SEMESTER-II

Core Course IV: Archegoniate Course Code: BOTACOR04T

Unit 2 & 3: Bryophytes & Type studies- bryophytes

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1.What is calyptras?

Ans. In bryophytes, the calyptra is an enlarged archegonial venter that protects the capsule containing the embryonic sporophyte. The calyptra is usually lost before the spores are released from the capsule.e.g. **Calyptra of tortula moss *Tortula muralis*.**

2. How spores are dispersed by *Funaria*?

Ans. When the capsule dries up, Operculum thrown off to expose the peristome consisting of two overlapping rings of periostomial teeth. Each ring of peristome possesses 16 teeth. The teeth of outer ring (exostome) are conspicuous, red with thick transverse bands whereas the inner rings (endostome) are comparatively small, colourless and soft. The dispersal of spores is due to hygroscopic movements (viz. movement due to moisture contents of atmosphere) of exostome of peristomial teeth. The inner ring of peristomial teeth do not show hygroscopic movement.

3. Write the occurrence and function of elaters in bryophyte?

Ans. Within the spore capsules of many liverwort species there are elaters as well as spores. **Elaters** are tubular, single-celled with spiral thickenings and often help in spore release.

4. How many peristome teeth are found in *Funaria*?

Ans. 32 or 16 pairs of two overlapping rings.The teeth of outer ring (exostome) are conspicuous, red with thick transverse bands whereas the inner rings (endostome) are comparatively small, colourless and soft.

5.Why is the sporophyte of *Funaria* considered as advanced?

Ans. Advance features of sporophyte of *Funaria*- The sporogonium of Funaria is photosynthetic, hence semi-parasitic on gametophores.

-apophysis is well developed. In the centre of the apophysis is a strand of conducting tissue.

- There are also stomata in the apophysis, thereby allowing gas exchange with the internal tissue.

6. What is epicranoid peristome?

Ans. In this type, there are two rings of peristome teeth—an inner **endostome** and outer **exostome**. The endostome is a more delicate membrane, and its teeth are overlapped by the teeth of the exostome.found in *Funaria.*

7. Establish the amphibian nature of bryophytes.

Ans. Habitat represented by the bryophytes are swamp areas where land and water meets ,it can be called as amphibious zoneThough bryophytes are terrestrial land plant with marshy habitat they need water during sexual reproduction.

8. What is Perichaetium?

Ans. A cup-like sheath surrounding the archegonia in some liverworts. or The group of involucral leaves around the archegonia of a moss.

9. State the advanced feature of *Funaria*?

Ans. The sporogonium of Funaria is photosynthetic, hence semi-parasitic on gametophores.

-apophysis is well developed. In the centre of the apophysis is a strand of conducting tissue.

- There are also stomata in the apophysis, thereby allowing gas exchange with the internal tissue.

10. Differentiate between Elaters and Pseudoelaters.

Ans. Elaters shows double spiral thickening with tapered ends and are unicellular whereas pseudo-elaters are without any thickening,with blunt ends and are multicelllular.

11.Why is water essential for fertilization of bryophytes?

Ans. While reproducing, the gamete produced by the bryophyte will need water to travel from the male gametophyte to the femelle one

12. Mention four distinctive features of bryopsida.

Ans. i) The rhizoids are multicellular, branched and obliquely septate.

ii) The gametophytic plant body consists of the stem, spirally arranged leaves and the sex organs (antheridia and archegonia) at its apical portion.

iii) The archesporium or sporogenous mass develops from outer layer of endothecium which in addition forms columella.

iv) The capsular wall remains interrupted by stomata at several places.

13. What role is played by bryophytes in plant succession?

Ans. Bryophytes are extremely important during the early stages of ecological succession. Because of their ability to reproduce asexually by fragmentation and gemmae combined with sexual reproduction, which produces enormous numbers of tiny, easily-dispersed spores, mosses play a vital role in being among the first colonizers of disturbed sites. They stabilize the soil surface, thereby reducing erosion, while at the same time reducing the evaporation of water, making more available for succeeding plants.

14. Write the economical and ecological role of *Spaghnum.*

Ans *Sphagnum* form peat. • used in horticulture, making ethyl alcohol and illuminating gas

Sphagnum plants are slightly anticeptic and possese superior absorptive power. On account of these properties they may be used for filling absorbent bandages in place of cotton in the hospital.

Sphagnum plants are of great ecological importance-

When these plants establish themselves in some lakes or other areas full of water,sooner or later they cover the whole surface of water,due to deposition of plant debris the surface may be raised.

Sphagnum along with other hydrophytes cover the water below and form a dense surface,these areas later on converted into swamps, ultimately these swaps are converted into forest.

1. Answer the following questions in brief :

a. What is Protonema ? (1)
b. Name the aquatic bryophyte ? (1)
c. What is Gemma? (1)
d. Write the significance of peristome teeth. (1)
e. What is amphigastria.(1)

2. ANSWER IN BRIEF:.

a) Establish the amphibian nature of bryophytes.
b) Describe the spore dispersal mechanism in *Funaria*.

3. LONG ANSWER TYPE QUESTIONS:

a) Draw and describe the mature sporophyte of *Funaria*.
b) Describe the internal structure of gametophyte of *Marchantia*.
c) Briefly describe the structure of Antheridiophore and Archaegoniophore of *Marchantia* with labelled diagram.
d) Classify bryophytes according to Proskauer upto class with characteristic features of any one class with examples.
e) Draw and describe the mature sporophyte of *Riccia.*