

Asexual Reproduction

Asexual reproduction takes place

- by -
- a) Fragmentation
 - b) Apogamy
 - c) Asexual zoospores
 - d) Soredia
 - e) Isidia
 - f) Spermata

Spermata are produced inside the peridium.

Sexual reproduction:-

Only fungal element of lichen thallus reproduces sexually.

The male sex. organ are spermatia [Spermatogonia] and the female carpogonia.

Spermatia

1. It is a flask shaped structure
2. It is restricted to the periphery of lobes of thallus or scattered all over the surface.
3. Each spermatium has many spermatophores which cut spermatia at its apex.
4. Spermatium opens to the outside by ostiole.

Carpogonia :- It has a basal helically coiled portion and the upper multicellular long part - the trichogyne.

The coiled part constitutes the ascogonium proper.

Spermatia on dissemination come in contact with the tip of trichogyne. The contact wall between the two dissolves and nucleus from spermatium migrates into the cell of trichogyne. This nucleus migrates down to the ascogonium.

After fertilization, ascogenous hyphae develop from the fertilized cell of ascogonium which form the ascus and haploid ascospores.

Asexual Reproduction

Asexual reproduction takes place by —

- a) Fragmentation
- b) Agicing
- c) Accidental injury
- d) Soredia
- e) Isidia
- f) Spermatia.

Spermatia are produced

inside the pycnidium

Sexual reproduction →

Only fungal element of lichen

— thallus reproduces sexually.

The male sex organ are pycnidia {Spermatogonia} and the female Carpogonia.

Pyrenidia →

↳

Along with ascii, there are sterile paraphyses. The sterile protective wall is also there.

The ascocarp may be perithecium as in Dermatocarpon or apothecium as in Parmelia

Disc like apothecia are of two types —
a) Lecanorine type →

Here apothecia are covered by the fungal hyphae which form the proper margin. There is no algal component.

Eg → Cladonia

b) Lecanorine type →

Apothecia are more developed in which the algal component also takes part along with the fungal hyphae in the formation of the thallin margin. Eg → Lecanora.

<2> Epithecium } made up of loosely packed hyphae
 & as hypothecium } below thecium.

The ascus usually contains 8 ascospores. On germination it produces new hyphae which comes in contact with algal component to form lichens.

