

Difference Between Sporangia and Gametangia

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Key Difference - Sporangia vs Gametangia

Reproduction is in two modes; [sexual reproduction and asexual reproduction](#). Most of the [fungi](#) show asexual reproduction while some use sexual reproduction. Asexual reproduction is accomplished by the production of spores. Asexual spores are produced in the structures called sporangia. Hence, sporangia are asexual reproductive bodies. Sexual reproduction is accomplished by the production of sexual cells called [gametes](#). Gametes are haploid, and the fusion of two [male and female gametes](#) produces a [diploid zygote](#), which then develops into a new organism. Gametes are produced in the structures called gametangia. The **key difference** between sporangia and gametangia is that **sporangia are the asexual structures that produce asexual spores while gametangia are the sexual structures that produce sexual spores or the gametes.**

What are Sporangia?

Sporangium (plural – Sporangia) is a structure in which asexual spores are formed. Sporangia are possessed by many plants, [bryophytes, algae and fungi](#). Spores are produced inside the sporangia by [mitotic or meiotic cell divisions](#). Sporangium can be a single cell or multicellular structure. Sporangia produce many spores and protect the spores until they become mature enough for dispersal.

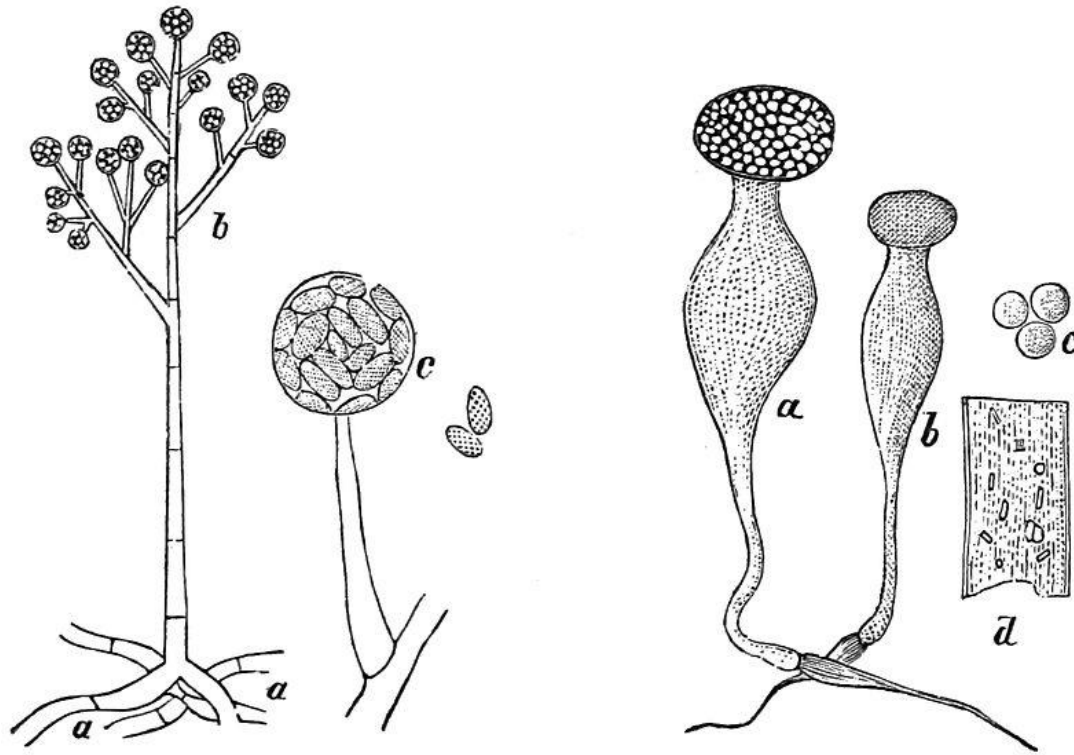


Figure 01: Sporangia

Most of the sporangia are spherical or cylindrical in shape. When the spores are ready for dispersal, sporangia walls break and release the spores to the environment. Sporangia are developed in the [sporophytes](#). Sporophytes are diploid. Hence, sporangia produce spores mainly by meiosis.

