Lichen Care Guide

Background

Lichen are often mistaken for plants. Actually they are a complex mutualistic symbiotic association between a fungal species and either an algae or cyanobacteria. Lichens are notable as pioneer species in the process of ecological succession and as residents of environments that few other organisms can tolerate. Although they seem to thrive under inhospitable conditions, lichens are highly susceptible to pollution and are often seen as natural indicators of air quality.

The fungus provides the ideal growing conditions for photosynthetic algae or cyanobacteria. The photosynthetic organism supplies the fungus with the carbohydrates and nutrients it needs to survive. Together they form a self-sufficient system. As a consequence, lichens will colonize just about any surface given enough time and as long as the surface is undisturbed and the air is clean. Lichens will colonize rocks, trees, glass and even plastic. Lichens are found on every continent in every type of biome.

Lichens are categorized into four types based upon their morphology. *Crustose* grow tightly attached to the rock, tree, sand or other substrate. Crustose lichen appear like a crust and are very difficult to remove from their substrate. *Foliose* lichen appear leaf-like with flat sheets of tissue extending above the substrate to which they are attached. The top surface is often a different color or texture from the bottom surface of the sheet. *Fruticose* lichen look like bushes growing out of the substrate or they can be long strands that hang off of the substrate. Reindeer moss is the most well-known fruticose lichen. *Squamulose* lichen look like small flakes of foliose lichen growing in a patch on the substrate.

Safety Precautions

Always treat live organisms with respect and proper care. Wash hands thoroughly before leaving the lab. Follow all laboratory safety guidelines.

Care and Maintenance

Lichens arrive attached to their substrate and are low maintenance, especially if placed in a terrarium. Mist the lichen periodically to keep the relative humidity near 50%. Temperatures can vary from cool to warm: 18–25 °C (64–78 °F). Indirect light for several hours a day is sufficient. If the lichen is exposed to too much or too little light, the green symbiots will fade and die. Adjust the lichen's location if this occurs.

Tips

- Lichens are used as air quality indicators. Excess atmospheric nitrogen, ozone, sulfur dioxide and other air pollutants significantly affect lichens.
- The United States Forest Service; National Lichens & Air Quality Database and Clearinghouse website http://gis.nacse.org/lichenair/index.php (accessed May 2014) is a great resource for drawings, photos and air quality sensitivity information.
- Environmental Pollution and Lichens (Flinn Catalog No. AP6461) is a laboratory kit designed to study the effect of common pollutants on lichens.
- Students can study each lichen using a hand lens or a stereoscope to observe differences in the types of lichens.

Disposal

Lichens should not be transplanted outdoors. Lichens may be disposed of according to Flinn suggested Biological Waste Disposal Method Type I. Please consult your current *Flinn Scientific Catalog/Reference Manual* for general guidelines and specific procedures, and review all federal, state and local regulations that may apply, before proceeding.

Materials for *Lichen Care Guide* are available from Flinn Scientific, Inc.

Catalog No.	Description
LM1028	Lichen set, 3 types
AP6461	Environmental Pollution and Lichens

Consult your *Flinn Scientific Catalog/Reference Manual* for current prices.

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