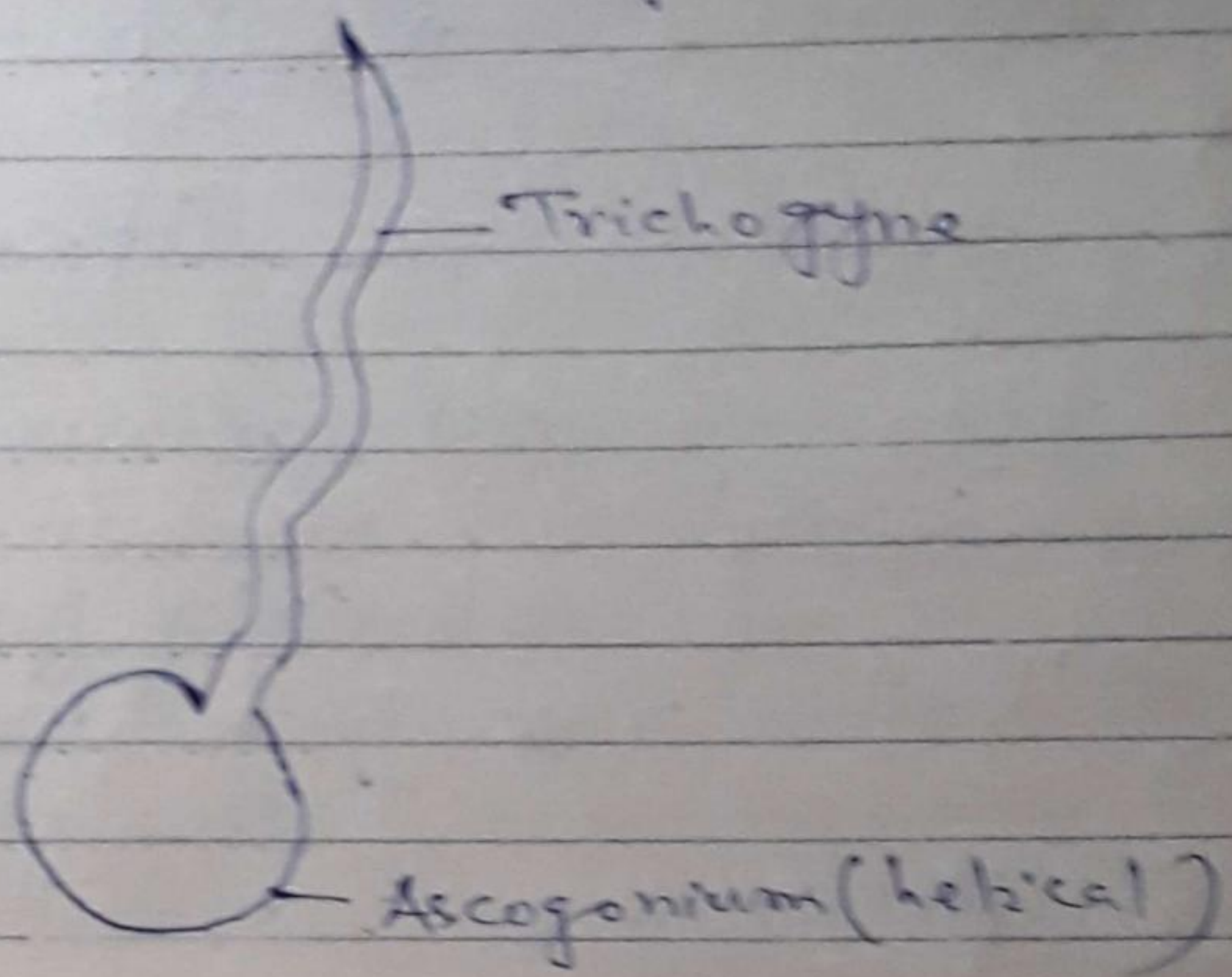


Fig. pycnidium

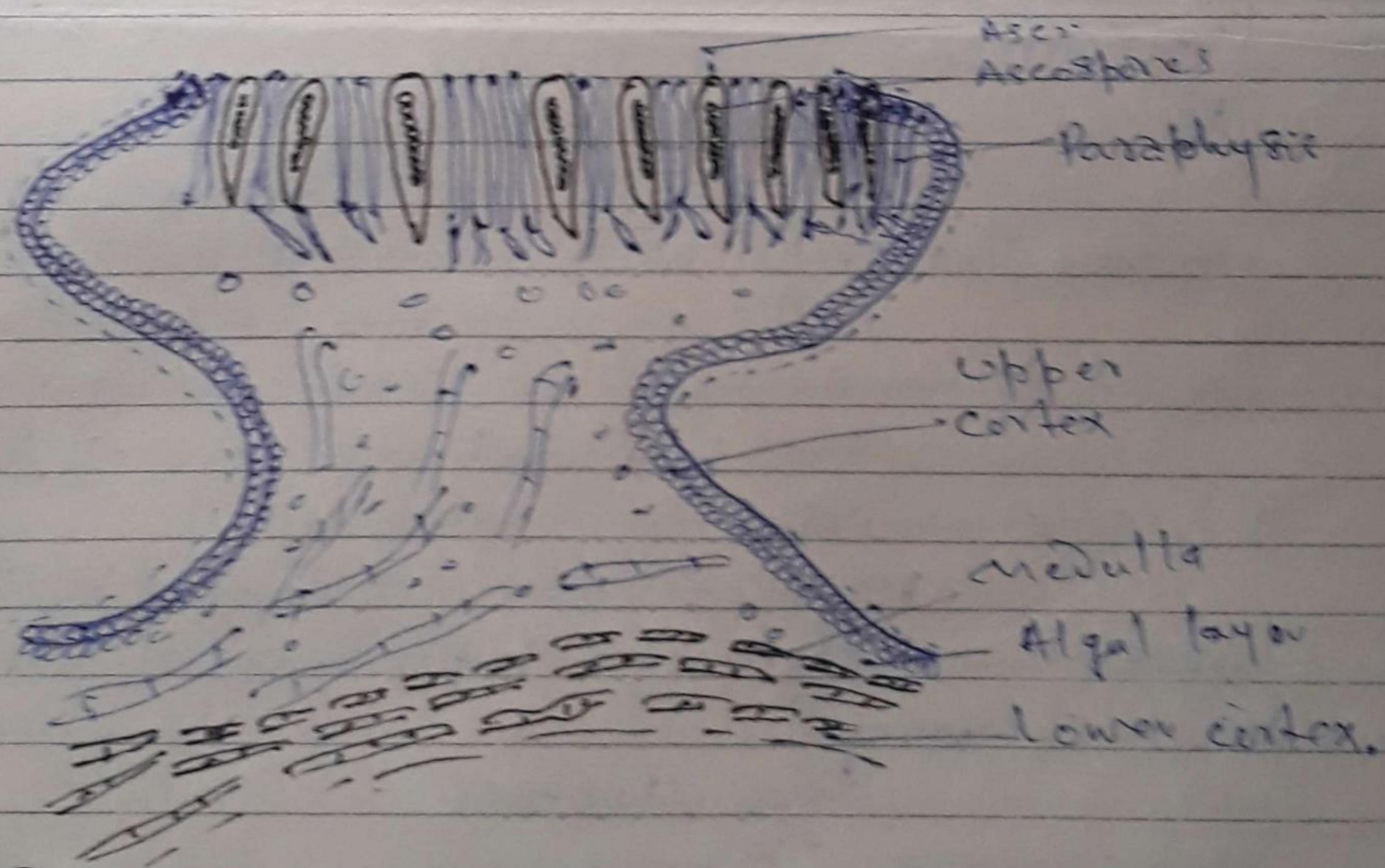


Fig. r.s. of apothecium of Lichen

Economic Importance →

1) As food and fodders →

eg. Parmelia used as curry powder in Japan

2) Cladonia spp are commonly the rein-deer lichen in Tundras.

3) Lecanora esculenta is eaten by tribes in Israel.

2) Industrial use →

1) Brewing and distillation → chiefly in Russia and Sweden alcohol is prepared from lichens.

3) Tanning and dyeing →

1) Source of orcein → Rocella tinctoria

2) Litmus is also produced from lichen dyes.

4) Cosmetics and perfumes →

Spp. of Evernia & Ramalina yield essential oils used in soap manufacture

* R. canaliculata is used as starch to whiten hair in the dye of wigs.

5) Medicinal Value →

1) Lobaria spp for lung troubles.

2) Xanthoria spp for Jaundice

3) Parmelia for ~~epit~~ epilepsy.

4) Usnic acid, a broad spectrum antibiotic has been detected in Usnea.

16) Miscellaneous Uses : →

1) Lichens are used in preparation of dyes, hawau Damagnis and other perfumeries

2) Lichens also produce organic acids which help in soil formation. These acids help in disintegration & disintegration of rocks so they are helpful in succession and have ecological significance