

⇒ Leeuwenhoek (1676) first gave preliminary accounts of some protozoan forms after the discovery of microscope.



⇒ Goldfuss (1818) coined the term protozoa, but he included many non-protozoan forms under protozoa.



* Definition:- Unicellular or Acellular, Eukaryotic and commonly mobile heterotrophic organisms are called "protozoa."



* General characteristic features:-

(1) Protozoans are usually microscopic and unicellular individuals.



(2) They exhibit all types of symmetry.
(Asymmetrical or Bilateral)



(3) Most species occur as single but many are colonial.



(4) Body is bounded by a cell membrane or plasma lemma.



(5) Body may be naked or is covered by a

⇒ Pellicle made of silica or Calcium carbonate.

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⑥ A filamentous network of the cytoskeleton may form a dense supportive structure, called the "Epiplasm."

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⑦ Usually Uninucleate, but may be more than single nucleus in some forms.

⇓
⑧ Locomotor organelle's may be flagella (e.g. Euglena), cilia (e.g. Paramecium), pseudopodium (e.g. Amoeba) or absent in parasitic forms (Contractile myonemes are present in the body).

⇓
⑨ Nutrition may be holozoic, e.g. Amoeba (Animal-like), Holophytic (e.g. Euglena), Saprophytic or Parasitic.

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⑩ Intracellular type of digestion occurs within the food vacuoles.

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⑪ Respiration performs generally through the outer surface of the body,

But may be few Obligatory or facultative Anaerobes.

⇓
(12) Excretion performs generally through the Body surface, and regulation of the body is accomplished by "Contractile vacuole."

⇓
(13) Asexual Reproduction occurs by fission (mitosis) or Budding.

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⇒ In certain forms Sexual Reproduction may occur either by Conjugation or fusion by Gametes (Syngamy).

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(14) They never develop from Blastula stage during development.

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(15) mainly Aquatic but many are Parasitic, Commensal or Mutualistic

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(16) ⇒ They do not have cell-wall, some however possess a flexible layer, or a rigid shell of inorganic materials outside the cell membrane.



(17) ⇒ Protozoa are located in moist habitats. free-living species inhabit freshwater and marine environments, and Terrestrial species inhabit decaying-organic matter.



(18) Protozoa play an important role as zooplankton, the free-floating aquatic organisms of the oceans.



(19) They are found at the bases of many food-chains, and they participate in many food webs.



(20) Contractile vacuoles may be present in protozoa to remove excess water, and food vacuoles are often observed.



(21) Protozoa are heterotrophic organisms

⇒ most species obtain large food particles by phagocytosis.

⇒ The food particle is ingested into a food vacuole.

⇒ Lysozomal enzymes then digest the nutrients in the particle, and the products of digestion are distributed throughout the cell.

⇒ Some species have specialized structures called cytostomes, through which particles pass in phagocytosis.

⇒ Some protozoa produce a protective form called a cyst.

⇒ Protozoan's molecule can also trigger adaptive immunity such as the production of antibody molecules against protozoan antigens.

⇒ Protozoa (first animals) are unicellular, animal-like and mainly aquatic.

Protists.

⇒ They are heterotrophs and live as parasites or predators.

⇒ This group of protists include Amoeba, Trypanosoma, Paramecium and Plasmodium (malaria parasite).

⇒ There are nearly 20,000 species of protozoa, relatively few cause disease, most inhabit soil and water.

* Term Protozoa (from Greek protos meaning first, zoon meaning animals).

⇒ They are the simplest and primitive of all the animals with very simple body organization i.e. protoplasmic grade of organization.

⇒ Body shape may be spherical, oval, elongated or flattened.

⇒ The protoplasm is differentiated into outer ectoplasm and inner endoplasm.

There is no physiological division of labor, and all the vital activities of life are performed by a single cell.

Respiration and occurs by diffusion through General body Surface.

Note -

In Euglena, the mode of nutrition is mixotrophic (Both holozoic and holophytic).

Excretion occurs through general body-surface like respiration. They are Ammonotelic (excrete nitrogenous waste-product in the form of Ammonia).

Respiration occurs by diffusion through General Body Surface

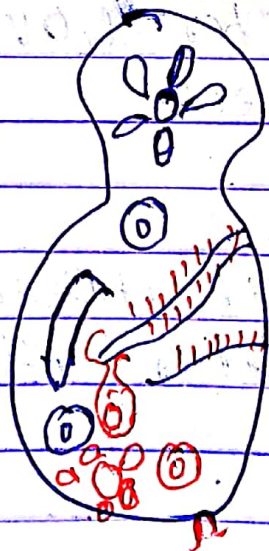


Fig: Paramecium

