

GENERAL CHARACTERS:-

1. Small, usually microscopic animalcules, ordinarily not visible without a microscope.
2. Simplest and most primitive of all animals, with protoplasmic grade of organization.
3. Body unicellular, containing one or more nuclei which are monomorphic or dimorphic.
4. Solitary or forming loose colonies in which individuals remain alike and independent.
5. Body symmetry none, bilateral, radial or spherical.
6. Body naked or bounded by a pellicle and often provided with simple to elaborate shells or exoskeletons.
7. Body form usually constant, varied in some, while changing with environment or age in many.
8. The single cell body performs all the essential and vital activities, which characterized the animal body, hence only subcellular physiological division of labour.
9. Locomotor organelles are finger like pseudopodia or whip-like pseudopodia flagella or hair like cilia or absent.

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10. Nutrition holozoic, holophytic, saprozoic or parasitic.
  11. Respiration and excretion through general surface or through contractile vacuoles, which serve mainly for osmoregulation.
  12. Reproduction asexual by binary or multiple fission and budding and sexual by conjugation of adults or by fusion of gametes.
  13. Life history often complicated with alternation of asexual and sexual phases.
  14. Encystment commonly occurs to help in dispersal as well as to resist unfavourable conditions of food, temperature and moisture.
  15. Free-living protozoa mostly aquatic, inhabiting fresh and sea waters and damp places.
  16. The single-celled individual not differentiated into somatoplasm and germplasm.
  17. Protozoans evolved 3.8-4.5 billion years ago, presently has 36,400 living species.
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# LOCOMOTION IN PROTOZOA (2001. Sub.) DE

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Locomotor organelles in Protozoa include Pseudopodia, flagella, cilia and Pellicular contractile structure.

1. Pseudopodia: - Pseudopodia or false foot are temporary structure formed by the streaming flow of cytoplasm. Sarcodina move with these structure. Pseudopodia are of the following types:

(a) Lobopodia: These are the lobe-like Pseudopodia with broad and rounded ends, as in Amoeba. These are composed of both cytoplasm as well as endoplasm. Lobopodia move by pressure flow mechanism.

(b) Filopodia: These are more or less filamentous Pseudopodia, usually tapering from base to the pointed tip, as in Euglypha. Unlike Lobopodia, the Filopodia are composed of ectoplasm only.

(c) Reticulopodia: The reticulopodia are also filamentous. Filaments are branched and interconnected profusely to form a network. Reticulopodia display two-way flow of cytoplasm.

(d) Axopodia: - These are more or less straight Pseudopodia radiating from the surface of the body. Each Axopodia contains a central axial rod which is covered by granular and adhesive cytoplasm.

## METHODS OF LOCOMOTION

Basically there are four known methods by which protozoa move: (i) Amoeboid movement, (ii) Flagellar movement, (iii) ciliary movement and (iv) Metabolic movement. Speed of locomotion varies from  $0.2 \mu$  to  $3 \mu$  per second in amoeboid forms.  $15 \mu$  to  $300 \mu$  in flagellates and  $400 \mu$  to  $2000 \mu$  in ciliates.

### Amoeboid movement

It consists in the formation of pseudopodia by the streaming flow of cytoplasm in the direction of movement. Locomotion by pseudopodia is possible only over a surface. The mechanism involved in the formation of pseudopodia, but the most convincing theory at present is that it depends upon active contraction of the ectoplasmic tube (plasmagel) at the posterior end of the body. This leads the ectoplasm (plasmasal) to flow forward into the expanding pseudopodium.

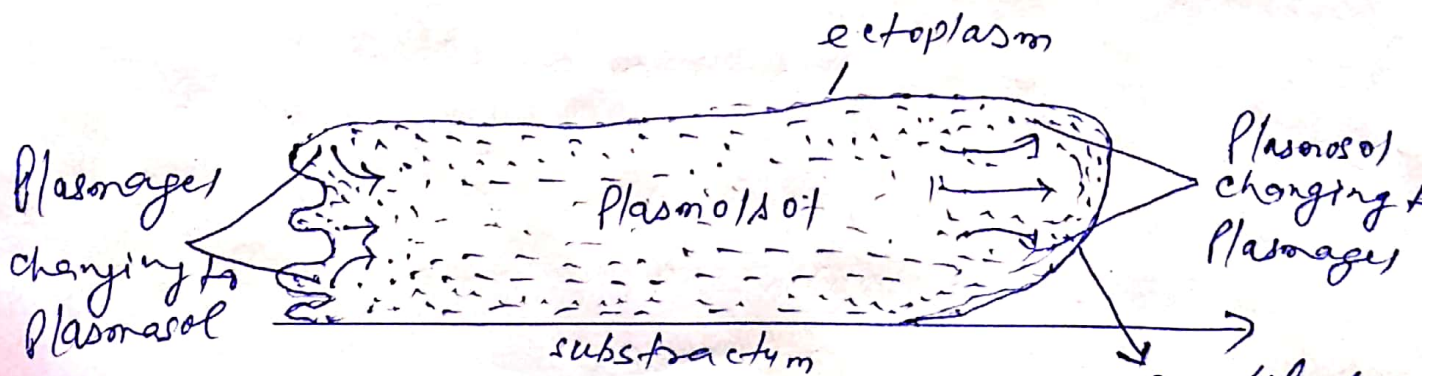


Fig: Amoeboid movement (Protozoa)