

Biology 11

Bryophytes

Mosses, Liverworts and Hornworts

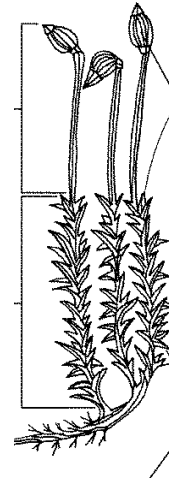
- Originated between 400 and 500 mya.
- Terrestrial plants, but can only survive in wet environments.
- Life cycle shows alternation of generations.
- Require water for reproduction.

Mosses

Plants are composed of a green gametophyte, with a stalk like sporophyte growing only on female gametophytes.

Structures

- Gametophyte (N): photosynthesizing part of plant.
 - Rhizoids: root like structures for support.
 - Leaf like structures: photosynthesis.
 - Stem like structure: support
- Sporophyte (2N): grows on female gametophyte.
 - Stalk: supports capsule.
 - Capsule: contains spores.



Adaptations to Life on Land

- No vascular tissue, so plants rely on osmosis for obtaining water and nutrients. This limits the size of the plant.
- Rhizoids and stem like structures support photosynthesizing parts of the plant.
- No protective surface to prevent water loss. Plants in danger of drying out.
- Motile sperm require water for reproduction.

Reproduction

- Mosses have a life cycle which shows alternation of generations.
- Male and female gametophytes are the dominant, obvious stage.
- Sporophyte grows on female gametophyte and is nourished by the gametophyte.
- Sperm swim from male gametophyte to female gametophyte. Water is required for reproduction.
- Antheridium: grows on male gametophyte and produces flagellated sperm cells.
- Archegonium: grows on female gametophyte and produces egg cells. Location of fertilization.
- Protonema: Germinating gametophyte.

Ecology

- Moss are an important “pioneer species”.

Pioneer Species: a plant which colonizes barren landscapes and helps to build a layer of nutrient rich soil.