

Subject – Bryophytes

Topic –Sphagnales

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Sphagnales

- The plant body arises from the protonema.
- The midrib is not well developed in the leaves.
- Archesporium develops from amphithecium.
- The sporophyte is lifted up on the gametophyte by pseudopodium.
- The sporophyte consists of foot and capsule.

- The columella forms a roof over the spore sac.
- The capsule dehisces by the separation of lid.

The **Sphagnales** is an order of mosses with four living genera:

Ambuchanania

Eosphagnum

Flatbergium

Sphagnum

Sphagnum



Ambuchanania



Andreaes

- The protonema is ribbon or thallus shaped.
- Pseudopodium is well developed.
- The columella forms a roof over the spore sacs.
- The capsule dehisces by separation of lid.
- Lack of central conducting region in stem.

- Plant body has leafy gametophore and dark brown or blackish in colour.
- Seta is insignificant.
- Elevation of capsule with the help of pseudopodium.
- Dome shaped spore sac over columella.
- Longitudinal dehiscence of the capsule into four or more valves.

This order has only single family Andreaeaceae.

It has three genera;

Andreaea

Acroschisma

Neuroloma

Andreaea



Funariales

- Acrocarpous mosses.
- Capsule not cylindrical and the operculum without beak.
- Peristome teeth usually in two epicranoid rings but may be in one ring or absent by reduction.
- In epicranoid peristome 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*.

