



# INVERTEBRATES

## PROTOZOA (2)

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# SUBPHYLUM MASTIGOPHORA

## General Characters:

- **Commonly called flagellates.**
- **Locomotion through the flagellum.**
- **Body covered with pellicle.**
- **Nutrition may be Holophytic, Saprozoic, or Holozoic.**
- **Free living or parasitic.**
- **Asexual reproduction by longitudinal binary fission.**
- **It is divided into two classes:**
  - 1. Phytomastigophorea**
  - 2. Zoomastigophorea.**

# CLASS PHYTOMASTIGOPHOREA

## General Characters:

- Presence of chromatophores (chloroplasts).
- There is one or two flagella.
- Nutrition is mostly Holophytic (by photosynthesis).
- Reserve food is starch or paramylon (also known as paramylum).
- Reproduction takes place by longitudinal binary fission.

# *Euglena*

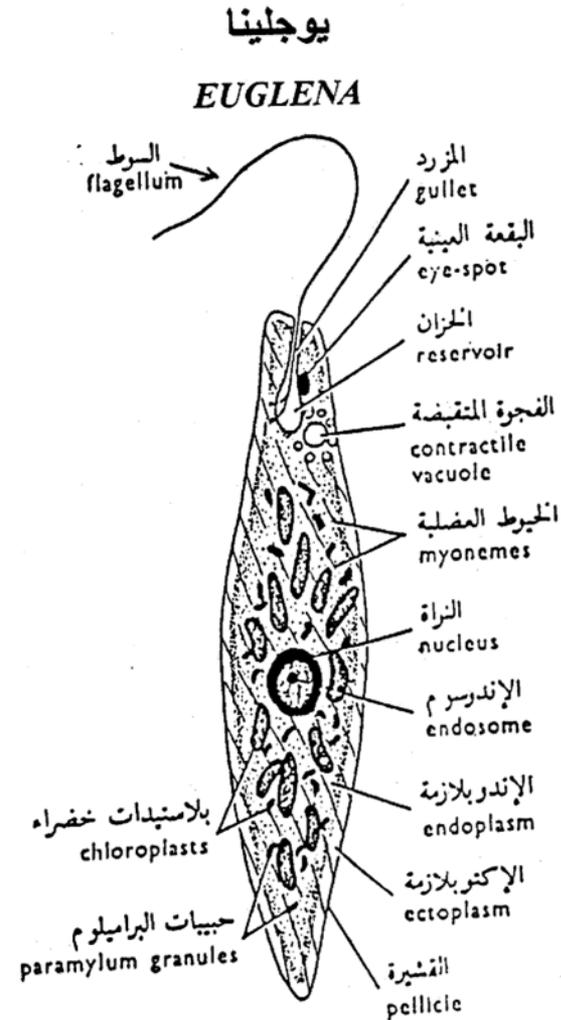
## Habitat:

*Euglena* appears in ponds and stagnant water, particularly those rich in nitrogenous organic matter, in enormous numbers, producing the green coloration of the water.



# Euglena

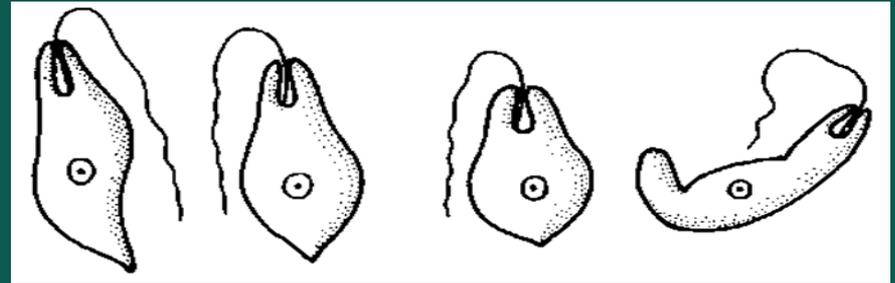
## Morphology:



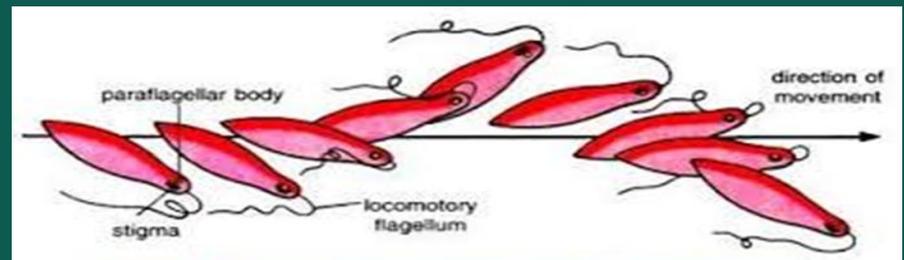
# *Euglena*

## Locomotion:

**1. Euglenoid movement:** It is relatively slow and brought about by contractions of the myonemes, which allow the body to change shape and produce movement.



