

Range of Thallus Organisation:

The range of thallus str. is very diverse in bryophyte. Ranging is from flat ribbon like to loose filamentous as well as erect stem like str.

1. In hornwort, typically represented by Anthoceros sp. the thallus is bilobed, pinnately branched or spongy with large no. of sub-spherical spongy bodies like gemma or raised on thick vertical stalk like str. The dorsal surface of thallus may be smooth or velvety ^{b/ob} stalk-like ~~str.~~ the P/ob several lobed lamellae or rough with spines and ridges (A. fusiformis). On the other hand ventral surface bears many unicellular, smooth walled rhizoids and some dark bluish green spot seen in ventral surface. These cavities form mucilage and filled with Nostoc colonies. Such thallus develop erect, elongated and cylindrical sporangia. Each sporogonium is surrounded by sheath like str. on its base called involute.

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composed of thin walled parenchymatous cells. In A. hallii epidermal layer is not well distinguishable. The air chambers and air pores absent in Anthoceros. In few species the intercellular cavities present in lower surface of thallus. The multiple cavities opens on the ventral surface through stomata like slits or pores called stoma pores.

2. In liverwort, typically represented by Marchantia sp., Riccia sp., Porella sp. etc. the thallus ^{are} flattened, ribbon and leafy or stem not vascularised respectively. In ^{the} liverworts the thallus is dichotomously branched. ^{The} gametophytes ^{of liverworts} are generally prostrate and many cells thick with chamber of filamentous parenchyma cells under the upper epidermis. In this upper epidermis has chimney cells surrounding pores. Gemmae is produced in gametophyte. Most liverworts gametophytes are dioecious (heterothallic). The ♂ sex organs is known as antheridia and ♀ sex organs is called as archegonia. In Riccia, antheridia and archegonia remain enclosed on the dorsal surface of the thallus.

3. In mosses the gametophyte thallus of a moss plant is composed of an erect to prostrate stem bearing spirally arranged "leaves". The growth of moss thallus take mitotic div. of single pyramidal cell. The Protonema, In mosses an extensive, branched system of multicellular filament that are rich in chlorophyll grows directly from the germinating spore called as protonema.

In creeping moss there may be short leafy branches grows from substrate produce long, trailing stems. All mosses have rhizoid ^{which} has absorptive function like tree roots.

The thallus of most liverworts and hornwort has rich in chlorophyll on its dorsal surface and situated deeper and storage products of photosynthesis. These gives thalli analogous to leaves of vascular plants.

The archegonia of liverworts is similar to that of paraphysis of moss. Sporophyte of mosses usually consist ^{of} foot which penetrate the gametophore. The seta contains of chlorophyll

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-phase.

Hornwort are usually ~~so~~ have seen indeterminate growth. The embryo produces foot that penetrates the thallus and an apical meristem elongates the rest of horn shaped sporophyte to ruptured the thallus surface.

Kingdom: Plantae