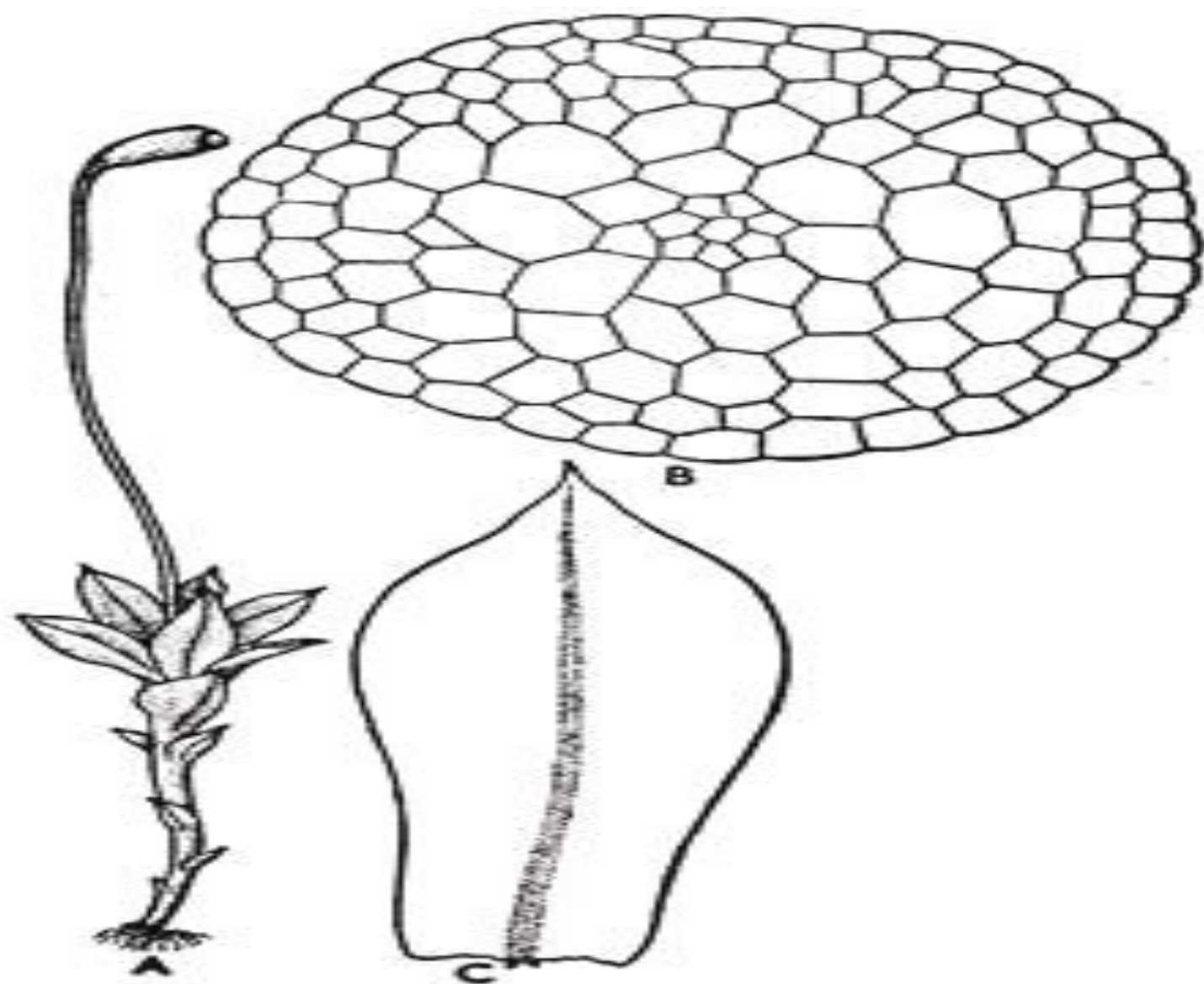


Fig. 484. *Funaria hygrometrica*. A. Gametophyte plant with a mature sporophyte. B. T.s. of gametophyte stem. C. A leaf.

