

BRYOPHYTA

(General Characters)

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GENERAL CHARACTERS

- ❖ Plant body represents the **gametophyte** which may be **thallus** (e.g. *Riccia*) like or **foliose** (e.g. *Porella*) type
- ❖ True roots are absent. Instead **rhizoids** and **scales** are present. They perform the functions of root.
- ❖ Vascular tissue is completely absent
- ❖ Multi cellular sex organs are present. Male sex organ is known as **antheridium** (oval or pear shaped) and the female sex organ is called **archegonium** (flask shaped). Both the sex organs are surrounded by a sterile layer of jacket.

GENERAL CHARACTERS

- ❖ Sexual reproduction is **oogamous** type
- ❖ Fertilization essentially **takes place in presence of water** and it results in the formation of **zygote**
- ❖ Zygote (i.e. fertilized egg) undergoes repeated cell divisions to form a multi cellular **embryo**
- ❖ Development of embryo takes place within the **venter** of archegonium and its wall (venter wall) enlarges to form a protective envelope called **calyptra**

GENERAL CHARACTERS

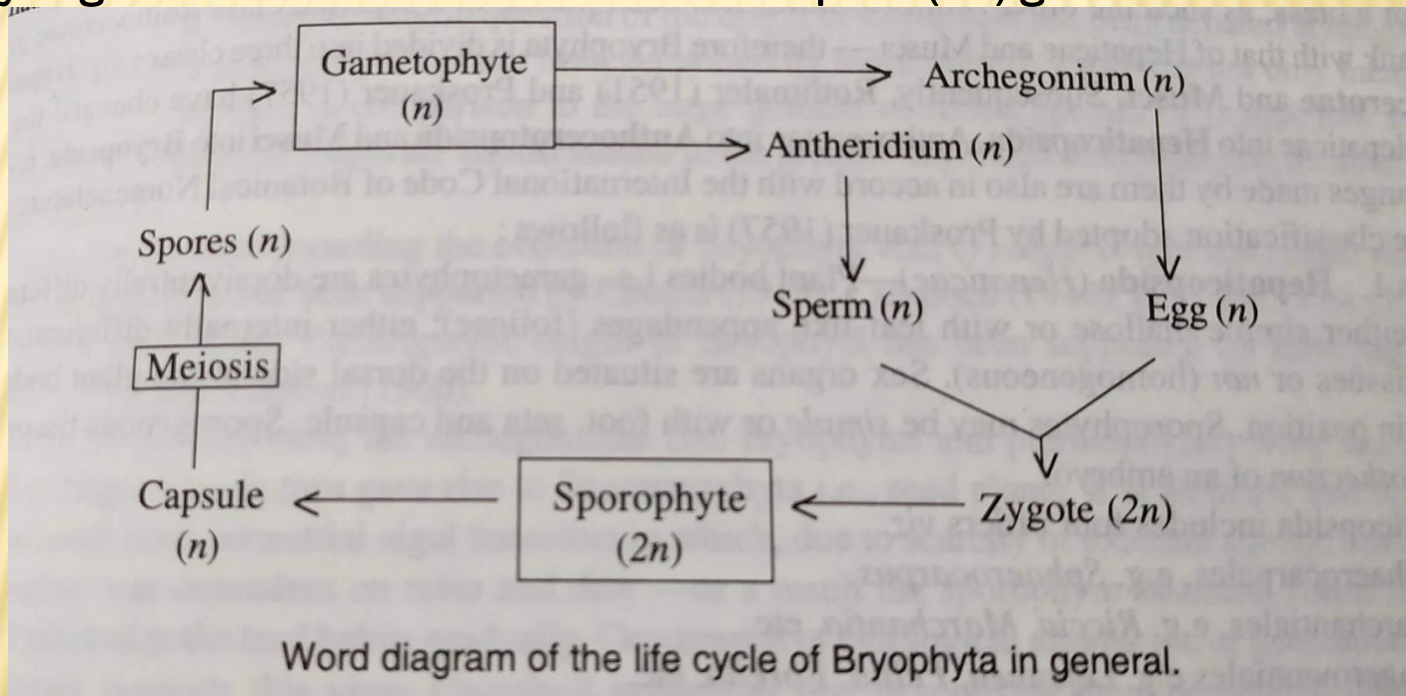
- ❖ Embryo by further cell divisions and differentiation produces a specialized structure known as **sporophyte/sporogonium**
- ❖ Sporophyte may be **simple** (e.g. *Riccia*, *Corsinia*) or may be differentiated into **foot**, **seta** and **capsule** (e.g. *Marchantia*, *Pellia*, *Porella* etc)
- ❖ Sporophyte is concerned with the production of spores which are **homosporous** (morphologically identical)

GENERAL CHARACTERS

- ❖ Each spore on germination gives rise to a green filamentous structure called **protonema**
- ❖ Bud produced on protonema by means of direct or indirect germination gives rise to a haploid (n) **gametophyte**
- ❖ Occurrence of **heteromorphic alternation of generation** (In their lifecycle there are two morphologically distinct types of plants, one is **gametophyte** which is haploid (n), long lived and independent and the other is **sporophyte** (2n) which is dependent on gametophyte for food and nutrients).

LIFE CYCLE OF BRYOPHYTA

In the life cycle of a Bryophyta, there is regular alternation of gametohytic (i.e. gamet producing generation) and sporophytic (i.e spore producing generation). The gametophytic generation is known as sexual or haploid(n) generation and the sporophytic generation is known as asexual or diploid ($2n$) generation



In Bryophyta, the alternation of generation is **heteromorphic** type because plants of the two alternating generations are morphologically **distinct** and **different**.

Thank you