**2. Movement with flagellum:** It is faster and enables the animal to swim rapidly in water. The flagellum moves backwards, leading to a forward movement of the body. It rotates spirally around its longitudinal axis.



# *Euglena*

## Nutrition:

**1. In the presence of sunlight, *Euglena*** forms carbohydrates from carbon dioxide and water with the help of its chloroplast. This method of nutrition is identical to the process of photosynthesis, which occurs in plants and is referred to as holophytic or autotrophic nutrition.

**2. In the absence of light,** Certain species of *Euglena* can absorb soluble food from the surrounding environment through the body surface by pinocytosis.

# *Euglena*

## Water Balance (Osmoregulation):

The contractile vacuole system carries it. The smaller vacuoles collect minute droplets of excess water into the central large vacuole, which will discharge its contents into the reservoir, and then to the exterior through the cytostome (mouth).

# *Euglena*

## Respiration and Excretion:

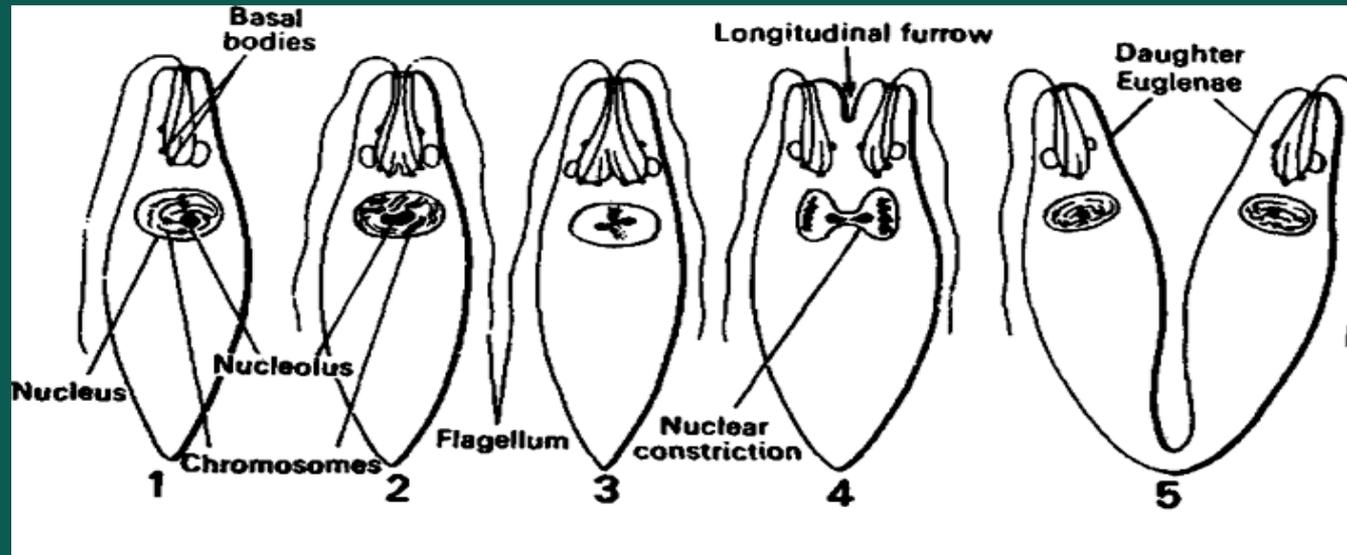
*Euglena* is aerobic and respire the oxygen dissolved in the surrounding water. Exchange of oxygen and carbon dioxide, as well as diffusion of soluble excretory products, outside take place through the body surface by simple diffusion.

During the daytime, respiration may be masked by the process of photosynthesis. Carbon dioxide resulting from respiration is utilized in photosynthesis, while the oxygen produced by the latter process is used in respiration.

# *Euglena*

## Reproduction:

Asexual reproduction takes place by longitudinal binary fission.



# *Euglena*

## Encystment:

*Euglena* can form a cyst under unfavorable conditions.





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