Sporophyte Encyclopedia Article

Sporophyte

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Sporophyte

A sporophyte is the diploid (i.e., it is 2n, having two sets of chromosomes), spore-producing generation in the life cycle of plants. A sporophyte is formed by the fusion of two haploid gametes (or gametophytes, these have one set of chromosomes, i.e., are 1n).

Sporophytes produce gametophytes through the process of meiosis, or reduction division of the chromosomal material. Two haploid gametophytes (one from each "parent") fuse (in a process known as fertilization) to produce a zygote (or embryo), representing a sporophyte. Therefore, the sporophyte phase (2n) of the life cycle alternates with the gametophyte-producing phase (1n), in what is known as the "alternation of generations."

In many algae, the greater part of the life cycle consists of the gametophyte generation, with the sporophyte being restricted to a single-celled zygote. In contrast, bryophytes (mosses and liverworts) have two multi-celled generations of similar size and time of existence. In the vascular plants, the sporophyte phase is by far the dominant one, with the gametophyte restricted to an almost negligible part of the life-cycle.