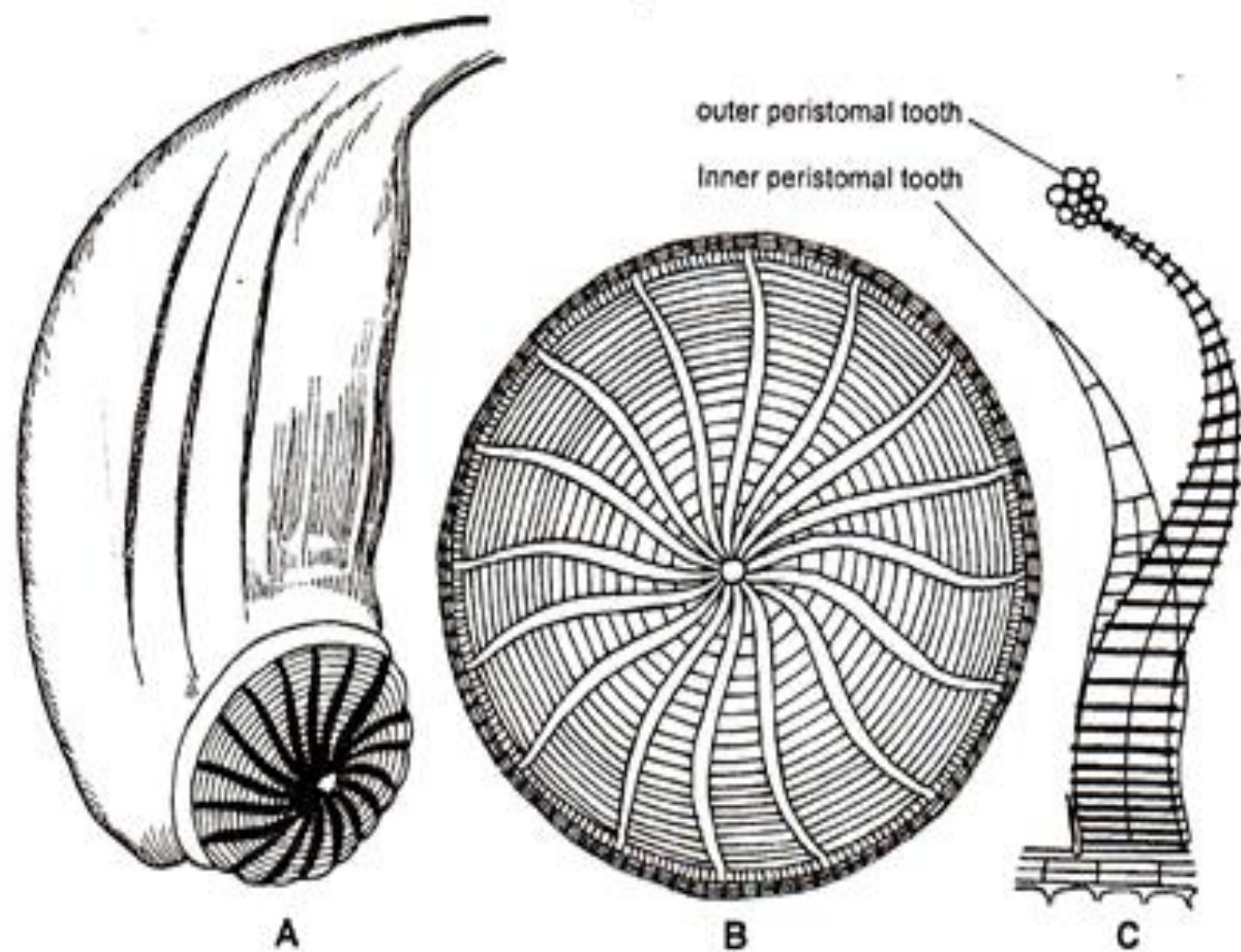


Fig. 14. (A-C). *Funaria*. Dehiscence of capsule. (A) Capsule with peristome, (B) Top view of peristome, (C) An outer and an inner peristomial teeth.

- Funariales under subclass Bryidae an order of acrocarpous mosses which are usually small.
- The leaves are ovoid or lance-shaped and have a thin nerve.
- The calyptra are large.
- Funariales is a monotypic order of mosses.
- There are many genera, including Funaria, Physcomitrium and Splachnum

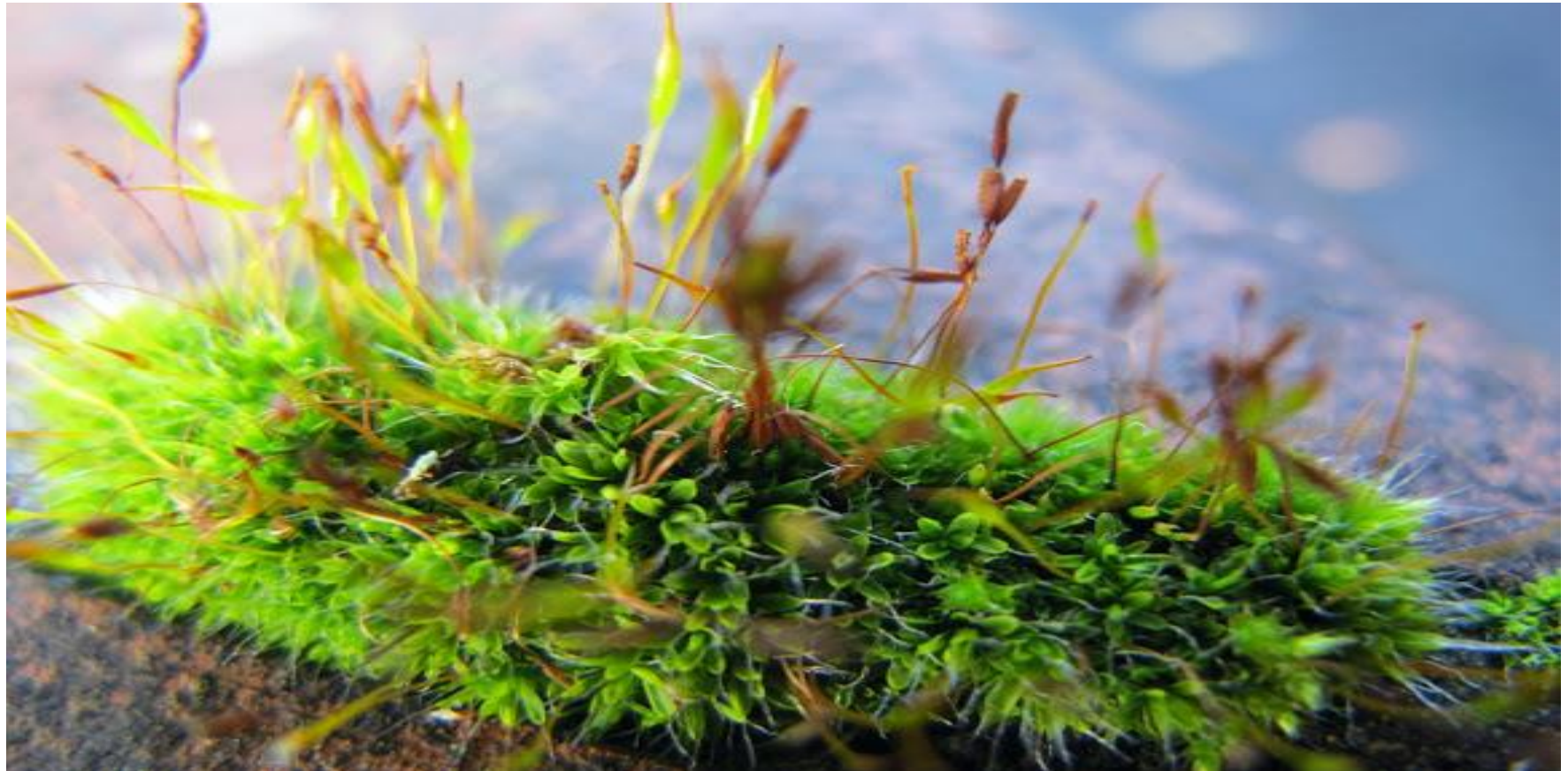
- The Funariales, often annuals or biennials and sometimes ephemeral.
- In most part characterized by a uniformity of gametophytic structure in contrast to a variability of sporophytic characters.
- Reduction in sporophytic characters is often associated with disturbed habitats and a shortened life cycle.

