B.Sc (Hons) Part-I

BOTANY

BRYOPHYTES

SALIENT FEATURES

1. Bryophytes are commonly known as amphibian among plants. Their salient features are -

HABITAT

1. Found in moist, humid shady places.
   - Normally grown on damp soil, rocks, logs, bark etc.
   - Few forms are aquatic e.g. Riccia fluitans, Ricciocarpus natans, Riella sps. etc.
   - Some are even saprophytes e.g. Buxbaumia sps.
   - Some are epiphytes e.g. Porella platyphylla & Lithophyllus also → Porella platyphylloidea
   - Some are epiphyllous e.g. Frullania sps.; Radula sps.
   - & even some are aquatic e.g. Riella sps. Riccia fluitans, Ricciocarpus natans,

MORPHOLOGY

2. Plant body is mainly gametophyte as always independent
3. Earlier / Primitive one are thylloid where as advance one show leafy or like typical plant but pseudoses.
4. There are root like structure known as Rhizoids which may be unicellular or multicellular. Unicellular may be smooth walled or tuberculate.
5. On the lower surface of prostrate forms in addition to rhizoids scals. These scales are multicellular may be hyaline (colourless) or coloured ones.

Anatomy (Internal Structure)

6. Plant body is multicellular with upper & lower epidermis. In between them one/few are parenchymatous layer.

7. The epidermal cell possess pore like structure in some cases as Capsule of sporophyte of ~~Anthoceros~~, & Anthocerotales, Sphagnales & Funariales.

8. Rhizoids are unicellular or multicellular smooth walled and or tuberculate.

9. Multicellular Scales are also present —

10 Upper layers may contain chloroplast.

11. Parenchymatous layer may be differentiated into — Chlorophyllous cells
— Storage cells.
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12. There is no xylem and phloem.

Reproduction

13. Mainly by vegetative one, but Sexual reproduction is also found.

(a) Vegetative Reproduction: 14. There as no specialized parts. When any of the vegetative part seperating from parent one and giving rise to the next one is known as means of Vegetative reproduction Propogation.

Vi.

(b) Sexual Reproduction:

15. Male gamete is known as Antherozoid.

16. Antherozoids are produced in antheridium consisting of multilayered sterile jacket and fertile androcytes.

17. Antherozoides are biflagellate.

18. Female gamete egg or oospore is produced in multilayered flask shaped Archegonium consisting of long or short neck, swollen portion possessing venter and egg or oospore.

B. Fertilization:

19. Liquid water is essential for fertilization.

20. At maturity biflagellate Antherozoids / sperm comes out from antheridium and swim towards female egg one. This movement is chemotactic.

21). The antherozoids reach to neck, very few comes towards ventre but only one of them can approach to egg and fertilize it.

22. Thus Zygote is formed.

23. There is no resting phase.

24. Zygote divides soon and repeatedly and form embryo inside the venter.

25. The embryo develops into sporophyte / Sporogonium

26. Sporogonium possesses — Foot, Seta & Capsule.

27. The sporogonium is mainly dependent upon gametophyte. But in few cases i.e. Anthoceros sp., Splagnum sp. & Funariales & Bryales, some what independent as containing chloroplast, stoma etc.

28. Spore mother cell (2n) divides meiotically and give rise to haploid (n) spores

29. The spores are alike. i.e (Homospores).

30. After maturity spores may be released by various methods.

31. Spores are cutinized

Young Gametophyte :-

32. When spores get a suitable environment they grow directly or indirectly into (By means of protonema & secondary protonema) into new plant.

Conclusion :- Bryophytes are amphibions among plant found in warm, damp, shady places resembling algae (lower one) to typical plant one (higher ones). mainly reproduce vegitatively, but sexual reproductions are also found showing clear cut alternation of generation gametophyte (n) main plant body & sporophyte (2n) ones.