

GENERAL CHARACTERS AND CLASSIFICATION OF SUBKINGDOM PROTOZOA

General characteristic features of protozoa:

1. Status- They are the microscopic, simplest and primitive of all animalcules. Solitary or form loose colonies, in which individuals remain alike and interdependent.
2. Habitat- They exploit all types of habitat and may be free living, commensal, mutualistic and parasitic.
3. Body symmetry- none, bilateral, radial or spherical.
4. Size- Range from $1\mu\text{m}$ to 0.25m (some are giant, benthic marine amoeba), most being in between 5 and $250\mu\text{m}$ in diameter.
5. Body covering-
 - i). Bounded by the cell membrane. The rigidity and flexibility of the body and its shape are largely dependent on the nature of the cytoskeleton.
 - ii) In many cases cytoskeleton is located immediately below the cell membrane and together with other organelles form a specialized protozoan body wall "Pellicle".
 - iii). Cytoskeleton often composed of the following components,

| Name of the component | Feature | Example |
|-----------------------|---|--|
| <i>Epiplasm</i> | Filamentous proteins form a dense supportive mesh. | In flagellates, <i>Euglena</i> |
| <i>Axostyle</i> | Microtubular corset, radiate from the flagellar basal bodies to the opposite extremity of the cells as axial skeleton | In all flagellates, spore forming Protozoans |
| <i>Alveoli</i> | Flattened vesicles form a more or less continuous layer below the cell membrane. | In ciliates, spore forming Protozoan. |

- iv) In many cases the body is provided with simple to elaborate shells.
6. Nucleus- Most of them have a single vesicular nucleus, while few are multicellular.
7. Locomotory organelle- Include flagella, cilia or flowing extensions of the body called pseudopodia.
8. Mode of nutrition-
 - i) Holozoic, holophytic, saprophytic or parasitic
 - ii) Oral aperture- may be present or absent.
9. Mode of respiration- Both aerobic and anaerobic.
10. Excretion-
 - i) Physical process involved- osmoregulation and active ion transport at the cell membrane
 - ii) Contractile vacuole and general body surface act as major excretory mode.
 - iii) Contractile vacuoles are basically two types as follows-

| Type | Feature |
|--------------------|--|
| Contractile proper | Composed of large spherical vesicle |
| Spongione | Surrounding with small vesicles or tubules (mainly for fluid collection) |

11. Reproduction and life cycle-

- i) Commonly performed by asexual fission (binary and multiple). In some forms sexual reproduction may occur either by conjugation or fusion of gametes.
- ii) Asexual reproduction (presented in tabular form below)