

Gametophyte Encyclopedia Article

Gametophyte

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Gametophyte

A gametophyte is a haploid, gamete producing sexual phase in the life cycle of the plants that exhibit a phenomenon called the alternation of generations. The other distinct phase in the life cycle of such plants is called a sporophyte. The gametophyte with a single set of chromosomes gives rise to the sporophyte with a double set when two gametes fuse to form a zygote. The zygote develops into a sporophyte and produces haploid spores by meiosis that develop into gametophytes. In the gametophyte phase, male and female organs (gametangia) develop and gametes, which unite in fertilization (syngamy). In some algae and fungi almost the entire life cycle is gametophyte and in others it is almost all sporophyte, and either form may exist independently of the other. In liverworts, hornworts, and mosses, the gametophyte phase of the life cycle dominates, and the sporophyte tends to be dependent on the gametophyte. In seed producing plants, on the other hand, the sporophyte is the dominant phase and the gametophytes exist only as parasites on the sporophytes. In flowering plants, or angiosperms, the gametophyte portion of the life cycle consists of the microgametophyte or pollen grain that produces sperm, and the megagametophyte or embryo sac which produces the egg. Fusion of the sperm and egg gives rise to a zygote that develops into an embryo encased in the seed.