

The Difference Between Moss and Lichen

Debra Kelly on Monday, January 13, 2014

Mosses and lichens are both simple organisms we've all seen growing on trees and rocks. Mosses are defined as simple plants with the most basic of root structures, leaves, and stems. Lichens are a very different type of creature, called a composite organism. Not just a plant, lichens are actually a single entity created from a joining of algae and fungus.

Mosses are one of the most primitive types of plants, and their simple structures have remained largely unchanged over the course of millions of years. Thought to have evolved from green algae, mosses are characterized by their simple, basic root structures, stems, and leaves. There are around 14,500 different types of mosses, and because of their simple structure and low nutrient requirements, they will often be found thriving in places that other plants can't grow.

Lichens can very easily be mistaken for mosses, but lack the stems and leaves of the moss. (Some lichens have even been given confusing names, such as reindeer moss.) Made up of a symbiotic combination of algae and fungi, lichen can be divided into four main groups based on their appearance.

Foliose lichens are perhaps the most easily mistaken for moss. They form flat, circular, rosette patterns on the rocks and trees that they adhere to, and grow structures that can easily be mistaken for leaves. Similarly, fruticose lichens have a shrub-like, leafy appearance, although they grow in height as well as area. These shrubby lichens are the rarest in relation to the numbers of other species of lichens and are usually found on trees rather than rocks.

The leaf-like structures in lichens aren't actually plants, though, they're fungus. Other structures that might be responsible for holding the lichen onto whatever surface it has attached to are algae, making the composite structure of the lichen.

The other two types of lichens—the crusty, flat, crustose lichens and the patchy, powdery, leprose lichens are much easier to recognize as being a growth completely separate from mosses. These two types of lichen clearly lack any kind of leaf-like structure and are more closely likened to the appearance of rust or other grainy crust. Because the leaves and stems of mosses can be tiny, it can be difficult to tell the difference at a glance. Most mosses have narrow, elongated leaves, and they can come in as wide a variety of colors as lichens. Some mosses have leaves that are so tiny that a magnifying glass might be needed to tell whether or not the growth is made up of leaves and narrow, tiny stems or leaf-like fungal structures. Some moss species grow to only a millimeter or so in height.

Both moss and lichens can be found in almost every area of the world. Lichens can be found in even the coldest of Arctic climates; they are an important part of the

environment's nitrogen cycle, and are as commonly used as as food source as moss is. Lichens have also been used as dye pigments and antibiotics. Mosses naturally enrich the soil that they grow in; because they can hold many times their own weight in water, they are often mixed in with soil mixtures that are used in lawns and gardens in drought-prone areas. As simple plants, mosses have no vascular system and can survive in extreme climates. However, their general simplicity also makes mosses and lichens extremely sensitive to changes in the atmosphere, environment, and to the introduction of pollutants.