What are Gametangia?

Gametangium (plural – Gametangia) is a specialized structure in which gametes are formed in algae, [ferns](#), fungi and plants. Gametes are two types; male gamete and female gamete. They are sexual cells. Gametes are produced during the sexual reproduction. Gametes contain only one set of [chromosomes](#) hence they are haploid. When two different gametes are fused, it results in a diploid cell called zygote. A zygote is the sexually produced diploid cell, which then develops into a new organism.

Gametangia are two types mainly; female gametangia and male gametangia. Female gametangia are known as archegonia or oogonia mostly in algae and fungi and primitive plants including [gymnosperms](#). In angiosperms, female gametangia are known as embryo sacs. Female gametangia provide the site for fertilization. Since female gametes (egg cells) are non-motile, motile male gametes reach the female gametangia for fertilization.

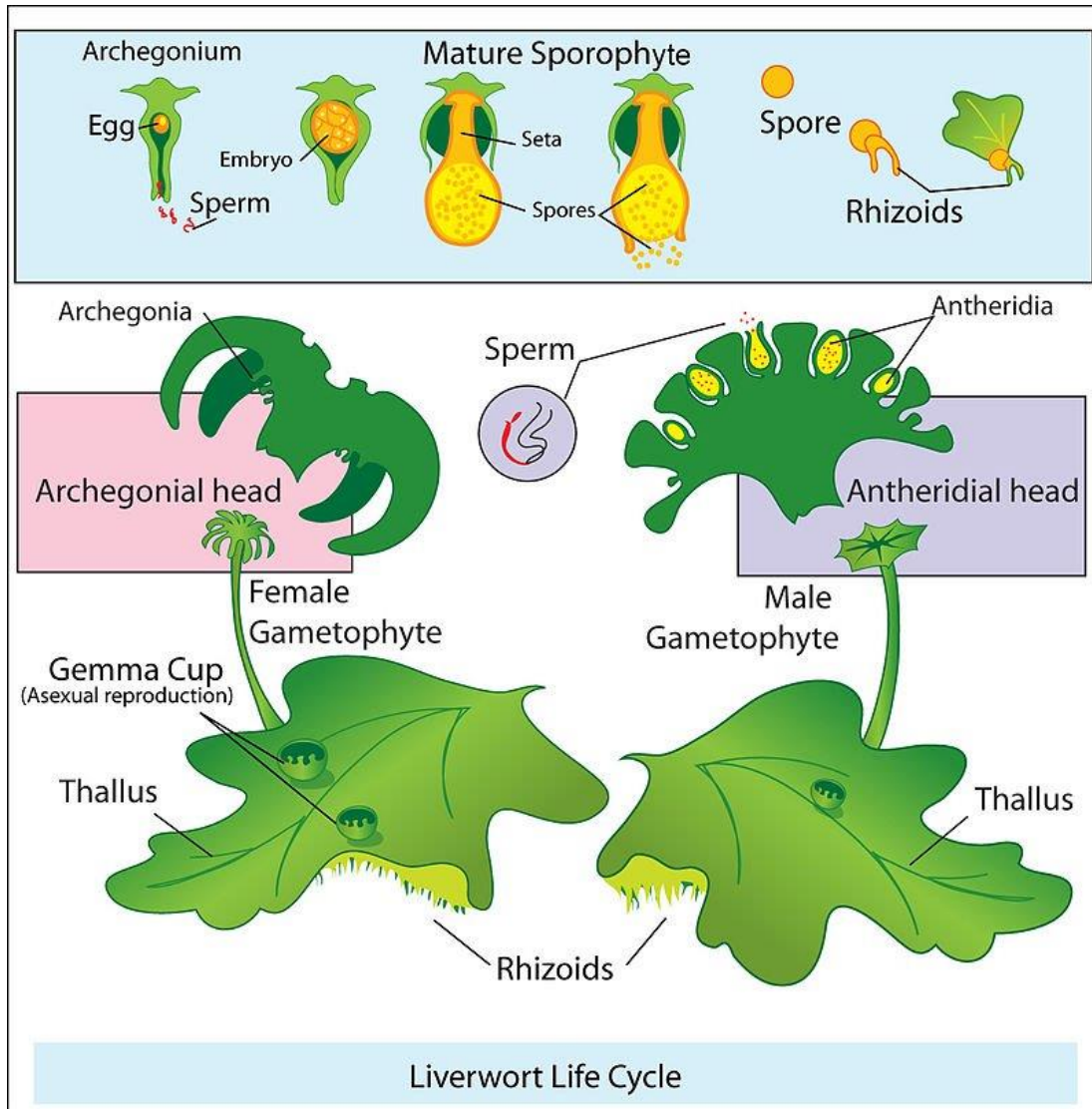


Figure 02: Archegonia and Antheridia

Male gametangia are referred to as antheridia. Antheridia produce sperms and release them outside for syngamy. Gametangia are found in the gametophytic generation. Gametophytes are haploid structures.

What are the Similarities Between Sporangia and Gametangia?

- Sporangia and gametangia are reproductive structures.
- Both structures produce spores or cells that are necessary to produce the next generations.
- Within both structures, mitosis or meiosis occurs during spore production.
- Both structures are present in fungi, algae, [liverworts](#), [mosses](#) etc.
- The spores and gametes that are produced by sporangia and gametangia are haploid.

- Sporangia and gametangia produce spores and gametes that are resistant to harsh environmental conditions.

What is the Difference Between Sporangia and Gametangia?

Sporangia vs Gametangia	
Sporangia are structures possessed by plants, mosses, algae, fungi that bear asexual spores for reproduction.	Gametangia are the structures that produce gametes.
