

# Description, Anatomy, Terminology, and Nutrition

## DESCRIPTION AND ANATOMY

You will enjoy the elder far more if you take a little time to become familiar with its anatomy and the various terminology used to describe different parts of the plant.

First, what is the elder? It is a perennial, medium to large shrub or small tree, with large pinnately compound leaves; that is, leaves form in pairs on opposite sides of each stem. The elder produces flowers that turn into drupes in late summer through early fall.

Samuel Thayer gives an excellent description of elder, stating,

The leaf typically consists of seven leaflets, which are sharply serrated, 2-5 inches (5-13 cm) long, elliptic with sharply pointed tips, and sessile or growth on very short petioles. The leaves and stems of elderberry give off a strong, unpleasant odor when cut or bruised.

The small, white, five petaled flowers, about .25 inches (6 mm) across, are produced in rounded, somewhat flat top clusters called symes, at the ends of the branches. These cymes are typically 4-9 inches (10-23 cm) across, and each can contain hundreds of flowers. The fragrant blossoms open in the late June and July.<sup>1</sup>

It has a growth habit of around 5 to 12 feet in height, though in some locations much larger sizes are possible. Elder tend to grow in



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dense thickets, similar to blackberries and raspberries, since in the wild the plant reproduces by rhizomes and root suckers, as well as by seed.

The plant's fruit, while often called a berry, is technically a drupe. It starts out green and turns purplish to black when fully ripe. Elderberries make up for the small fruit size with tremendous production—each cyme may produce hundreds of berries. The small fruit size doesn't make harvest any harder, though. You can snip off the entire cyme, collecting dozens of berries at a time with ease.

The branches of the elderberry are semi-hollow and filled with pith. They are also quite pliable, bending over as the weight of the fruit clusters increases as harvest approaches. The older branches



▲ Elder leaf.



▲ Lenticels are one key feature of the elder that make it easy to differentiate from a few possible look-alikes when foraging.

are covered in lenticels, specialized tissues that allow the plant to breathe. These lenticels are a key feature to help you more easily identify elder when foraging.

The above description mainly applies to the American (*Sambucus canadensis*) and European (*Sambucus nigra*) elderberry. Generally speaking, when someone thinks or talks about elderberry, this is what they have in mind. Two others—the blue (*Sambucus cerulea*) and red (*Sambucus pubens*, *racemosa*, and *callicarpa*)—also are worth mentioning. The blue elder is similar to the American and European, but every facet of it is larger than its cousins. It will sometimes become a tree, reaching 40 feet high or more. Its range only slightly overlaps that of its smaller relative, mainly growing in British Columbia and through the western United States, especially the northwestern states and northern California. The berries are generally a blue color with a heavy white bloom on them.

The red's range overlaps with the blue, but is much, much wider—as far north as Alaska and across much of the northern half of the United States. It is in many ways unlike its cousins—ripening much earlier and having grape-like fruit clusters. The berries range from red to yellow orange and cannot be used or prepared like its black and blue cousins. It is also generally regarded as the least desirable to grow or forage, as the flavor is quite poor for such a vibrant and colorful fruit. Even the ripe berries are considered by all to be toxic.

## TERMINOLOGY

If after reading all this, it seems a bit unclear or confusing, take a moment to review the definitions provided below. Especially when foraging, but also when tending a plant such as the elder, it is important to understand basic plant terminology to help ensure you don't collect from other commonly mistaken options.

- **Pinnation:** the arrangement of structures along a common axis, such as leaves along a branch or stem



▲ Elder wood isn't hollow, but filled with a soft, easy to remove plant material called pith.



▲ The flowers of the elder are not just edible, but incredibly beautiful.

CHRISTY ARENDT

- **Petiole:** the part of a leaf that connects to the leaf base and the branch or stem of the plant
- **Pith:** a coarse, grainy vascular cell material found inside the stalks and branches of some plants
- **Lenticel:** a specialized tissue on certain plants that creates a pore through which the plant can directly exchange gases from internal tissues with the surrounding environment
- **Cyme:** a flower cluster with a central stem bearing a single terminal flower that develops first, the other flowers in the cluster developing as terminal buds of lateral stems.
- **Pedicle:** a short flower stalk in a bundle of flowers, grows off the main stem (peduncle). Also called an inflorescence.
- **Umbrel:** An inflorescence that has multiple pedicles that branch off from a common point on the peduncle



▲ The fruit of the elder starts green and slowly ripens over the summer.

