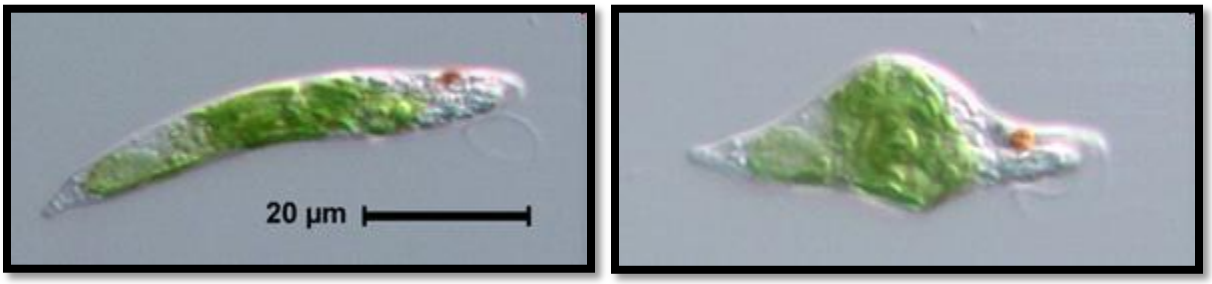
- Food vacuoles (digestion and transport of food)

-Contractile vacuole (to control water levels inside the euglena)

-Nutrition by Autotrophic or Heterotrophic.

-Reproduction by longitudinal binary fission

- Body covered with rigid Pellicle, flexible enough to allow the euglena to change shape, Also allows it to move like an inchworm.



Euglena

b/Order:Cryptomonadina

e.g. Chilomonas

-small size

- does not have chloroplasts

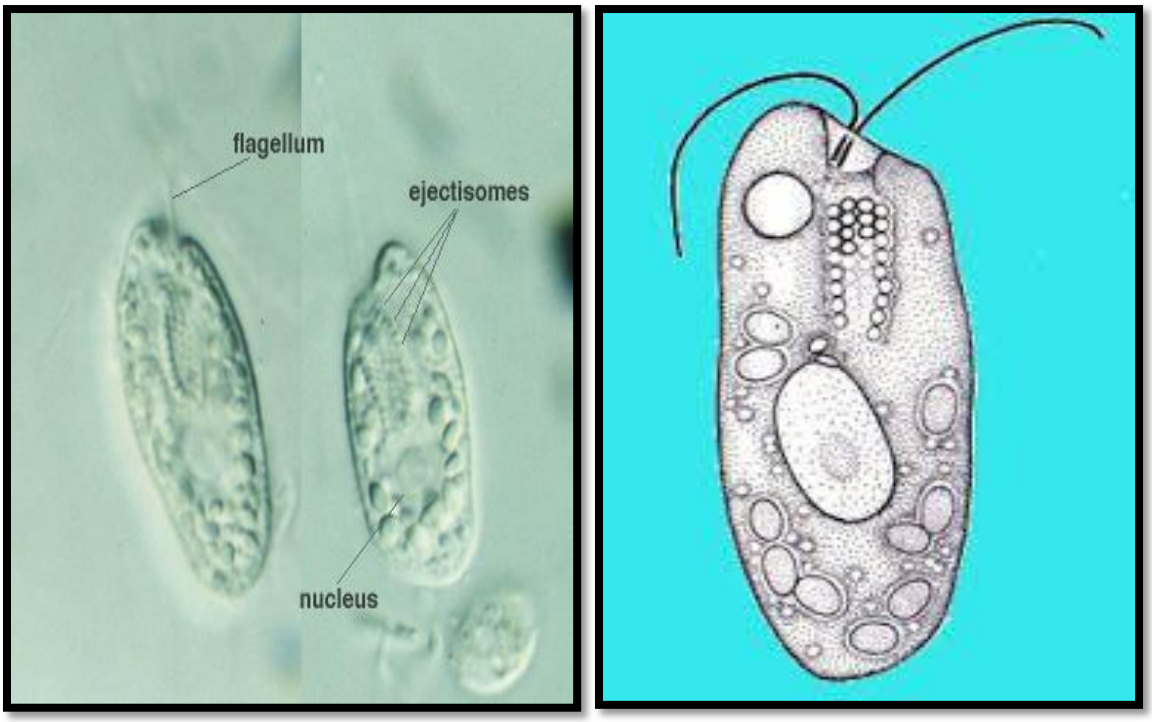
-cytoplasm includes numerous polysaccharide granules

