

Skunk Cabbage – A Miracle Medicine or a New Energy Source?

Karen Sykes, U.S. Forest Service, Eastern Region State and Private Forestry (Retired)

Ever walk through your woods and step on something squishy with a nasty, unpleasant smell? And then discover that yes, you just stepped on skunk cabbage. Some children are told by their mothers to stay away from it because if you touch it you'll smell like a skunk for months afterward and your friends in school won't talk to you anymore. Myths never cease.

Skunk cabbage, *Symplocarpus foetidus*, aka pole cat weed, is not really a cabbage but a member of the arum family *Araceae*. It's a perennial plant native to North America that grows from Nova Scotia and Quebec south to North Carolina and Tennessee, and west to Minnesota. It has heart-shaped, curled leaves that can grow to 24 inches. It's usually found along creeks (figure 1) and in meadows, swamps, marshes, and places where there is standing water or wet soils.



Figure 1. Skunk cabbages rim the side of a small creek. (Forest Service photo by Karen Sykes)

It flowers early in the spring and is one of the first plants to emerge from winter's chill. The leaves emerge later. The flowers are a purple-striped or yellowish-green, hood-like structure called a spathe. The spathe of the western species of skunk cabbage, *Lysichitum americanum*, is bright yellow. The spathe never fully opens and surrounds the spadix (figure 2), a cylindrical structure that contains a bunch of tiny flowers packed together. The spadix ranges in color from pale yellow to mottled to dark purple.



Figure 2. Variations in the color of the spathe and the spadix. (Courtesy photos by the University of Wisconsin-Madison)

Forest Matters Stewardship Newsletter Spring 2019

U.S. Forest Service, Eastern Region State and Private Forestry

An unusual to little-known fact is that the roots are contractile, meaning that as the roots grow, they pull the plant deeper into the soil. So in a way the plants are growing downward and not upward. This makes older plants difficult to transplant. Reproduction is by hard, pea-sized seeds that fall into the soil or are transported by floodwaters and animals.

Medicinal Applications

Although its name suggests it could be eaten, it's considered poisonous because it contains oxalate, which causes skin blistering. It will also burn the digestive tract if ingested. Apparently it can be eaten (who'd really want to?), but as it cooks, you have to change the water several times as the oxalate burns off.

Native Americans used the roots of skunk cabbage for medicinal purposes, but the roots had to be thoroughly dried to crystalize the oxalate. A tea could be prepared and used as a mild sedative. Other medicinal uses include easing asthma; relieving all chest ailments, coughs, and whooping cough; and expelling intestinal worms. Smelling the plant will relieve headaches, and poultices can draw out thorns and splinters. It's also used for painful conditions related to joint and muscle pain (rheumatism), headache, and toothache. The western skunk cabbage was used to treat ringworm. In the 1800s it was listed in the U.S. Pharmacopoeia as the drug "dracontium" for the treatment of respiratory diseases, nervous disorders, rheumatism, and dropsy. You can probably visualize a snake oil salesman selling it to unwitting customers.

As with any medicinal product there can be side effects. Large amounts can cause stomach cramps, headache, dizziness, impaired vision, and vomiting. It could make stomach and intestinal disorders worse, and because it contains oxalate, taking it will make kidney stones worse.

There's not enough information regarding the correct dosages. User's health and age usually factor in.

Bears and snapping turtles have been known to eat young skunk cabbage leaves with apparently no discomfort to their digestive systems. The leaves provide food for snails and slugs as well as the caterpillars of the ruby tiger moth (*Phragmatobia fuliginosa*) and cattail borer moth (*Bellura obliqua*).

Heat Source

As you walk through the woods in winter, those circular spots of bare soil that appear in the snow may have a skunk cabbage plant at their center (figure 3). The plant can melt its way through frozen ground because of its ability to generate temperatures of 27 to 63 degrees Fahrenheit above the surrounding air through its cellular respiration. This ability is called *thermogenesis*, a process of cyanide-resistant cellular respiration in the plant's mitochondria, which allows skunk cabbage to be included in a small group of *thermogenic* plants. Other plants in this group include dead horse arum lily (*Helicodiceros muscivorus*), elephant ear (*Amorphophallus paeoniifolius*), and carrion flower (*Amorphophallus titanum*).



Figure 3. Skunk cabbage blooms when there's still snow on the ground. (Courtesy photo by University of Wisconsin-Madison Master Gardener Program)

Forest Matters Stewardship Newsletter Spring 2019

U.S. Forest Service, Eastern Region State and Private Forestry

The heat of thermogenic plants releases pungent odors to attract pollinators. Thermogenic plants are also *protogynous*, which means the female plant parts mature before the male parts of the same plant. Inbreeding is reduced since a plant of this type can only be fertilized by pollen from another plant.

Skunk Cabbage in Your Garden?

Home gardeners probably don't consider growing skunk cabbage in their flower beds. But gardeners who know how it works know that its smell attracts various pollinators, such as wasps, bees, and butterflies. While the heat it generates also attracts pollinators and possibly provides a warm environment, its smell is like perfume to pollinators. If you want to attract pollinators, one solution would be to mix a few skunk cabbage plants in with the rest of your flower garden.

Skunk cabbage also repels many mammals, so it can be useful in vegetable gardens that have problems with squirrels, rabbits, or other four-legged vegetable thieves. If a varmint is eating your peppers, a few skunk cabbages may be enough to keep them away.

Gardeners can purchase plants from specialty nurseries or grow them from freshly collected seeds that need to stay moist and not dry out.

References

Onda, Yoshihiko; and others. 2008. Functional coexpression of the mitochondrial alternative oxidase and uncoupling protein underlies thermoregulation in the thermogenic florets of skunk cabbage. *Plant Physiology*. 146: 636-645.

Seymour, Roger; Schultze-Motel, Paul. 1997. Heat producing flowers. *Endeavor*. 21(3): 125-129.