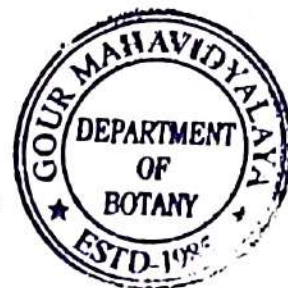


STUDY MATERIALS FOR BRYOPHYTES
DEPARTMENT OF BOTANY, GOUR MAHAVIDYALAYA



AN INTRODUCTION TO BRYOPHYTES

Why bryophytes are known as the “amphibian of plant kingdom”?

Bryophytes are the most primitive land plants, which are classified under the kingdom of Plantae. They are neither vascular nor seed plants. Though bryophytes are land plants, they require water for the fertilization of gametes. Water carries sperms to the eggs during sexual reproduction. Hence, the sperms of bryophytes are always flagellated. Since bryophytes require water for their sexual reproduction, they tend to grow in moist, shady habitats. Given that they grow in moist places, bryophytes are considered as amphibians of the plant kingdom. Generally, amphibians are the animals that live on land but, move to water during reproduction. Gametes of amphibians are fused in the water.

Alteration of generation in bryophytes

Bryophytes undergo alteration of generations where the gametophyte is dominant over the sporophyte. In the life cycle of these plants, there exist two distinct phases. One is haploid (n) or gametophytic phase which produces gametes. It is the dominant and independent phase of the life cycle. It produces the male and female sex organs i.e., antheridia and archegonia respectively. Haploid gametes i.e. antherozoids and eggs are produced inside the sex organs. Antherozoids are produced in antheridia and eggs are produced in archegonia. The gametes fuse to form a diploid ($2n$) zygote. The zygote is the starting point of the next phase of the life cycle. On germination the zygote forms the second diploid adult of the life cycle called sporophyte or sporogonium. Sporogonium produces spore mother cells in the capsule region, which undergo meiosis and form the haploid spores called meiospores. The zygote, embryo, sporogonium and spore mother cells together constitute the sporophytic generation. This generation is dependent completely or partially on the gametophytic generation for its nutrition. Each meiospore germinates and produces a gametophytic plant which again bears the sex organs. In this way the life cycle goes on. Because the two generations (gametophytic and sporophytic) appear alternately in the life cycles, Bryophytes show alternation of generation. Since the generations differ completely in their morphology i.e., gametophyte is either thalloid or foliose, and the sporophyte usually consists of foot, seta and capsule, it is called heteromorphic alternation of generation.




Principal
GOUR MAHAVIDYALAYA
Manqalbari, Malda