- The bright green plant body is differentiated into rhizoids, stem and leaves.
- Rhizoids are multicellular and thread like with oblique septa.
- Leaves are spirally arranged on the stem.
- Plants are strictly monoecious.

- The sporophyte is differentiated into foot ,seta and capsule .
- The protonema is filamentous .
- Pseudopodium is absent.
- Peristome present in the capsule.
- Calyptra is well developed.
- The capsule opens by lid.

- The antheridia are surrounded by many sterile structures , paraphysis.
- Archegonial venter consists of 6 or more neck canal cells

Funaria hygometrica



Splachnum rubrum
(Red parasol moss)



Physcomitrium pyriforme



Polytrichales

- Polytrichales are found growing on the ground in moorland and woodland, often very abundant.
- There are about 200 species world wide.
- The capsule is held erect to horizontal and the calyptra (the protective cap that covers the immature capsule) is cap-shaped and usually hairy (hence “***poly*** – meaning “*many tricha-meaning hairs*”).

- Polytrichales under subclass Bryidae is an order of acrocarpous mosses which may in some species be quite large (e.g. up to 40 cm).
- The stems are tough, and show some internal differentiation.
- The leaves have characteristic longitudinal plates or lamellae on the upper surface along the nerve.
- The leaf bases often sheath the stem. Species are found on the ground in woods, on heathland etc.

- Usually sturdy mosses of the hills.
- In Polytrichales the peristome is formed out of a single annular series of cells.
- In this layer curved dividing lines in the lower cells, form continuous bands of many cells.
- The uppermost cells remain thin-walled and are ultimately resorbed giving rise to 32 or 64 (rarely 16) separate solid teeth in a ring.

- The tips of these teeth remain attached to the drum-top like tympanum formed out of the top cells of the columella.
- Leaves show longitudinal lamellae on the upper face of entire leaf or on vein only.
- Basic chromosome number n = strictly 7.

Atrichum undulatum



Polytrichum formosum



Polytrichum commune



Pogonatum pensylvanicum



THANK YOU