- two equal flagella

- one contractile vacuole in the anterior part

-one nucleus in the posterior half

-does not have cytosome



Chilomonas

c/Order:volvocales

e.g.Pandorina

- Colonies ellipsoidal to spherical mostly of (8) or (16) cells

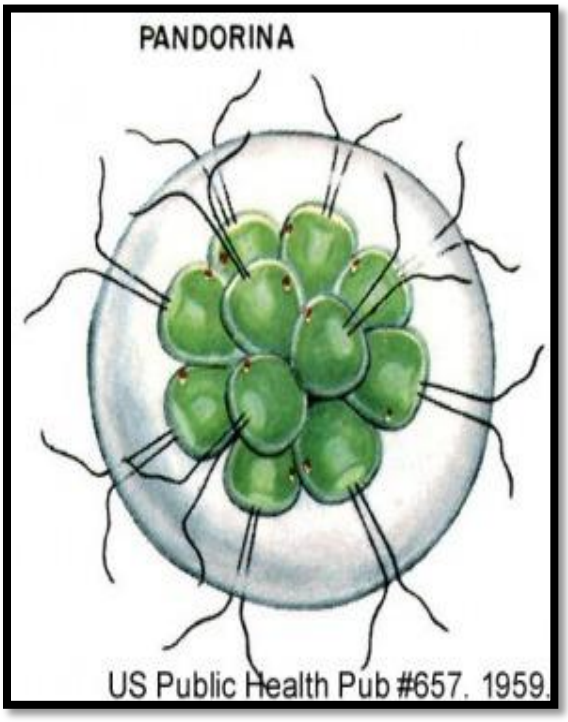
- Every cells bearing two equal flagella

-central nucleus

- two anterior contractile vacuoles

-chloroplast cup shaped

-eye spot present larger in anterior cells



Pandorina

d/Order :Phytomonadina

e.g. *Volvox*

- A spherical, freshwater colony with 500 to 20,000 individual cells .The colonies are very large and can be seen with the naked eye.

- Each volvox cell has two flagella. The flagella beat together to roll the ball through the water.

- Eyespot located at the anterior of the cell, these eyespots allow for coordinated movement of the colony

- Have chlorophyll and make their own food by photosynthesis (autotrophic).

Volvox

e/Order:Dinoflagellata

e.g. *Ceratium(* dinoflagellata with chloroplast)

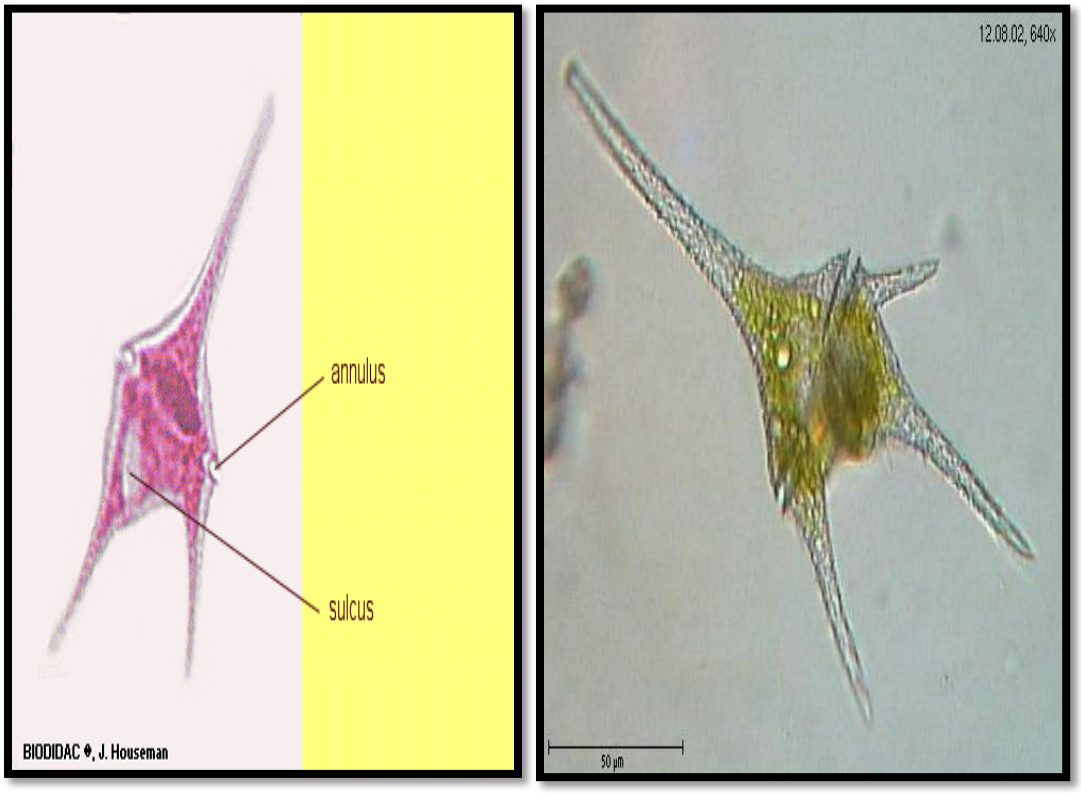
- They are covered with an armor(horns) made out of polysaccharide.

