

Toxic Plants

by Tom Barnes



Photos courtesy: Tom Barnes,
UK Forestry Extension

The cardinal flower is an attractive wildflower that is popular with humming birds and butterflies. However, humans that consume large quantities can suffer from nausea, vomiting, diarrhea, weakness, convulsions, and ultimately a coma.

is so toxic that the honey made by bees that use its nectar gives rise to mad honey disease, which was first identified in Greece in the fourth century. While usually not fatal, mad honey disease lasts for about 24 hours and results in dizziness, excessive perspiration, weakness, nausea, and vomiting. It causes the heart to slow and beat irregularly. Think about it as you walk through the woods. Do you ever see the leaves of rhododendron browsed or eaten by much of anything? Eating the leaves of rhododendron can be fatal if you consume in excess of 0.02% of your body weight. While poisoning by rhododendron is rare today in adults, there have been cases in the past in which young children have died from eating rhododendron or azalea leaves. Azalea and rhododendron are closely related plants. In June 2008, nine Korean children died of azalea poisoning.

If you think poisoning from eating plants is rare in today's world, you couldn't be further from the truth. More than 63,000 calls are made annually to poison control centers because people, mostly children, have eaten toxic plants. Two plants, poison hemlock and water hemlock, account for most of the calls. So, just how toxic are these plants to people? About two bites of a water hemlock root will kill you deader than a mackerel, and in pretty short order, or about 60 minutes. About 30% of people who consume water hemlock die. The first symptoms of this disease occur in the gastrointestinal tract, with abdominal pain,



Water hemlock is a plant that grows in wet or moist areas and can be found along stream banks. This plant is considered one of the most violently toxic plants that grows in the United States.

nausea, and vomiting, followed by tremors and seizures.

Poison hemlock, an introduced invasive species that is common throughout the state, is less toxic, and no deaths have been reported in the past decade. The toxin in the plant usually does not kill; death occurs from respiratory failure. This plant contains alkaloid toxins that are similar in structure to nicotine. Symptoms begin with gastritis followed by tremors, ultimately resulting in a coma.

Okay, enough of the scary stuff. Let's discuss a few of the more benign species, such as poison ivy. Millions of people are allergic to this plant, and you can get a rash by touching it, indirectly when gardening tools have come into contact with it and its active agent, urushiol (which can stick to almost anything), or when the plant is burned and the urushiol becomes airborne and lands on the skin. It is also important to remember that all parts of the plant contain the toxin, and it is active all year (even in the winter). One of the most interesting new facts about poison ivy is that increasing carbon dioxide in the atmosphere is making the plant more robust, abundant, and toxic. Scientists at Duke University discovered this phenomenon in a 15-year study. As a side note, another allergen, ragweed, also is responding to global climate change. With increasing carbon dioxide levels, ragweed produces up to 55% more pollen. Given that one ragweed plant can produce up to a billion grains of pollen, a 55% increase is significant for the more than 36 million people who are allergic to this plant.

Did you know that mayapple contains more than 16 active toxic compounds? Most of them are found in the roots. While one or two ripe fruits can be eaten without negative effects, just touching the rhizome can cause dermatitis, and consuming the fruit in even moderate quantities can be fatal. Many herbalists



Rhododendron (left) and azaleas (right) are closely related plants that can easily be found in woodlands or planted near homes as ornamentals. Both are considered very toxic and should not be consumed.



collect this plant. It does have some anti-cancer properties, has been used to treat warts, and has effects on virtually every organ system in the body. But, because it is potentially fatal, consuming this plant for medicinal purposes is usually not recommended.

We will conclude with a group of plants that are flowering this time of year that some people consider the wonder herb and others consider a toxic nightmare. That group of plants is the Lobelias: cardinal flower, great blue lobelia, and Indian tobacco. This group of plants is toxic if consumed in large quantities and all plant parts are poisonous. When eaten, these plants cause nausea, vomiting, diarrhea, weakness, convulsions, and ultimately a coma. The active ingredients are several alkaloids plus at least one volatile oil. The supposed benefits of consuming these woodland herbs are their benefits in treating asthma, bronchitis, and coughs. Other purported benefits include treating depression, use as a laxative, and as a way to stop smoking. Of course Native Americans smoked Indian tobacco for its breathing benefits.

These are just a few of the interesting and potential toxic plants that occur in our woodlands. The next time out you might ask yourself: Is that cherry tree leaf toxic? Yes. Is that sourwood tree leaf toxic? No, even though it is in the same family as rhododendrons. Then you will begin to understand how plants affect people.



Indian tobacco, which can be found in fields and open woodlands, was used by Native Americans to address respiratory issues. All parts of the plant are considered poisonous and large quantities can be toxic.

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