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CORE CONCEPT OF

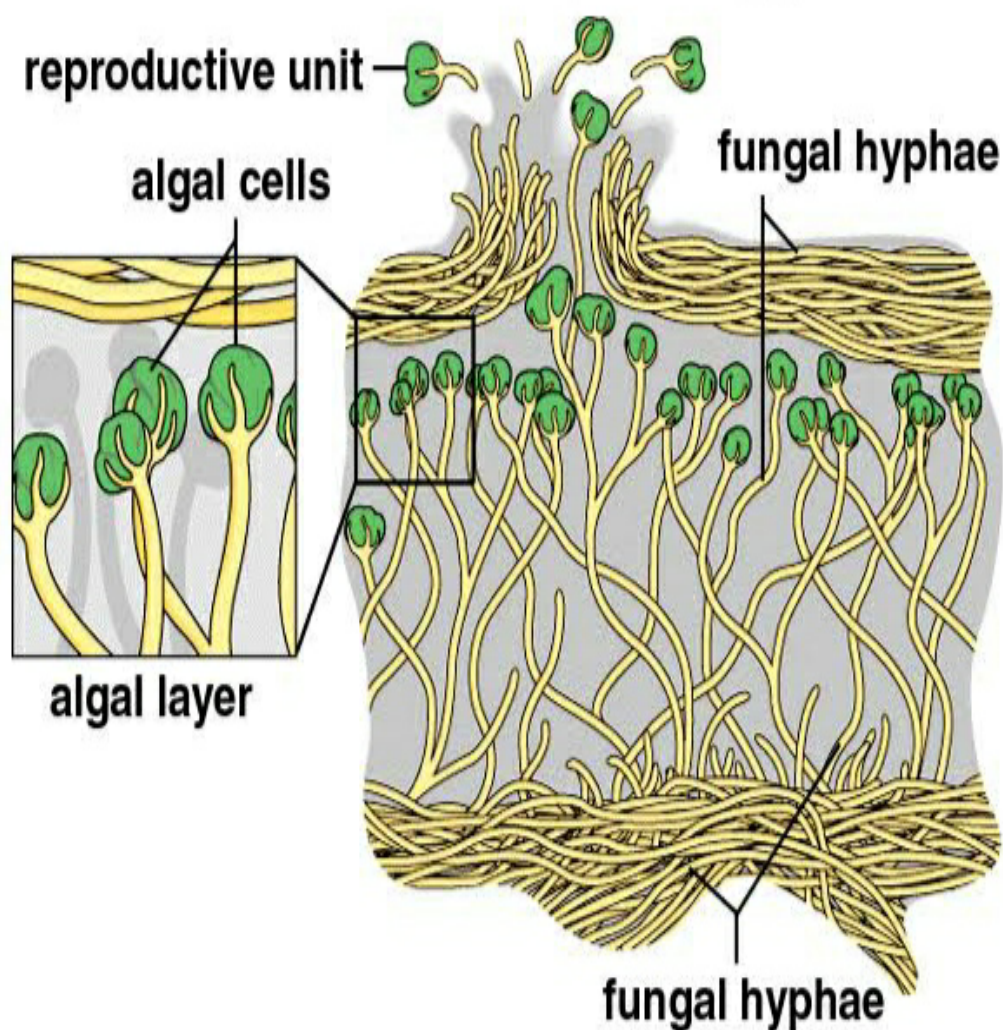
SUBSIDIARY

LICHENS

GENERAL ACCOUNT

The term lichen was first used by **Theophrastus**. It can be defined as a structurally -organized entity consisting of the permanent association of a fungus and an alga. In another word a lichen is an intimate association of a fungus and an alga in which both organisms interwine to form a single thallus. The fungal component of a lichen thallus is called mycobiont and the algal one as phycobiont. The algal partner maybe a blue-green algae (e.g. *Nostoc*, *Rivularia*, *Anabaena*, etc.) or green algae. The association is of a perfect symbiotic type in which alga supplies synthesized food to the fungus and the fungus

Lichen morphology





gives protection of the alga.

The fungal partner is generally an Ascomycete (sometimes a Basidiomycete or Deuteromycete). They have long been taken as a standard example of true symbiosis, in which both symbionts benefit from the association (*Scott, 1960*). The concept of polysymbiosis has been put forward by some workers who detected a combination of an alga, a fungus and nitrogen fixing bacteria *Azotobacter* in a lichen thallus, where all the three partners act in union as - polysymbionts.

CLASSIFICATION OF LICHENS

Lichens have been divided into different types as given below :-

1. On the basis of fungal partners -

(A) **ASCOLICHENS** - The fungal partner is an ascomycete.

(B) **BASIDIOLICHENS** - The fungal partner is a basidiomycete.

(C) **DEUTEROLICHENS** - The fungal partner is a deuteromycete.

2. On the basis of algal partners -

(A) **CHLOROPHYCOPHILOUS** - Partner blue-green algae.

(B) **CYANOPHYCOPHILOUS** - Partner blue-green algae.

(C) **DIPHYCOPHILOUS** - Partners both green and blue-green algae.

3. On the basis of habitats -

(A) **CORTICOLOUS** - Growing on old walls and tree barks.

(B) **TERRICOLOUS** - Growing on soil surface.

(C) **SEXICOLOUS** - Growing on surface of rocks.

4. On the basis of thalli -

(A) **CRUSTOSE LICHENS** - Flat, thin or crust like without lobes and closely attached to the substratum e.g. *Graphics, Haematomma* etc.



(B) FOLIOSE LICHENS - Flat, much lobed Thalli (like liverworts) attached to the substratum by rhizoid like outgrowths known as rhizines e.g. *Parmelia*, *Peltigera* etc.

(C) FRUCTOS LICHENS - Erect, thallus bush like or pendant e.g. *Cladonia*, *Usnea* etc.

ECONOMIC IMPORTANCE OF LICHENS -

Lichens are useful to nature and human life.

1. Lichens are pioneer in colonization of rocky habitat by plants (*xerosere*).
2. *Usnic acid* (an antibiotic) is obtained from *Usnea* and *cladonia*.
3. *Orchil* (a dye) is prepared from *Rocella*. *Orcein* is a purified product of *orchil*.
4. Lichens also work as soil builders by breaking down the hard rock surfaces.
5. Litmus is obtained from *Rocella tinetoria*.





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6. *Cetraria islandica* and *Endocarpum miniatum* serves as food for human being.
 7. *Cladonia rangiferina* (Reindeer moss) serves as food for Reindeer.
 8. Lichens act as an indicator of air pollution because no lichen can be found in the area of heavy industrial pollution.
 9. *Ramalina* and *Evernia* are used in the preparation of *Dhup* and *Havan Samagris*.

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