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Biodiversity

An Investigation of Poison Ivy

Poison Ivy is a plant that most humans dread seeing every fall. What purpose does it serve besides giving a nasty, itchy rash that spreads easily and causes endless discomfort? I chose to study poison ivy, *Toxicodendron radicans* (Eukarya: Plantae: Magnoliophyta: Magnoliopsida: Sapindales: Anacardiacae) because I wanted to learn about the organism’s beneficial traits and how it interacts with other species.

*Toxicodendron radicans* belongs to many distinctive collections of plants, but specifically it is a member of the order Sapindales. What does this mean about the traits of the plant? Sapindales is an order of dicotyledonous flowering plants. It is mostly composed of woody plants with pinnately compound leaves. Sapindales tend to be dioecious- they have two distinct male and female individual organisms, although they may look similar. These characteristics all describe poison ivy. But it additionally has many other characteristics. *Toxicodendron radicans* is a vascular seed plant that generally grows in woodlands and wetlands. It is native to Canada and the U.S. but is commonly found in South America and other parts of the world. It is a perennial plant that commonly grows as a shrub, vine, herb or foil. What do these characteristics tell us about the plant?

Because *Toxicodendron radicans* is a seed plant, ithides these seeds inside berries and uses them for reproduction. Its berries are commonly dispersed by wind and animals, like many other plants. It can also drop its own berries in order to spread itself. The berries of poison ivy are small, white and each contains one seed. Like all seed plants, its life cycle consists of a double fertilization- two sperm that fertilize the egg and two polar nuclei to form a zygote and an endonucleus. Plants also are an example of a group with alternation of generations. Both their gametophyte and sporophyte are multicellular. However, the dominant life stage is the sporophyte.

*Toxicodendron radicans* is a plant and has chloroplasts in its leaves, therefore it primarily obtains its energy through photosynthesis. It takes in CO­­­­­­­2, H2O, and sunlight to produce O2 and glucose, which can then be converted to ATP. The plant moves nutrients through its root and shoot system. The roots of poison ivy – and other vascular plants- are branches that not only anchor the plant to the ground but also absorb water and nutrients from the soil. Along with the chloroplasts in the leaves, the plant is able to obtain the nutrients it needs to live. It can then move them throughout its vascular system to ensure the whole plant has nutrients.

Poison ivy- along with other Toxicodendrons- is commonly known as a nuisance to gardeners, hikers, and researchers because of the rash it frequently causes. The phrase “leaves of three, let it be” is common to remind people to stay away from the plant. Humans are actually the only species that get a rash from *Toxicodendron radicans*. They have an allergic reaction to an easily spread oil called Urushoil in the sap of the plant found on the branches and roots. Only ¼ ounce of Urushoil is needed to cause a rash in every person on earth. This might explain why this rash is so widespread- touching anything that has been in contact with the plant may be able to transfer the oil to one’s skin.

While humans are not so fond of the plant, other organisms use it for many resources and poison ivy relies on other organisms for support. Many animals utilize the plant as a food source. Raccoons and deer commonly eat its leaves and stems and many species of birds eat its berries. Poison ivy vines rely on Virginia Pine and Willow Oak trees as well as other vines for growth and maintenance.

Although often poison ivy is a nuisance, it has its practical purposes and has relationships with other organisms. Without it, many species would lose a food resource and could be affected. The interactions on earth make life possible, and without poison ivy, there would be some detrimental affects.

References:

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