

Difference Between Zoospore and Zygote

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Key Difference – Zoospore vs Zygote

Different reproductive structures are formed by different species of organisms during their life cycles. They differ structurally, but most of them share a common function. Zoospores and zygotes are two main types of reproductive structures produced by organisms. Zoospores are produced by [protists](#), [fungi](#), and [bacteria](#). They are motile microscopic asexual [spores](#) that bear a [flagellum](#) for locomotion. A zygote is a [diploid](#) (2n) sexual reproductive structure that is non-motile and formed due to the fusion of two types of haploid (n) [gametes](#). The key difference between zoospore and zygote is that **zoospores are produced during the [asexual reproduction](#) while zygotes are produced in [sexual reproduction](#).**

What is a Zoospore?

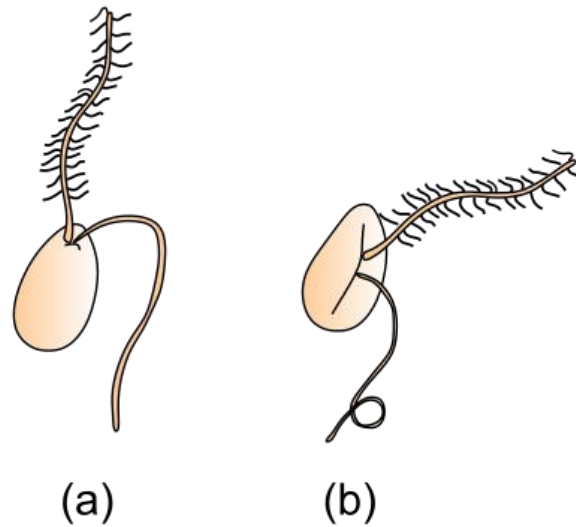
Species like bacteria, protists, and fungi produce motile asexual spores with flagella known as zoospores. The morphology of the flagella differs from organism to another organism. Eukaryotic zoospore is of four different morphological types:

Opisthokont: They contain a single long posterior whiplash flagellum.

Anisokont: They contain two whiplash flagella on either side of the organism and are of unequal length.

Zoospore: They contain a single anterior tinsel type flagellum.

Heterokont: They contain one tinsel type flagellum and another whiplash type flagellum attached to the anterior of the organism.



zoospores (*Saprolegnia*)

Figure 01: Zoospores

Fungal zoospores don't contain a [cell wall](#) and are unable to undergo division. They are specialized for dispersal and are sensitive to a wide range of different environmental stimuli. The zoospore can be either haploid (n) or diploid ($2n$).

What is a Zygote?

The zygote is a eukaryotic diploid ($2n$) reproductive structure that is developed with the fusion of two haploid (n) gametes through a process known as [fertilization](#). The zygote develops into a multicellular organism via [mitosis](#). In the context of a unicellular organism's life cycle, the zygote undergoes meiosis, which results in a haploid (n) single cell organism. In fungi, two haploid (n) gametes unite and form a diploid ($2n$) zygote through a process known as [karyogamy](#). According to the type of species, the zygote may undergo mitosis or [meiosis](#). In plants, the fertilization of two meiotically unreduced gametes (gametes present with a somatic chromosome number) leads to the formation of a zygote which is polyploid (contains 3 or more sets of chromosomes than usual). In humans, a haploid (n) male gamete (sperm) and haploid ($2n$) female gamete (ovum) fuse to form a diploid ($2n$) zygote. The zygote then undergoes a series of development stages that result in a new offspring.



Figure 02: Zygote

What are the similarities between Zoospore and Zygote?

- Zoospore and zygote are structures formed during reproduction.
- Both lead to the development of a new organism.

What is the difference between Zoospore and Zygote?

Zoospore vs Zygote	
Zoospore is an asexual reproductive structure produced by fungi, bacteria, and protists.	Zygote is a sexual reproductive structure formed as a result of the fusion of two gametes.
Origin	
The zoospore is formed inside the	The zygote is formed by the fusion of two

zoosporangium	gametes.
Flagella and Motility	
Zoospores are flagellated and motile.	A zygote is non-flagellated and nonmotile.
Reproduction	
A zoospore is formed due to asexual reproduction.	A zygote is a result of sexual reproduction.
Ploidy	
A zoospore can be either haploid (n) or diploid (2n).	A zygote is typically diploid (2n).
Role in Dispersal	
Zoospore plays a major role in dispersal.	Zygote plays a comparatively lesser role in dispersal.

Summary – Zoospore vs Zygote

Zoospore and zygote are two different reproductive structures produced by different species of organisms. The zoospores are asexual microscopic motile structures that contain a flagellum for locomotion. The eukaryotic zoospore has four different structures that are morphologically different due to the variety of flagella they possess. The unique role of a zoospore is dispersal, and they have developed different mechanisms for adaptation. A zygote is a result of sexual fertilization in which two haploid (n) gametes unite. They are nonmotile and do not possess flagella. A zygote is typically diploid and does not play a major role in dispersal. This is the difference between zoospore and zygote. Being reproductive structures, both structures share common similarities and leads to the formation of new offspring.

References:

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