Fungus and lichens essay

Lichens are a symbiotic representation of mutualism involving a fungus and a cyanobacterium or alga. Within this mutualism, that is, a symbiosis in which both organisms benefit, there exists a photobiont, the cyanobacterium or alga, which contains chlorophyll and photosynthesizes, producing carbohydrates for use by the fungi and itself. Also, there is a mycobiont, the fungus, whose symbiotic roles include the provision of structure and anchorage, protection from dessication, as well as providing the alga with inorganic nutrients and water.

Moreover, lichens exhibit several unique features as it relates to their diverse morphology and ecology. With regards to their morphology, lichens have three major forms which are described as crustose (crusty), foliose (leafy) and fruticose (shrubby). Lichen ecology is also of significance in terms of habitat; their importance in nutrient cycling and the preventing erosion; indication of pollution as well as their characteristic ability to colonize areas. Furthermore, these factors all contribute to some of the many uses for which lichens are employed.

Firstly, lichens exhibit many morphological differences, with the three main distinctions being either crustose, foliose or fruticose. More importantly, the main premise for distinguishing morphologies is the thallus shape and structure. The thallus refers to the composite body of the lichen and it is filamentous comprising of hairlike growths called rhizines which anchor the lichen to the substrate. Another factor which constitutes the morphology of lichens is the distribution of the photobiont and mycobiont in the lichen, as well as their growth with respect to the substrate.

Another interesting feature of lichens is exemplified in their unique ecology. First of all, lichen growth occurs primarily in terrestrial habitats, with a minority growing aquatically. A wide range of habitats such as forest understoreys, tree leaves and bark, sand deserts and even organisms (e. g. weevils, mollusk and tortoises) can be exploited by lichens. Their distribution is subject to variations in temperature, rainfall, environmental pH, substrate texture, sunlight intensity and the diversity of flora in its habitat.

Moreover, lichens increase the distribution of their species diversity by essentially occupying a micro-habitat within a macro-habitat. Of great importance also, is the presence of pollution in the lichens habitat. Lichens readily absorb toxins, which resultantly inhibit their growth. Therefore, it is reasonable to infer that a lack or absence of lichen populations is an indication of pollution, since lichens grow almost ubiquitously. In addition to this, lichens play vital ecological roles within their ecosystem.

The colonial growth of lichens may result in the formation of biological soil crust. These resemble carpets and help to prevent soil erosion by rain and wind. These crusts absorb the impact of heavy precipitation which might otherwise wash away the top soil. They also make the soil surface more uneven and coarse, essentially forming depressions to trap water and slow down its flow. Water is resultantly given more time to infiltrate the underlying soil. Biological crust also act as niches for small