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Perspective

Note on Classification of Protozoa

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DESCRIPTION

Protozoa are heterotrophic, unicellular, eukaryotic creatures. They are either parasites or free-living. There are around 65000 protozoan species divided into many categories. They don't have a cell wall. There are numerous cell organelles that conduct various jobs for various organs in higher animals, such as the mouth, anus, and intestinal system.

Plasmodium (malarial parasite), *Trypanosoma* (sleeping sickness), *Trichomonas* (trichomoniasis), and other protozoa cause numerous diseases in animals and humans. The protozoa go through a number of stages throughout their life cycle. Some aspects of the life cycle are contagious. The cyst stage is latent and resistant to stress, whereas the trophozoite stage reproduces and causes sickness.

Protozoa are organisms that live in water. They can be found in both freshwater and saltwater. In plants and animals, some are free-living, while others are parasitic. They are mostly aerobic, but some are anaerobic and can be found in the rumen or in the human intestine. Some of the species live in harsh conditions, such as hot springs. To cope with arid surroundings, some of them produce resting cysts. Protozoa range in size and shape from microscopic (1 m) to large enough to be seen with the naked eye. The shell of unicellular foraminifera can be as large as 20 cm in diameter. Because they lack a hard cell wall, they are pliable and come in a variety of shapes. A thin plasma membrane surrounds each cell. The exterior surface of some species has a hard shell. Pellicle, which may be flexible or rigid and gives organisms a distinct shape and aids in motility, supports the cell in some protozoans, particularly ciliates. They have a eukaryotic cell and are unicellular. Internal structures with specialised metabolic functions execute these duties.

They mostly have one membrane-bound nucleus in the cell due to scattered chromatin, the nucleus appears distributed; the vesicular nucleus comprises a core body called an endosome or nucleoli. Apicomplexans have DNA in their nucleoli, whereas amoeboids lack DNA in their endosomes. Ciliates have micronucleus and macronucleus. The cytoplasm and other locomotory projections such as flagella, pseudopodia, and cilia are enclosed by the plasma membrane. Some genera have a membrane envelope called pellicle that gives the cell a distinct form. Epibiotic bacteria adhere to the pellicle by their fimbriae in some protozoans. The cytoplasm is divided into outside ectoplasm and inner endoplasm, with the former being transparent and the latter containing cell organelles. Some protozoa have cytostome, which allows them to consume food. Food vacuoles are present, which contain ingested food. Ciliates have a gullet, which is a bodily cavity that opens to the outside. The central vacuole is present for osmoregulation, that removes excess water. Cell organelles that are membrane-bound, such as mitochondria, Golgi bodies, lysosomes, and other specialised structures, are present. Protozoa are heterotrophic and feed on holozoa. Phagocytosis is the process through which they consume their food. For phagocytosis, several protozoan groups have a specialised structure termed a cytostome. Amoeboids' pseudopodia aid in the capture of prey. The food-laden water is driven into the gullet by thousands of cilia found in ciliates. Ingested food is transported to the food vacuole, where it is processed by lysosomal enzymes. The food that has been digested is disseminated throughout the cell. Flagella, cilia, and pseudopodia are present in the majority of protozoa species. Sporozoa, which lacks a locomotory structure, have subpellicular microtubules that aid sluggish movement. Most protozoa have a latent cyst stage and a proliferating vegetative stage, such as trophozoites, in their life cycle. Without water or nutrition, the cyst stage can survive under extreme environments. It can stay outside the host for prolonged periods of time before being transmitted. The trophozoite stage is contagious, and it is during this stage that they feed and multiply. Asexual reproduction is the most common mode of reproduction for them. Binary fission, longitudinal fission, transverse fission, and budding are all ways to multiply. Sexual reproduction is present in several species. Conjugation, syngamy, or the generations of gametocytes are all methods of sexual reproduction.

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