

31. Paramecium

Classification :

Phylum	Protozoa
Sub-phylum	Ciliophora
Class	Ciliata
Subclass	Euciliata
Order	Holotricha
Suborder	Trichostomata
Family	Paramecidae
Type	Paramecium

- Unicellular.
- Ciliary movement in all stages.
- Cilia present throughout life.
- Cytopharynx, contractile vacuole, mega- and micronucleus present.
- Equal cilia.
- Mouth leads in cytopharynx.
- Oral groove present.

Habit and habitat : *Paramecium* is best known ciliate, found in fresh-water ponds, rivers, lakes, ditches, streams and pools, etc. (Fig. 31).

Distribution :

It has cosmopolitan distribution.

Comments :

- 1) Commonly called as **slipper animalcule**, being microscopic, elongated slipper-shaped, cigar-shaped or spindle shaped.
- 2) Most familiar and extensively studied protozoans.
- 3) Anterior end is bluntly rounded, while posterior end is pointed.
- 4) *P. caudatum* measures 80-350 microns, while *P. aurelia* 170-290 microns.
- 5) **Pellicle** covers the body. It is clear, firm and elastic cuticular membrane. Pellicle has series of polygonal or hexagonal depressions for **trichocysts**.
- 6) **Cilia** covers the entire animal. They are hair-like projections of uniform length, except at posterior end where they are longer and at cytopharynx where they form undulating membrane.
- 7) Infraciliary system consists of **basal bodies** and **kinetodesmata**.
- 8) Cytoplasm contains **ecto-** and **endoplasm**. Ectoplasm has **myonemes** and **rod-shaped trichocysts**.
- 9) Endoplasm contains **food vacuoles**, **granules**, **meganucleus**, **micronucleus**, **anterior contractile**, **posterior contractile vacuole**, **fat** and **glycogen**.
- 10) Trichocysts are rod-shaped bodies consisting of lower trichocyst shaft, basal body and projecting **cilium**. Cilium project through the hexagonal areas. Trichocysts are discharged to anchor with substratum.

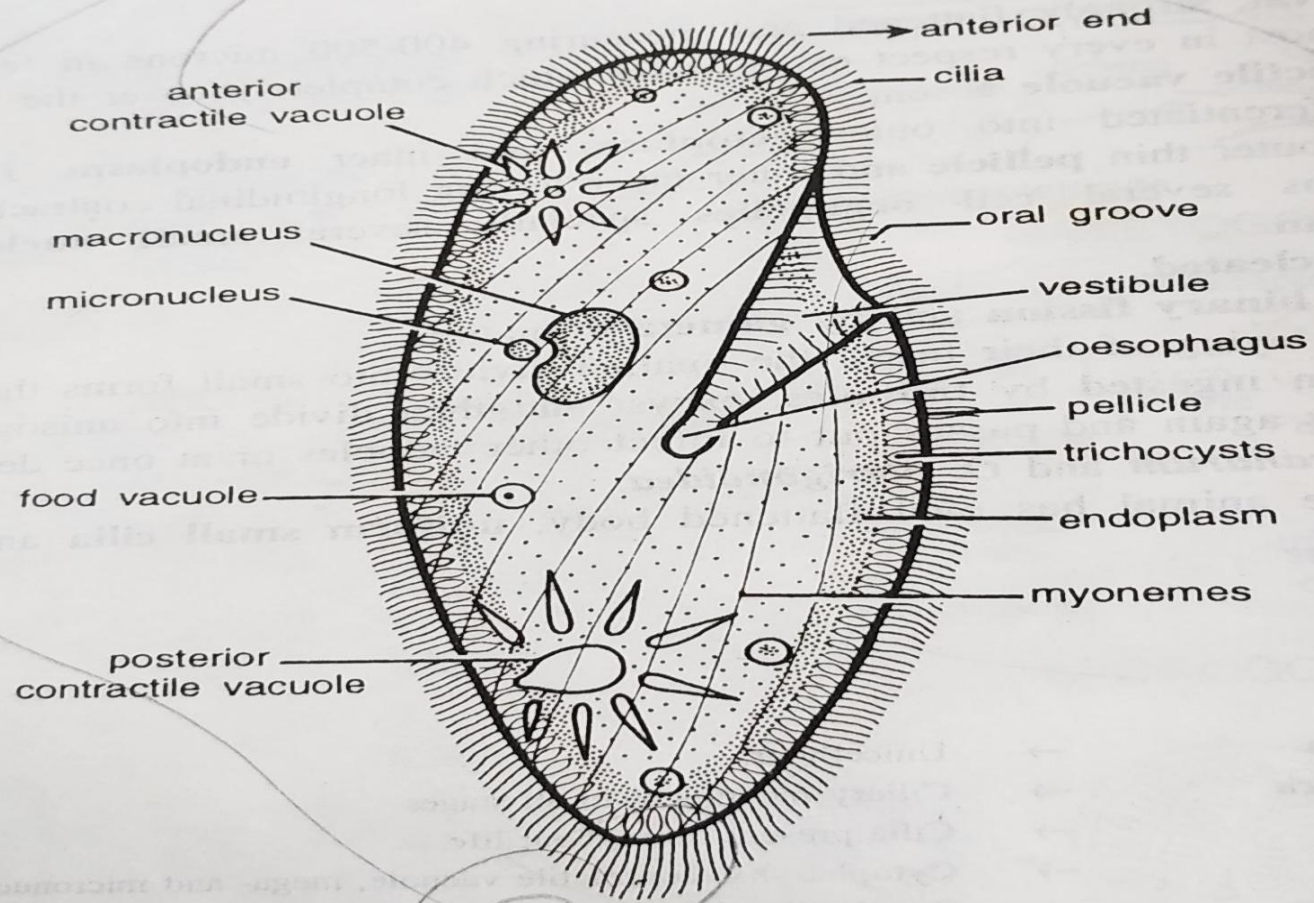


Fig. 31. *Paramecium*.

(10) Reproduction is by **binary fission, conjugation, endomixis, hemixis and automixis**.

(11) Locomotion is **ciliary**. Nutrition is **holozoic** and it shows response to light and temperature, etc.

Special features : *Paramecium* has great experimental value in cytogenetical studies. T.M. Sonneborn (1938) reported that *P. aurelia* occurs in two strains. One with **kappa particles** kills the other sensitive strain without kappa particles. *P. aurilia* is taken as example to explain cytoplasmic inheritance.

Identification : Since the animal contains slipper-shaped body and 2 contractile vacuoles which are star-shaped and has all above features, hence it is *Paramecium*.