- **Drupe (stone fruit):** similar to berries, elderberry berries are technically drupes (like apricots and almonds)
- **Root sucker:** a shoot (new plant) that springs forth from buds that form along a plant's root system. These allow propagation of some plants by removing the root sucker with some intact root structure.
- **Rhizome:** Greek for "mass of roots," a modified plant stem that grows horizontally underground, sending out both roots and shoots. Above-ground stems are called stolons.

### BENEFITS AND STUDIES

Many people become interested in the elder because of its medicinal value, especially for dealing with the flu and colds. Such use is not only supported by history; modern studies have shown great promise to various preparations made from elderberries. Research has focused especially on the berries' ability to reduce the severity and symptoms of cold and flu. There are many reasons why elderberry helps our bodies deal with infection. Some studies show that phytochemicals (plant chemicals) found in the elderberry make it



harder for viruses and bacteria to reproduce. Others show that they help marshal and bolster our immune system's performance. Elderberries show promising results in research involving inflammation and diabetes.<sup>2</sup>

### **NUTRITION**

Elderberry is often called a “superfruit,” an appellation well deserved for such a small food. It packs quite a bit into each berry!<sup>3</sup> It is higher in many phytochemicals—especially flavonoids like anthocyanin—

than most any other berry. For instance, in terms of antioxidants, its ORAC (Oxygen Radical Absorbance Capacity) score is twice that of blueberries and 3½ times that of raspberries and strawberries.<sup>4</sup>

- Elderberries— 147
- Blueberries— 62
- Cranberries— 95
- Mulberries— 53
- Raspberries— 40
- Strawberries— 36

Elderberries are also higher in many minerals and other nutrients. These beneficial components are not alone, though. Elder also contains a wide range of possibly dangerous chemicals, such as alkaloids and glucosides. The elderberry plant's long history of medicinal use is tied to both its many beneficial and dangerous potent plant-based chemicals, from root to leaf to berry, and all parts in between.

### Can I Eat Elderberries Raw?

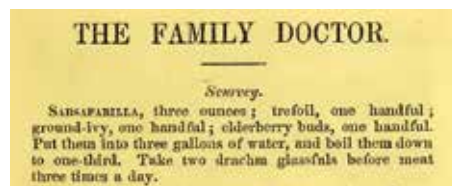
There is a fair bit of debate over consuming raw elderberries. Some state that many if not all American cultivars are safe to consume raw, save the red, but none of the European.

I suggest people err on the side of caution and skip raw elderberries, especially until this debate is fully settled. It isn't like you can check a bush's ancestry easily when you come across it in the wild! While some people report being able to eat small to moderate amounts with no issues, some have reported mild to even severe nausea from consuming the fresh berries. Exactly why is not entirely clear. A recent research project by the University of Missouri found that ripe American elderberry cultivars' berries and seeds contained little to no glycosides, unlike European varieties. These cyanide-forming compounds are one reason the elder is so toxic in all its parts. Even so, many people still report significant stomach upset and

other issues from consuming raw berries or raw juice from American elders. Either way, some people don't find the taste of fresh American elderberries overly appealing. The elderberry shines in the many traditional ways people prepared and used them, which generally involved cooking the berries to temperatures over 180°F (82°C) or fermentation that breaks down and deactivates the problematic chemicals.

If you do decide to try raw fresh berries, make sure that they are fully ripe, and limit yourself to a small quantity initially to see how you respond. If few of the berries have been picked by birds, that is probably a sign that the berries are not yet ready or otherwise are higher in defensive chemicals, and thus, move on to another bush or continue to wait for the berries to fully ripen.

For other parts of the plants, if used in food or as herbal preparations, make sure you consult appropriate guides, with all instructions, dosing recommendations, and warnings!



▲ THE FAMILY DOCTOR, 18XX, ARCHIVE.ORG