Lecture No.:05 **Date:** 14th May, 2020

CORE CONCEPT OF HONOUR'S PART 1

Group A - Bryophyta Paper - 2

GENERAL ACCOUNT OF BRYOPHYTA

The term bryophyta was coined by Walton. These are the primitive members of embryophyta which occupy a position intermediate between the thallophyta and pteridophyta.

1. These are **non-vascular land plants**. However some members still continue to have aquatic mode of life e.g, Ricciocarpus natans, Riccia fluitans, Riella and some species of Sphagnum.

2. The dominant and independent plant body is autotrophic gametophyte.

3. The gametophyte is either thallose (prostrate) or foliose (erect).

4. In erect forms the gametophyte passes on through a temporary filamentous stage called **Protonema.**

5. Complete absence of true roots. The absorption and anchorage of gametophytes are helped by uni-or multicellular outgrowths from lower side of gametophyte called **rhizoids**.

6. In addition to rhizoids the lower surface in thalloid forms may also possess multicellular scales (absent in aquatic species) for protection to growing points.

7. In foliose bryophytes, the term stem and leaf has although been applied but these structures differ from those of higher plants in the fact that they bear no vascular tissue and represent the haploid phase of the life-cycle.

8. Sexual reproduction highly **Oogamous** i.e., by well developed male and female sex organs called

antheridia and **archegonia** respectively.

9. Antheridia produce biflagellated sperms.

10. Although terrestrial, water is most essential for the act of fertilization, hence called **amphibians** of plant kingdom.

11. The zygote formed after fertilization represents the start of the sporophytic generation.

12. The zygote develops into embryo **(sporogonium)** within the base **(Venter)** of archegonium.

13. The multilayered Venter meant for protecting the young embryo is called **Calyptra**.

14. The sporophyte is completely or partially dependent upon the gametophyte.

15. The sporogonium may or may not be differentiated into **foot, seta** and **capsule.**

16. The capsule is partly fertile and partly sterile.

17. The spore mother cells inside capsule undergo meiosis to produce **tetrads** of haploid spores, which again represent the start of the gametophytic generation.

18. The spores are liberated either by decay of the capsule wall or by specific pores or valves.

19. The dispersal of spores in many genera is assisted by hygroscopic structure called **elaters** (double spirally thickened sterile cells). e.g. Marchantia and Pellia, **elaterophores** e.g. Pellia or **Peristomes** (teeth like structures) e.g. Funaria.

20. However, the mature elaters completely lack

protoplasm (dead) and develop from the diploid (2n) cells of the capsule.

21. The most **completely** known **fossil** bryophyte is Naiadetia lanceolata.

22. Bryophytes are most sensitive to air pollution, particularly to SO_2.