- the shape and size of which vary from species to species.

-The arms help *Ceratium* float, but prevent them from moving very quickly.

- *Ceratium* have two flagella. The transverse flagellum beats in a spiral motion (Anulus), while the longitudinal flagellum pulses in waves (Sulcus).

- Most *Ceratium* species contain chloroplasts.



Ceratium

***e.g. Noctiluca (*dinoflagellata without chloroplasts)**

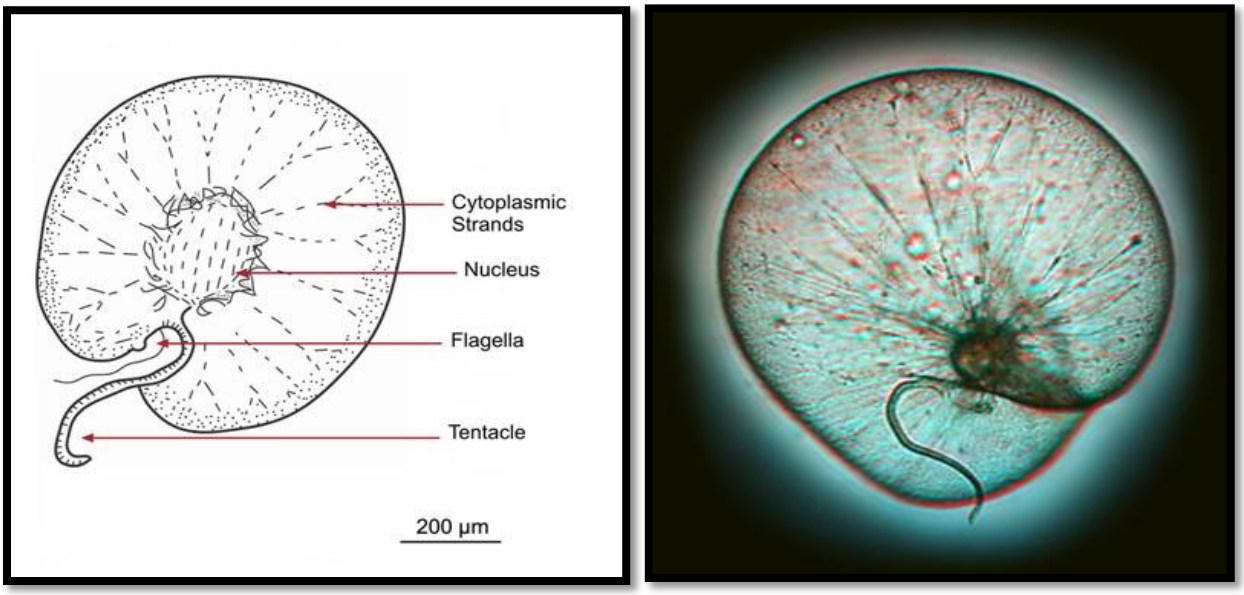
-Large unarmored

-round or kidney shaped

-cells with a cytoplasmic strands

-one flagellum and one tentacle

-Chloroplasts absent



Noctiluca