

10

Online Study Material (e-Content) - Date - 27.07.2020.

Department - Botany

College - S.S. College, J'bad.

Subject / Topic - Lichen Reproduction

Medium of Teaching - WhatsApp
College Web-Site

* Time - 11.00 - 12.00

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S.S. Sharma.

* Class - B.Sc. Botany, P.T.

- Bloch - H.P.T. Sub.

07. LICHEN : REPRODUCTION

Lichen reproduces by all the three means, vegetative, asexual and sexual.

<1> Vegetative Reproduction : —

Veg. reproduction takes place by 2 means i.e. —

a) Fragmentation : — It occurs by accidental injury —

Where thallus may be broken into fragments. Each fragment is capable of growing normally into a thallus.

b) By Death of Older part : — The basal older part dies, causing separation of some lobes or branches and each one grows normally into new thallus.

<2> Asexual Reproduction : —

Asexual reproduction takes place by : —

a) Soredia — These are small, rounded, ^{greyish} white, bud like out-growth of the thallus. They are composed of very few algal cells loosely enveloped by fungal hyphae. After detachment by rain or wind, germinate and form new thallus.

● Soredia — When soredia develops in an organised manner in a special pointed like region, they are called soredia, e.g., Parmelia, Physcia etc.

b) Isidia : — These are small, stalked, simple or branched, greyish-black, coral like outgrowth,

(2)

~~Just~~ divides first by meiotic divi 2 then by mitotic division so that 8 ascospores are formed. Asci remain intermingled with some sterile hyphae called - Paraphyses. Asci and paraphyses become surrounded by vegetative mycelium and form fruit body. The fruit body may be apothecium as in Parmelia or Perithecium as in Verrucaria.

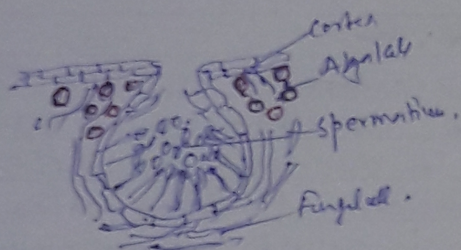


Fig. A. Ascomogonium.

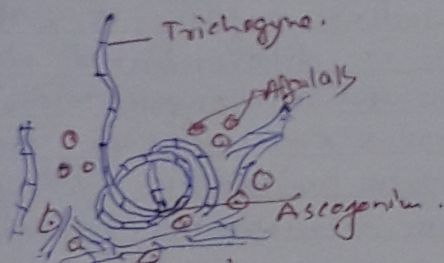
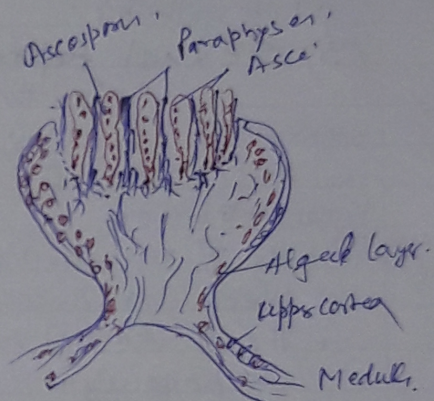


Fig. B. Carpoogonium.



C. V.S. of Apothecium.

fig. c.

* The cuplike apothecium consists of three distinct parts -

- the middle thecium - hymenium - fertile part
- the upper epitheca, and
- the lower epitheca. } both are sterile part.

* In basidiolichens, basidiospores are produced in basidium which after germination give rise to new thallus.

developed on the upper surface of the thallus. They are of various shapes viz. corallike in *Peltigera*, rod like in *Parmelia*, cigarlike in *Usnea*, scale like in *Collema* etc. Under favourable conditions the isidium germinates and give rise to a new plant-thallus.

In addition to asexual sp. isidia also takes part in photosynthesis.

(3) Sexual Reproduction:—

Only the fungal component of lichens reproduce sexually. Therefore, the mode of reproduction in Ascolichen is similar to Ascomycetes while in basidiolichen it is similar to Basidiomycetes.

Ascolichen: The ♂ reproductive organ is called spermatogonium which produces unicellular spermatia.

The ♀ (female) reproductive organ is called Carposogonium which is differentiated into a basal ^{coiled} ascogonium and an elongated trichogyne.

The ascogonium remains embedded in the algal zone but the trichogyne projects out beyond upper cortex.

Spermatogonium develops uninucleate

Spermatia which behave as male gametes. After liberation they get attached with trichogyne. The contact point dissolves and nucleus migrates into the Carposogonium & fuses with the ♀ gamete. Many ascogenous hyphae develop from the basal region of the fertilised ascogonium. The binucleate penultimate cell of the ascogenous hyphae develops into an ascus.

The diploid nucleus of penultimate cell