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B.Sc - Part I

Core Concept of Algae (Symbiotic)

Some species of algae form symbiotic relationships with other organisms. In these symbioses the algae supply photosynthates (organic substances) to the host organism providing protection to the algal cells. The host organism derives some or all of its energy requirements from the algae. For example - lichens are an association of a fungus and a photosynthetic symbiont resulting in a stable vegetative body having a specific structure. The fungi or mycobionts, are mainly from the Ascomycota with a few from the Basidiomycota. In nature they do not occur separate from lichens. It is unknown when they began to associate. One mycobiont associates with the same phycobiont species rarely two, from the green algae, except that alternatively, the mycobiont may associate with a species of cyanobacteria. A photobiont may be associated with many different mycobionts or may live

independently, accordingly, lichens are named and classified as fungal species. The association is termed a morphogenesis because the lichen has a form. Trentepohlia is an example of a common green algal genus worldwide that can grow on its own or be lichenised. Lichens thus share some of the habitats and often similar appearance with specialized species of algae growing on exposed surfaces such as tree trunks and rocks and sometimes discolouring them. Coral reefs are accumulated from the calcareous exoskeletons of marine invertebrates of the order Scleractinia (Stony corals). These animals metabolize sugar and oxygen to obtain energy for their cell-building processes, including secretion of the exoskeleton with water and CO_2 , as byproducts. Dinoflagellates are often endosymbionts in the cells of the coral forming marine invertebrates. Endosymbiotic green algae live close to the surface of some species of sponges. For example breadcrumb sponges (*Halichondria panicea*). The alga is thus protected from predators.