Sporophyte Encyclopedia Article

Sporophyte

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Sporophyte

Sporophyte, which literally means "spore-bearing" plant, is the **diploid** multicellular phase of an organism that displays alternation of generations. The sporophyte phase develops from the fertilized egg, or zygote, by simple cell division and subsequent differentiation. Sporophytes occur in a few algae and aquatic fungi, and are universal in true plants. They differ greatly in size and level of complexity. In bryophytes the sporophyte is short-lived and permanently attached to the female parent, upon which it is nutritionally dependent. In all other plants, the sporophyte becomes independent of the female parent soon after embryological development is completed and remains as the dominant, photosynthetic stage of the plant. In the simplest case, a sporophyte can consist of only a capsule, or sporangium, as in the liverwort *Riccia*, but usually it will also possess one or more vegetative organs. For example, in mosses the sporophyte consists of a foot; a green, stemlike **seta**; and a single complex sporangium, while in pines it is a highly branched tree with roots, stems, leaves and thousands of sporangia. Within the sporangia, which are the reproductive organs of the sporophyte, **haploid** spores are produced by **meiosis**. Germination of these spores marks the beginning of the haploid, sexual phase of the life cycle.

Sporophyte of a *Marchantia* liverwort, composed of three parts (from left to right): foot, seta, and sporangium.

See Also

Bryophytes; Gametophyte; Reproduction, Alternation of Generations And; Reproduction, Asexual

Bibliography

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