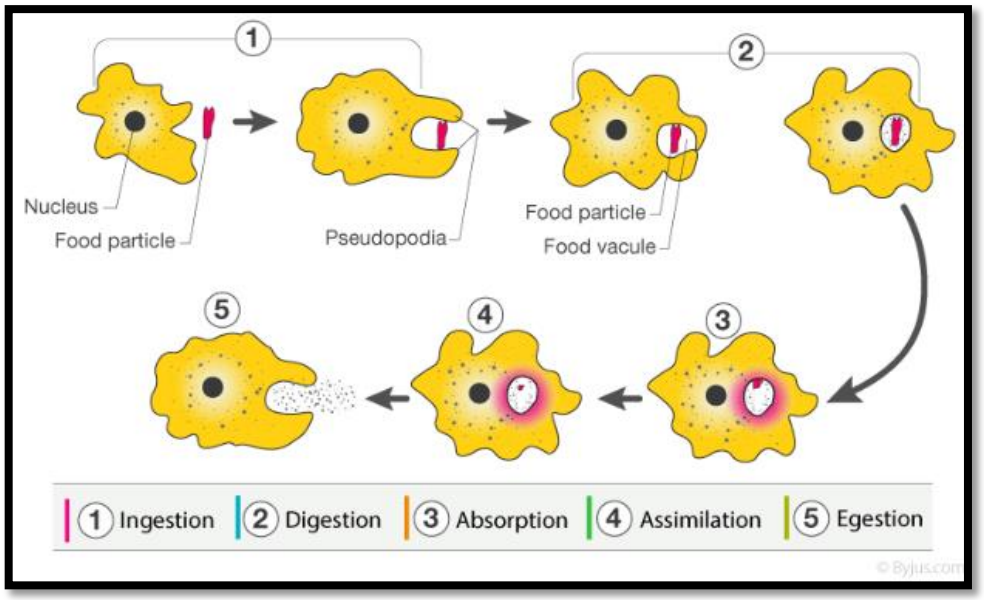
Life Processes

Nutrition in Amoeba & Paramecium

❖ Nutrition in Amoeba

Nutrition in an Amoeba occurs through a process called phagocytosis where the entire organism pretty much engulfs the food it plans on eating up. The mode of nutrition in amoeba is known as holozoic nutrition. It involves the ingestion, digestion and egestion of food material.

Amoeba does not have any specialized organ for nutrition. Its entire process is carried through



the body surface with the help of pseudopodia.

Process Of Nutrition in Amoeba

The different processes involved in holozoic nutrition in amoeba are:

Ingestion

Ingestion is the process of taking in the food into the body either by swallowing or absorbing it. Amoeba pushes out the pseudopodia to encircle the food and engulfs it forming a food vacuole. This process is known as phagocytosis.

Digestion

Digestion is the process of breaking the insoluble and large food molecules into soluble and minute molecules. In amoeba, the food vacuoles are transported deeper into the cell and with the help of the digestive enzymes, the large insoluble particles are broken down to the simplest molecules.

Absorption

In this process of absorption, the nutrients from the digested food material are absorbed into the cell's cytoplasm by leaving behind the undigested particles. This process is called diffusion. The excess food is stored in the form of glycogen and lipids.

Assimilation

Assimilation is the process of obtaining energy from the absorbed food molecules. In amoeba, absorbed food molecules are utilized for producing the energy required to carry out different life processes within the cell.

Egestion

Egestion is the process of excretion of undigested food material. In amoeba, this process is carried out by rupturing the cell membrane to remove the undigested food material from its body.

❖ Nutrition in Paramecium

The mode of nutrition in Paramecium is holozoic, which is a category of the heterotrophic mode of nutrition. It mostly engulfs other microorganisms from its surrounding environment. Paramecium belongs to the phylum Protozoa of the kingdom Protista.

Additional Information:

The different modes of nutrition seen in organisms are:

> Autotrophic mode of nutrition: The individual or organism has the ability to synthesize its foods using available raw materials from the surrounding environment. There are two types of autotrophic modes of nutrition:

- Photoautotrophic Nutrition: It includes organisms that are dependent on sunlight for the synthesis of food, Solar energy acts as the primary source of energy for them. All plants are photoautotrophs.
- Chemoautotrophs: These organisms can synthesize their food with the help of chemical energy, they may or may not be dependent on solar energy. Green and purple sulphur bacterias.

> Heterotrophic Nutrition: Nutrition is obtained by feeding on other organisms. Almost all animals are heterotrophic. It can again be subdivided into three types:

- Holozoic or Holotropic: The organism usually obtains solid food from the surrounding environment.
- Saprotrophic or Saprobiotic: In these types, the individual obtains their nutrition by feeding on dead and decaying organic remains of other organisms.
- Parasitic: Individuals obtain nutrition by feeding directly on a living host.