

Lichen:-

- symbiotic association between green algae mainly BGA and ascomycetes fungi mainly basidiomycetes.
- lichen termed by Theopharastus.
- Dual or composite nature of lichen was established by Schwendener.
- Master (fungi 95%) and slave (algae-5%) relationship i.e. holotism.
- Holotism given by Combie.

Distinguishing features:-

- most of them lichen are heteromorous (thallus with distinct algal and fungal zone).
- lichen is pioneer of lithosphere.
- donot grow near big cities bcoz they are sensitive to SO_2 pollution.
- Lichen is indicator of air pollution but moss is indicator of soil pollution.
- SO_2 replaces rgt of chlorophyll and form pheophytin
जैसे मर्दा lichen ko death huxa.

Plant body:-

algal component - phycobiont
fungal component - mycobiont

Habitat of lichen

Type	Habitat
Terricolous	land/soil @ तैरि मिट्टी (Soil) में मिलाय.
Corticolous	bark of trees.
Saxicolous	Stone/rock
Lignicolous	wood

Classification of lichen,

on the basis of fungal partner :- 2 types

Ascolichen :- in which ascomycetes member is fungal partner.

Basidiolichen :- in which basidiolichen member is fungal partner.

80% cases :- algal partner is green algae (chlorophyceae)

20% cases :- algal partner is BGA.

on the basis of structure of lichen thallus,

Shape	absorption site	Examples
se irregular shape prostrate/erect	general body surface.	Deformotocarp Rhizocarp Leconora Graphis @ DR LG.
se flat and leaf like	Rhizine	@ OP Parmelia, Peltigera, Physcia.
se branched	Rhizine/disc.	Usnea, Cetraria, Cladonia

on the basis of anatomy of thallus,

i) **Homoiomorous** :- algal and fungal partners are uniformly distributed throughout lichen thallus.

ii) **Heteromorous** :- most common type of lichen.

→ distinct into different zone :- upper cortex zone, algal zone and medulla & lower cortex zone.

Special structure associated with lichen thallus

- a) **Breathing spores** - small aerating pores.
- b) **cyphellae** - gaseous exchange (equivalent to stomata)
- c) **cephalodia** - retaining moisture.
- d) **Isidia** - vegetative propagation and photosynthesis.
- e) **Soredia** - vegetative propagation.
- f) **Rhizinae** - absorption of water and minerals.

Reproduction in lichen.

- 1) **Vegetative** :- by fragmentation, Isidia, Soredia.
- 2) **Asexual** :- oidia, conidia and pycnospore
- 3) **Sexual** :- only **fungal** partner takes place in sexual reproduction.

Female sex organ :- ascogonium + trichogyne :- carpogonium.

Male sex organ :- spermatogonium

Economic importance of lichen

Ecological role:-

- air pollution indicator
- pioneer of xerogere
- *Usnea* causes forest fire
- Pedogenesis (soil formation)

Industrial role:-

★ *Rocella tinctoria* is used for making litmus paper. (TM)

Medicinal role

Lichen

Uses

<i>Lobaria</i>	pulmonary TB.
<i>Cetraria</i>	Diabetes
<i>Psoralea</i>	Epilepsy
<i>Peltigera</i>	Rabies (hydrophobia)

Food:- *Cladonia* and *Cetraria*.

Lichen

Common name

<i>Usnea</i>	Old man's beard
<i>Cladonia</i>	Reindeer moss
<i>Cetraria</i>	Iceland moss
<i>Lobaria</i>	lungwort
<i>Psoralea</i>	Rock flower