

Lab(6): Non-Vascular Plant(Cryptogams)

Bryophytes

Super kingdom: Eukaryota

Kingdom: Plantae

Division: Bryophyta

1- Class : Hepaticopsida (liver wort)

Order : Marchantiales

Genus : *Riccia*

Genus : *Marchantia*

2- Class : Bryopsida (Mosses)

Order : Bryales

Genus : *Funaria*

3- Class : Anthocerotopsida (Horn worts)

Order : Anthocerotales

Genus : *Anthoceros*

Bryophytes have the following general characteristics:

1. Plants thrive in moist, shady environments
2. The thallus-like body of the plant can be prostrate or upright
3. Rhizoids, which can be unicellular or multicellular, rhizoids perform the function of roots, essentially anchoring the plants into the surface.
4. They have a root-like, stem-like, and leaf-like structure, but no genuine vegetative structure.



Figure(1): Bryophytes

Essential terms:

- Antheridia is the male sex organ, and is a haploid structure whose function is to produce male gametes called antherozoids or sperms.
- Archegonia is the female sex organ, which produces female gametes mainly in cryptogams.
- Gemma cup is cup-like structures containing gemmae. The gemmae are small discs of haploid tissue and they directly give rise to new gametophytes. A gemma (plural gemmae) is a single cell or a mass of cells, or a modified bud of tissue, that detaches from the parent and develops into a new individual

Genus : *Riccia*

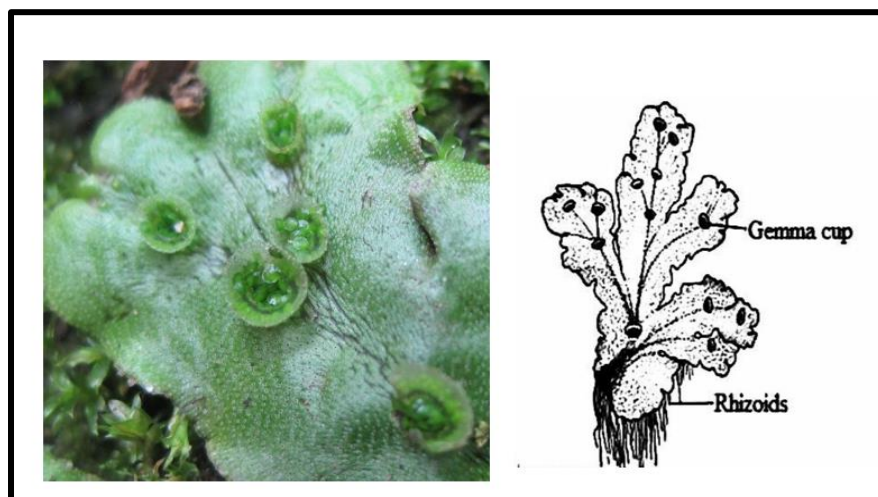
The genus *Riccia* (liverworts) are small thalloid plants that are not differentiated into roots, stems and leaves.



Figure(2): *Riccia*

Genus : *Marchantia*

A thalloid liverwort is strap-like and often forms large colonies on the surface on which it grows. A liverwort is nonvascular green plant.



Figure(3): *Marchantia*

Table: Differences between *Riccia* and *Marchantia*

<i>Riccia</i>	<i>Marchantia</i>
Structure	
Riccia is a rosette-like dichotomously branched plant with a prostrate thallus.	Marchantia is dorsiventral, dichotomously branched with a prominent midrib. They have rhizoids and scales at the base to attach to the substratum.
Sexual system	
They have monoicy, that is, male and female reproductive organs that grow on the same plant.	They have dioicy, that is, male and female reproductive organs that grow on different plants.
Characteristic feature	
The characteristic feature of the <i>Riccia</i> plant is a rosette-like thallus.	The characteristic feature of the <i>Marchantia</i> plant is the presence of gemmae cups and barrel-shaped pores.
Sporophyte	
The sporophyte consists only of the capsule, foot and seta are missing.	The sporophyte is differentiated into foot, seta and a capsule.

Practical section

See under microscope:

V.s in *Marchantia*

- Antheridia
- Archegonia
- Gemma cup