Embryophytes

I. Definition :

Embryophytes or cormophytes include all terrestrial plants and are multi-cellular organisms with deferent tissues, contrary to Thallophytes which have no true tissue (they are primitive).

They have the following characteristics in common:

1.The vegetative apparatus :

Called the cormus it is made up of: the stem, the leaf and the root.

The stem :

Indefinite growth with a terminal bud.

The stem bears leaves and axillary buds at nodes separated by internodes.

The axillary buds allow the stem to branch.

Each leaf with its axillary bud and internode forms a (repeating) unit called a phytomere.

Stems can be herbaceous (green and flexible) or woody (brown and rigid).

The leaves:

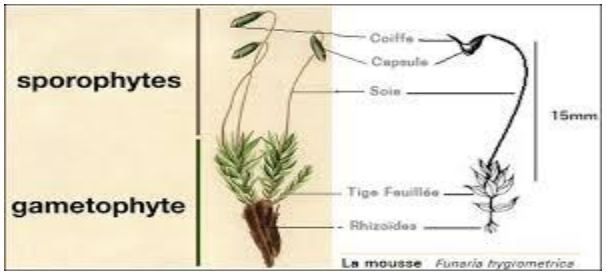
Generally contain chlorophyll tissue and are the seat of photosynthesis and transpiration.

Buds:

Are growth zones from which stems and leaves are formed.

Growth zones may correspond to an apical cell (Bryophytes and lycophytes) or meristems, which are complex groups of dividing cells (Spermaphytes).

The corm is connected to the soil either by rhizoids or by roots.



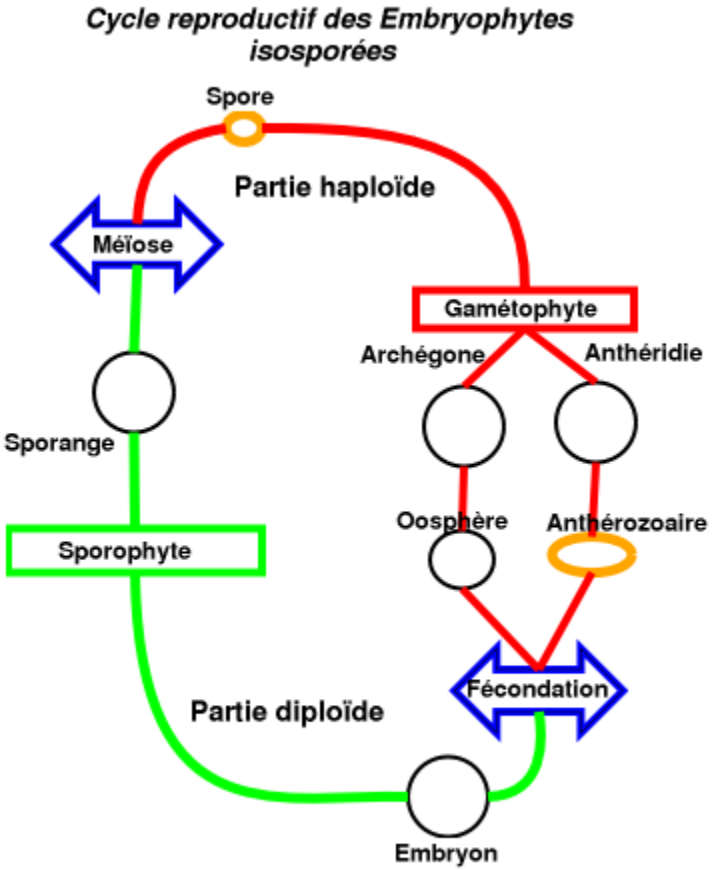
2.Reproduction:

Reproduction takes place in a haplodiplophasic cycle: there are two generations, one with n chromosomes and the other with 2n.

Fertilisation of the female gamete (oosphere) by the male gamete (spermatozoon) produces a diploid egg (2n) called a zygote.

The zygote develops into an embryo (which gives the taxon its name).

The young embryo develops at the expense of the maternal organism or gametophyte.



3.Reproductive structures:

These are sacs, with multicellular walls, where gametes (gametangia) or spores (sporangia) are formed.

Female gametangia are called archegonia and male gametangia antheridia.

The archegonium contains a single female gamete: the oosphere.

The antheridia contain several gametes: the spermatozoa.

The antheridia The archegonium

4.Protective molecules:

Cutins: lipid polymer containing a hydrophobic layer (cuticle) which covers the epidermis of plants (except Bryophytes) to protect them against desiccation.

Sporopollenins: very resistant molecule impregnating the prey of spores to protect them against desiccation.

Anthocyanins: pigment synthesised by epidermis to protect against the harmful action of ultraviolet rays by absorbing them.