

Subject - Botany

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Class - B.sc I

Paper - I (Diversity of Algae, Lichens and Bryophyta)

Unit- III

Topic- Affinities of Bryophytes

Affinities of Bryophytes

From evolutionary point of view Bryophytes occupy an intermediate position between the Algae and the Pteridophytes. They show affinities with both Algae and Pteridophytes.

Resemblance of Bryophytes with Algae

1. Plant body simple, thalloid and gametophytic.
2. Autotrophic.
3. Gametophytic phase is dominant.
4. Roots are absent.
5. Cell wall is made up of cellulose.
6. Pigments (chlorophyll a, chlorophyll b, α and β carotene, Lutin, Violaxanthes and Xeaxanthin) are similar in chloroplast.

7. Vascular tissue is absent.
8. Antherozoids are motile (bi-flagellated).
9. Flagella are whiplash type.
10. Water is essential for fertilization.
11. A filamentous protonema is produced by Bryophytes (juvenile stage in mosses) which resembles with the filamentous green algae.
12. In order Anthocerotales of Bryophytes, plastids are with pyrenoids which is a characteristic of Chlorophyceae (Green algae).

Resemblance of Bryophytes with Pteridophytes

1. Plants are terrestrial.
2. Primitive simple leafless and rootless sporophytes of Pteridophytes (members of order Psilophytales) can be compared with the sporophytes of Bryophytes.
3. Sexual reproduction is oogamous.
4. Androcytes are enclosed by sterile jacket layer.
5. Antherozoids are flagellated.

6. Water is essential for fertilization.
7. Permanent retention of zygote within the archegonium
8. Zygote forms the embryo.
9. Moss capsule is similar to terminal sporangium and columella of Psilophytales.
10. Both Bryophytes and Pteridophytes are characterised by heteromorphic alternation, of generation.