Set of Chromosomes	
Sporangia can be haploid or diploid structures.	Gametangia are always haploid in nature.
Sexual or Asexual in Nature	
Sporangia are asexual structures.	Gametangia are sexual structures.
Function	
Sporangia produce spores and protect them from drying and damaging.	Gametangia produce gametes and protect them from drying and damaging.
Number of Spores or Gametes Produced	
Sporangia produce many spores compared to gametangia.	Gametangia produce less number of gametes compared to sporangia.
Generation	
Sporangia are developed in sporophytic generation.	Gametangia are developed in a gametophytic generation.

Summary - Sporangia vs Gametangia

Sporangia and Gametangia are reproductive organs of different groups of organisms. Sporangia produce spores. Sporangia are mainly asexual structures in which asexual spores are produced. They can be single-celled or multicellular structures. A large number of spores are produced within the sporangia, and when they are matured, sporangia walls rupture and release the spores to the environment. When the spores meet the necessary food and conditions, they produce new organisms. Sporangia are located in the sporophytes. Gametangia produce gametes or the sex cells. There are two types of gametes; male gametes or sperms and female gametes or egg cells. Gametangia

are sexual structures. And also they are haploid structures. Hence, gametangia produce gametes by mitosis. Gametangia are located in the gametophyte. This is the difference between sporangia and gametangia.

Reference:

- 1.“Gametangium.” Gametangium - an overview | ScienceDirect Topics. [Available here](#)
- 2.“Sporangium.” Sporangium - an overview | ScienceDirect Topics. [Available here](#)

Image Courtesy:

- 1.'PSM V09 D427 Sporangia'By Popular Science Monthly Volume 9, (Public Domain) via [Commons Wikimedia](#)
- 2.'Liverwort life cycle' (Public Domain) via [Commons Wikimedia](#)

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